



Department  
of Energy &  
Climate Change



A National Statistics Publication



# ENERGY TRENDS

DECEMBER 2013

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Energy Trends is prepared by the Energy Statistics Team in DECC.

For enquiries please contact:	Name	Telephone 0300 068	E-mail
General enquiries on energy statistics		5056	<a href="mailto:energy.stats@decc.gsi.gov.uk">energy.stats@decc.gsi.gov.uk</a>
Total energy	Anwar Annut	5060	<a href="mailto:Anwar.Annut@decc.gsi.gov.uk">Anwar.Annut@decc.gsi.gov.uk</a>
Coal and other solid fuels	Chris Michaels	5050	<a href="mailto:coalstatistics@decc.gsi.gov.uk">coalstatistics@decc.gsi.gov.uk</a>
Petroleum production	Michael Williams	6865	<a href="mailto:Michael.Williams2@decc.gsi.gov.uk">Michael.Williams2@decc.gsi.gov.uk</a>
Natural gas production and consumption	Jack Forster	5052	<a href="mailto:Jack.Forster@decc.gsi.gov.uk">Jack.Forster@decc.gsi.gov.uk</a>
Petroleum consumption and stocks	William Spry	6988	<a href="mailto:William.Spry@decc.gsi.gov.uk">William.Spry@decc.gsi.gov.uk</a>
Gas and petroleum investment Indicative tariffs	Mike Earp	5784	<a href="mailto:Mike.Earp@decc.gsi.gov.uk">Mike.Earp@decc.gsi.gov.uk</a>
Electricity	Mita Kerai	5044	<a href="mailto:electricitystatistics@decc.gsi.gov.uk">electricitystatistics@decc.gsi.gov.uk</a>
Renewables	James Hemingway	5042	<a href="mailto:James.Hemingway@decc.gsi.gov.uk">James.Hemingway@decc.gsi.gov.uk</a>
Sub-national energy consumption	Sabena Khan	6909	<a href="mailto:Sabena.Khan@decc.gsi.gov.uk">Sabena.Khan@decc.gsi.gov.uk</a>

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

Further information on Oil and Gas is available at: [www.gov.uk/browse/business/generating-energy/oil-and-gas-exploration-and-production](http://www.gov.uk/browse/business/generating-energy/oil-and-gas-exploration-and-production)

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- are managed impartially and objectively in the public interest

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This document is also available from our website at: [www.gov.uk/government/collections/energy-trends](http://www.gov.uk/government/collections/energy-trends)

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

# Contents

<b>Introduction</b>	<b>3</b>
<b>The main points for the third quarter of 2013</b>	<b>4</b>
<b>Section 1 - Total Energy</b>	<b>5</b>
Tables	
1.1: Indigenous production of primary fuels	9
1.2: Inland energy consumption: primary fuel input basis	10
1.3: Supply and use of fuels	11
<b>Section 2 - Solid Fuels and Derived Gases</b>	<b>13</b>
Tables	
2.1: Supply and consumption of coal	16
2.2: Supply and consumption of coke oven coke, coke breeze and other manufactured solid fuels	17
2.3: Supply and consumption of coke oven gas, blast furnace gas, benzole and tars	18
<b>Section 3 - Oil and Oil Products</b>	<b>19</b>
Tables	
3.1: Supply and use of crude oil, natural gas liquids and feedstocks	24
3.2: Supply and use of petroleum products	25
3.3: Supply and use of petroleum products - annual data	26
3.4: Supply and use of petroleum products - latest quarter	27
3.5: Demand for key petroleum products	28
3.6: Stocks of petroleum at end of period	29
3.7: Drilling activity on the UK Continental Shelf	30
<b>Section 4 - Gas</b>	<b>31</b>
Table	
4.1: Natural gas supply and consumption	36
<b>Section 5 - Electricity</b>	<b>37</b>
Tables	
5.1: Fuel used in electricity generation and electricity supplied	41
5.2: Supply and consumption of electricity	42
<b>Section 6 - Renewables</b>	<b>43</b>
Tables	
6.1: Renewable electricity capacity and generation	47
6.2: Liquid biofuels for transport consumption	48

## Contents continued

### Special feature articles

Electricity generation and supply figures for Scotland, Wales, Northern Ireland and England, 2009 to 2012	49
Proposed changes to DECC domestic energy bills estimates	58
Small scale solar PV cost data	61
Estimating generation from Feed in Tariff installations	64
Areas and types of properties off the gas grid	68
Modelling the likelihood of being fuel poor	77
International comparisons of energy efficiency indicators	85
Recent and forthcoming publications of interest to users of energy statistics	93
List of special feature articles published in Energy Trends between December 2012 and September 2013	95

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# 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 December editions cover the third quarter of the current year.

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 2013 edition of the Digest was published on 25 July 2013. Printed and bound copies of the 2013 Digest can be obtained from The Stationery Office and an electronic version is available on the DECC section of the gov.uk website at: [www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes](http://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes)

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 section of the gov.uk 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 section of the gov.uk website. Both sets of tables can be accessed at:

[www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics](http://www.gov.uk/government/organisations/department-of-energy-climate-change/about/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 section of the gov.uk website at:

[www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics](http://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics)

Information on Prices can be found in the Quarterly Energy Prices publication and on the DECC section of the gov.uk website at: [www.gov.uk/government/collections/quarterly-energy-prices](http://www.gov.uk/government/collections/quarterly-energy-prices)

If you have any comments on Energy Trends or Quarterly Energy Prices publications please send them to:

Kevin Harris  
DECC  
Energy Statistics Team  
6th Floor – Area B  
3 Whitehall Place  
London SW1A 2AW  
E-mail: [Kevin.Harris@decc.gsi.gov.uk](mailto:Kevin.Harris@decc.gsi.gov.uk)  
Tel: 0300 068 5041

### **The main points for the third quarter of 2013:**

- Total energy production was 6 per cent lower than in the third quarter of 2012. This decline in output is due to a significant fall in both deep and surface-mining and in petroleum production as a result of maintenance work and slowdowns on a number of fields.
- Oil production fell by 7 per cent when compared with the third quarter of 2012. Refinery production in the third quarter of 2013 was down by 3 per cent on the same quarter of last year, with notable decreases in the production of aviation turbine fuel, and gas oil.
- Natural gas production was 4 per cent lower than the third quarter of 2012, a lower fall than seen recently due to the Elgin field returning to production. Gas imports decreased by 17½ per cent, with shipped imports of LNG falling by 45 per cent. Gas consumption was down by 8 per cent, driven by warmer temperatures and lower generation use.
- Coal production in the third quarter of 2013 was 32 per cent lower than the third quarter of 2012. Coal imports were 12 per cent higher, whilst generators' demand for coal was down by 7½ per cent, reflecting lower demand for electricity and higher nuclear output.
- Total primary energy consumption for energy uses fell by 2 per cent. When adjusted to take account of weather differences between the third quarter of 2012 and the third quarter of 2013, primary energy consumption fell by 1 per cent.
- Final energy consumption was broadly unchanged from the third quarter of 2012. Domestic consumption fell by 7½ per cent reflecting warmer weather, other final users consumption fell by 1½ per cent, whilst industrial consumption rose by 2 per cent, and transport consumption rose by 1 per cent.
- Electricity generated in the third quarter of 2013 fell by 4 per cent, from 81.5 TWh a year earlier to 78.2 TWh, the lowest third quarter level of generation in the last fifteen years.
- Of electricity generated in the third quarter of 2013, gas accounted for 27.2 per cent due to high gas prices, whilst coal accounted for 33.3 per cent. Nuclear generation accounted for 23.9 per cent of total electricity generated in the third quarter of 2013, an increase from the 22.1 per cent share in the third quarter of 2012, due to stations returning to operation following a number of planned and unplanned outages.
- Renewables' share of electricity generation increased to 13.2 per cent from the 11.7 per cent share in the third quarter of 2012. Hydro generation decreased by 26½ per cent on the third quarter of 2012 as a result of low rainfall. Over the same period, offshore wind generation increased by 7 per cent, although onshore wind generation fell by 8 per cent due to low wind speeds. Generation from bio-energy was up by 26 per cent, mainly due to the conversion of Ironbridge and Drax (unit 1) to biomass. Overall renewable generation was up 8 per cent compared to the same quarter in 2012.
- In the third quarter of 2013, 165 MW of installed capacity joined the Feed in Tariff scheme, increasing the total confirmed capacity to 2.1 GW, approximately 11 per cent of all renewable installed capacity. Of this increase, sub-4 kW retrofitted solar PVs contributed 77 MW.

## Section 1 - Total Energy

### Key results show:

Total energy production was 5.9 per cent lower than in the third quarter of 2012. (Charts 1.1 & 1.2)

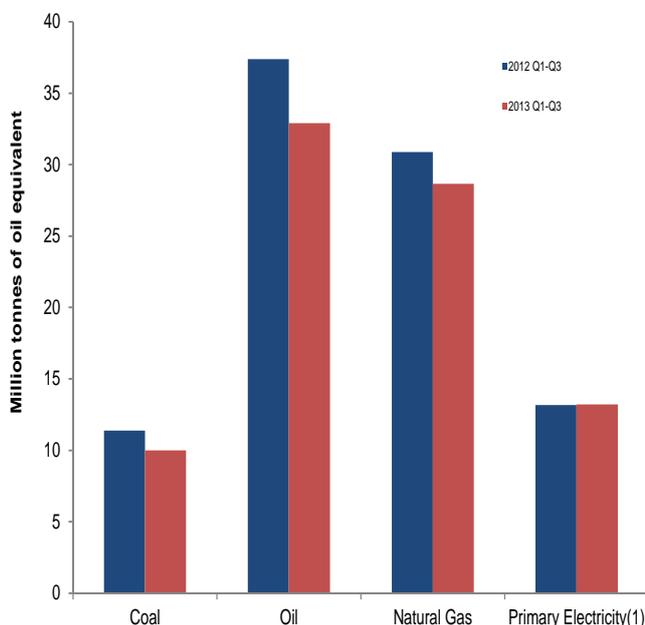
Total primary energy consumption for energy uses fell by 2.1 per cent. When adjusted to take account of weather differences between the third quarter of 2012 and the third quarter of 2013, primary energy consumption fell by 1.1 per cent. (Chart 1.3)

Final energy consumption rose by 0.1 per cent compared to the third quarter of 2012. Domestic consumption fell by 7.6 per cent, reflecting warmer weather; other final users' consumption fell by 1.6 per cent, whilst industrial consumption rose by 2.0 per cent, and transport consumption rose by 0.9 per cent. (Chart 1.4)

Net import dependency was 47.9 per cent, up 4.9 percentage points from the third quarter of 2012. (Chart 1.6)

Fossil fuel dependency was 83.4 per cent in the third quarter of 2013, a record low level. (Chart 1.7)

**Chart 1.1 Production of indigenous primary fuels**



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

Total production in the third quarter of 2013 at 25.6 million tonnes of oil equivalent was 5.9 per cent lower than in the third quarter of 2012.

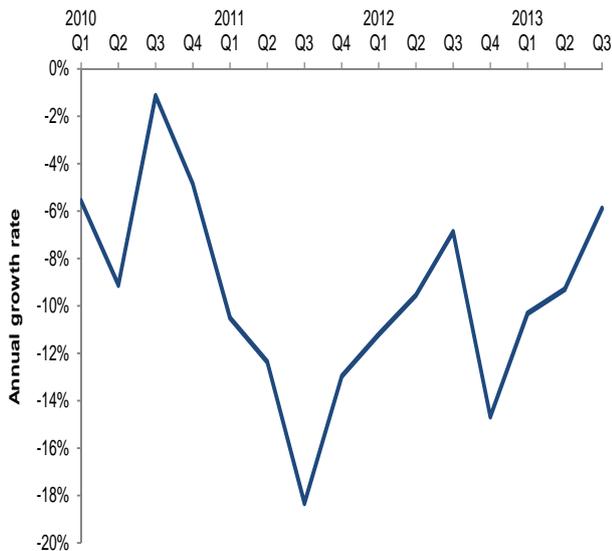
Production of natural and other gases fell by 3.2 per cent, with the Elgin-Franklin field now back in operation, whilst production of oil fell by 7.0 per cent compared to the third quarter of 2012, as a result of maintenance work and other production issues.

Primary electricity output in the third quarter of 2013 was 2.9 per cent higher than in the third quarter of 2012, within which nuclear electricity output was 3.6 per cent higher due to several stations resuming operations. However, output from wind and natural flow hydro (specifically hydro seeing a large fall) was 3.1 per cent lower than the same period in 2012 (see section 5).

In the third quarter of 2012 production of coal and other solid fuels was 19.7 per cent lower than the corresponding period of 2012. This was due to sharp decreases in both deep-mined and surface mining production (see section 2).

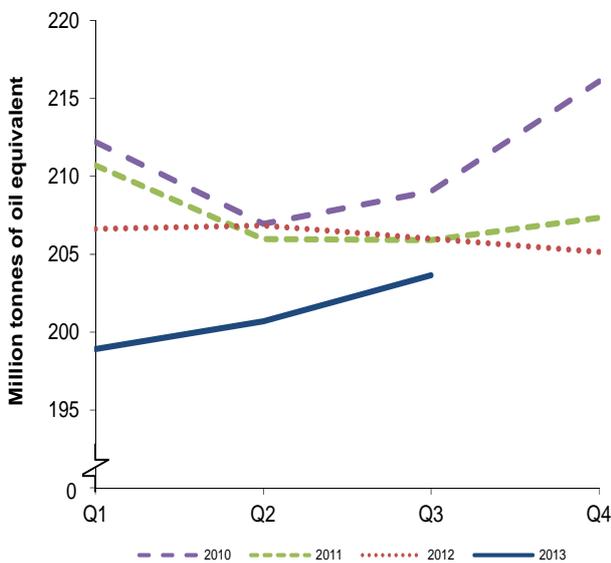
## Total Energy

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



In the third quarter of 2013, the annual growth rate of UK production was -5.9 per cent. This was the result of the falls in oil production due to maintenance activity and slowdowns in 2013, and the fall in coal production due to closures of a number of mines.

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



Total inland consumption on a primary fuel input basis (temperature corrected, seasonally adjusted annualised rate), was 203.7 million tonnes of oil equivalent in the third quarter of 2013, 1.1 per cent lower than in the third quarter of 2012. The average temperature in the third quarter of 2013 was 1.3 degree Celsius warmer than the same period a year earlier.

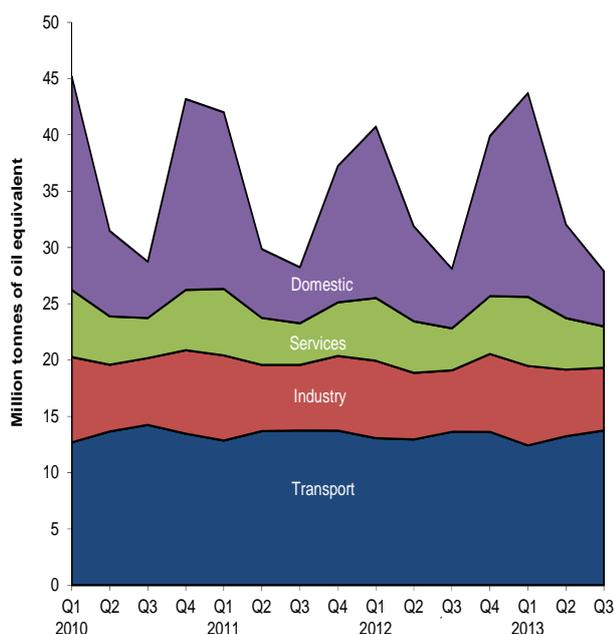
Between the third quarter of 2012 and the third quarter of 2013 (on a seasonally adjusted and temperature corrected basis) natural gas consumption fell by 5.2 per cent as higher gas prices led to less gas being used in electricity generation, and warmer weather led to less domestic use.

Also on a seasonally adjusted and temperature corrected basis, coal and other solid fuel consumption increased by 1.7 per cent, with nuclear up by 4.0 per cent.

On the same basis, oil consumption fell by 0.3 per cent between the third quarter of 2012 and the third quarter of 2013.

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

**Chart 1.4 Final energy consumption by user**



Total final energy consumption rose by 0.1 per cent between the third quarter of 2012 and the third quarter of 2013.

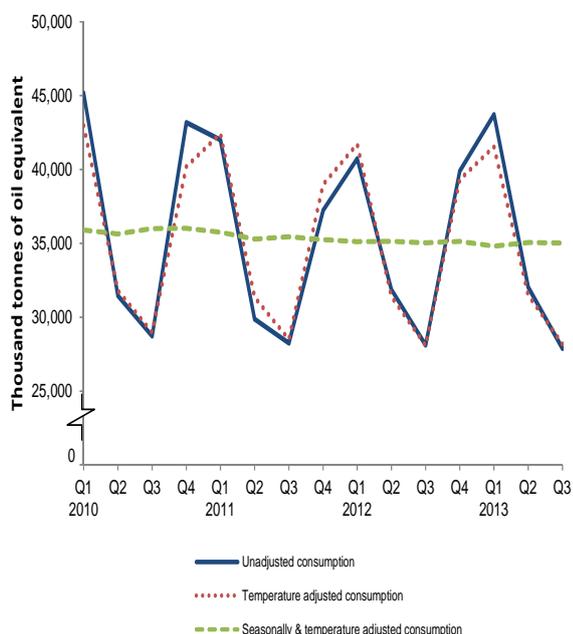
Domestic sector energy consumption fell by 7.6 per cent, reflecting the warmer weather compared to a year earlier.

Service sector energy consumption fell by 1.6 per cent.

Industrial energy consumption rose by 2.0 per cent.

Transport sector energy consumption rose by 0.9 per cent, with strong growth from liquid biofuels.

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



Total unadjusted final energy consumption (excluding non-energy use) fell by 0.8 per cent between the third quarter of 2012 and the third quarter of 2013.

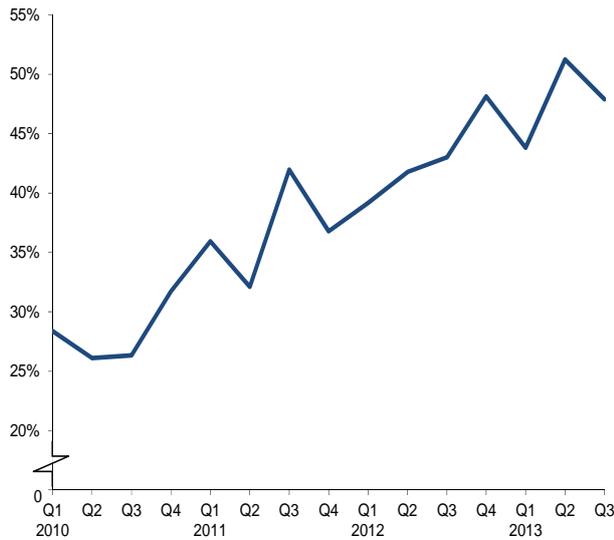
On a seasonally and temperature adjusted basis final energy consumption (excluding non-energy use) was broadly unchanged between the third quarter of 2012 and the third quarter of 2013.

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

[www.gov.uk/government/publications/total-energy-section-1-energy-trends](http://www.gov.uk/government/publications/total-energy-section-1-energy-trends)

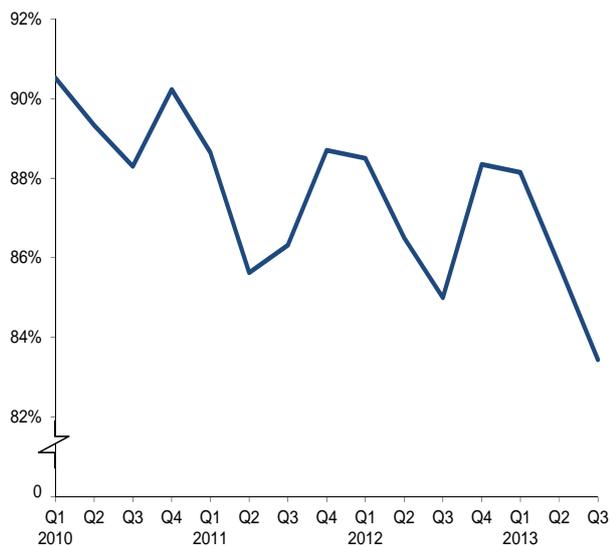
## Total Energy

### Chart 1.6 Net import dependency



In the third quarter of 2013 net import dependency was 47.9 per cent, up 4.9 percentage points from the third quarter of 2012.

### Chart 1.7 Fossil fuel dependency



In the third quarter of 2013 dependency on fossil fuels was 83.4 per cent, down 1.6 percentage points from the third quarter of 2012, and at a record low level. Low carbon fuels accounted for a record share of 37 per cent of generation in 2013 quarter 3 (see section 5).

## Relevant tables

- 1.1: Indigenous production of primary fuels..... Page 9
- 1.2: Inland energy consumption: primary fuel input basis.....Page 10
- 1.3: Supply and use of fuels.....Page 11-12

Contacts for further information:

**Iain MacLeay**  
Total energy statistics  
Tel: 0300 068 5048  
E-mail: [Iain.MacLeay@decc.gsi.gov.uk](mailto:Iain.MacLeay@decc.gsi.gov.uk)

**Anwar Annut**  
Total energy statistics  
Tel: 0300 068 5060  
E-mail: [Anwar.Annut@decc.gsi.gov.uk](mailto:Anwar.Annut@decc.gsi.gov.uk)

# 1 TOTAL ENERGY

**TABLE 1.1. Indigenous production of primary fuels**

*Million tonnes of oil equivalent*

		Primary electricity					Wind and natural flow
		Total	Coal <sup>1</sup>	Petroleum <sup>2</sup>	Natural gas <sup>3</sup>	Nuclear	hydro <sup>4</sup>
2010		157.9	14.7	69.0	59.1	13.9	1.19
2011		136.8	15.2	56.9	47.3	15.6	1.84
2012		122.1	15.0	48.8	40.9	15.2	2.24
<i>Per cent change</i>		<i>-10.7</i>	<i>-1.1</i>	<i>-14.3</i>	<i>-13.4</i>	<i>-2.7</i>	<i>+21.5</i>
2012	Quarter 3	27.2	3.6	10.7	8.5	3.9	0.51
	Quarter 4	29.3	3.6	11.4	10.1	3.6	0.69
2013	Quarter 1	30.5	3.8	11.6	10.4	3.9	0.73
	Quarter 2	28.7r	3.3	11.4	10.0	3.3	0.65
	Quarter 3 p	25.6	2.9	9.9	8.2r	4.0	0.49
<i>Per cent change<sup>5</sup></i>		<i>-5.9</i>	<i>-19.7</i>	<i>-7.0</i>	<i>-3.2</i>	<i>+3.6</i>	<i>-3.1</i>

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 third quarter of 2013 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			
2010	216.8	37.2	69.0	95.3	13.9	1.19	0.23	211.1	35.7	69.0	91.0	13.9	1.19	0.23		
2011	202.1	37.7	67.1	79.3	15.6	1.84	0.53	207.5	39.5	67.1	82.9	15.6	1.84	0.53		
2012	206.3	46.9	65.9	75.1	15.2	2.24	1.04	206.1	46.7	65.9	75.1	15.2	2.24	1.04		
<i>Per cent change</i>	<i>+2.1</i>	<i>+24.4</i>	<i>-1.8</i>	<i>-5.3</i>	<i>-2.7</i>	<i>+21.5</i>	<i>+93.6</i>	<i>-0.6</i>	<i>+18.3</i>	<i>-1.8</i>	<i>-9.5</i>	<i>-2.7</i>	<i>+21.5</i>	<i>+93.6</i>		
2012	Quarter 3	42.9	9.9	16.5	11.8	3.9	0.51	0.35	206.0	47.8	66.0	72.1	16.4	2.39	1.40	
	Quarter 4	56.9	13.2	16.7	22.4	3.6	0.69	0.24	205.1	45.2	66.9	74.7	15.2	2.21	0.96	
2013	Quarter 1	61.4	13.4r	15.6r	27.5	3.9	0.73	0.24	198.9r	42.4r	62.4r	75.9	14.6	2.62	0.97	
	Quarter 2	46.6r	10.1r	16.2	16.0	3.3	0.65	0.31	200.7r	45.6r	64.8r	73.0	12.9	3.23	1.23	
	Quarter 3 p	42.1r	9.8r	16.4r	10.9	4.0	0.49	0.40	203.7r	48.6r	65.7r	68.3r	17.0	2.34r	1.60	
<i>Per cent change<sup>8</sup></i>		<i>-2.1</i>	<i>-0.8</i>	<i>-0.3</i>	<i>-7.8</i>	<i>+3.6</i>	<i>-3.1</i>	<i>+13.6</i>	<i>-1.1</i>	<i>+1.7</i>	<i>-0.3</i>	<i>-5.2</i>	<i>+4.0</i>	<i>-1.9</i>	<i>+13.6</i>	

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 June 2013

<https://www.gov.uk/government/collections/energy-trends>

8. Percentage change in the third quarter of 2013 compared with a year earlier.

# 1 TOTAL ENERGY

Table 1.3a Supply and use of fuels

Thousand tonnes of oil equivalent

	2011	2012	per cent change	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd quarter p	per cent change <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	136,827	122,142	-10.7	29,143	34,425	33,972	31,581	27,146	29,443	30,372r	28,631r	25,521	-6.0
Imports	162,525	173,797	+6.9	39,165	43,326	45,183	42,533	39,771	46,310	47,663r	45,959r	39,607	-0.4
Exports	-84,126	-80,286	-4.6	-20,003	-22,413	-21,114	-21,375	-20,196	-17,601	-19,440r	-20,203r	-17,969	-11.0
Marine bunkers	-3,804	-3,317	-12.8	-1,065	-859	-817	-807	-864	-829	-798r	-816r	-797	-7.8
Stock change <sup>2</sup>	-919	+1,603		-2,638	+1,523	+3,410	-2,085	-1,208	+1,486	+5,826r	-4,125r	-1,973	
<b>Primary supply</b>	<b>210,502</b>	<b>213,939</b>	<b>+1.6</b>	<b>44,603</b>	<b>56,001</b>	<b>60,635</b>	<b>49,847</b>	<b>44,649</b>	<b>58,809</b>	<b>63,622r</b>	<b>49,446r</b>	<b>44,389</b>	<b>-0.6</b>
Statistical difference <sup>3</sup>	-808	-372		-350	0	-163.2	-71	-199	61	1r	-16r	-78	
<b>Primary demand</b>	<b>211,310</b>	<b>214,312</b>	<b>+1.4</b>	<b>44,953</b>	<b>56,002</b>	<b>60,798</b>	<b>49,918</b>	<b>44,848</b>	<b>58,748</b>	<b>63,621r</b>	<b>49,462r</b>	<b>44,467</b>	<b>-0.8</b>
Transfers <sup>4</sup>	-22	-46		-8	-8	-13	-15	-9	-9	1r	6r	15	
<b>TRANSFORMATION</b>													
Electricity generation	-48,139	-49,372	+2.6	-10,641	-12,583	-13,352	-11,672	-11,169	-13,179	-13,622r	-11,111r	-11,038	-1.2
Heat generation	-44,665	-46,005	+3.0	-9,860	-11,770	-12,619	-10,775	-10,332	-12,279	-12,641r	-10,134r	-10,041	-2.8
Petroleum refineries	-1,155	-1,130	-2.2	-229	-311	-334	-257	-222	-316	-334	-258	-222	-
Coke manufacture	-237	-26	-89.1	-58	-1	36	-25	-12	-25	-24r	-17	-29	(+)
Blast furnaces	-333	-354	+6.2	-73	-83	-77	-91	-107	-79	-82r	-59r	-121	+13.5
Patent fuel manufacture	-1,739	-1,830	+5.2	-429	-404	-337	-519	-489	-485	-531r	-632r	-616	+26.1
Energy industry use	-10	-28	(+)	7	-14	-20	-5	-8	5	-11r	-11r	-9	+8.2
Losses	13,545	13,065	-3.5	3,220	3,309	3,542	3,387	3,121	3,016	3,183r	3,171r	2,908	-6.8
<b>FINAL CONSUMPTION</b>	<b>3,822</b>	<b>3,631</b>	<b>-5.0</b>	<b>848</b>	<b>944</b>	<b>1,055</b>	<b>896</b>	<b>746</b>	<b>934</b>	<b>1,073r</b>	<b>863r</b>	<b>703</b>	<b>-5.8</b>
Iron & steel	145,781	148,198	+1.7	30,242	39,156	42,830	33,952	29,811	41,605	45,736r	34,326r	29,841	+0.1
Other industries	1,256	1,196	-4.8	297	303	278	324	291	302	389r	328r	342	+17.4
Transport	24,647	23,968	-2.8	5,526	6,333	6,592	5,589	5,170	6,617	6,673r	5,587r	5,229	+1.1
Domestic	54,006	53,248	-1.4	13,746	13,728	13,063	12,945	13,623	13,617	12,415r	13,235r	13,745	+0.9
Other Final Users	38,893	43,153	+11.0	4,976	12,108	15,218	8,426	5,290	14,219	18,098r	8,319r	4,886	-7.6
Non energy use	18,531	19,027	+2.7	3,696	4,758	5,579	4,581	3,729	5,137	6,136r	4,575r	3,669	-1.6
Net import dependency	8,447	7,605	-10.0	2,002	1,926	2,099	2,087	1,707	1,713	2,025r	2,282r	1,970	+15.4
<b>DEPENDENCY<sup>5</sup></b>													
Net import dependency	36.6%	43.0%		42.0%	36.8%	39.2%	41.8%	43.0%	48.1%	43.8% r	51.2% r	47.9%	
Fossil fuel dependency	87.5%	87.3%		86.3%	88.7%	88.5%	86.5%	85.0%	88.3%	88.1% r	85.8% r	83.4%	
Low carbon share	12.0%	11.9%		12.9%	10.8%	10.9%	12.6%	13.8%	10.9%	11.1%	13.1%	15.1%	

1. Percentage change in the third quarter of 2013 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:

<http://webarchive.nationalarchives.gov.uk/20130109092117/http://www.decc.gov.uk/en/content/cms/statistics/publications/trends/trends.aspx>

# 1 TOTAL ENERGY

## Table 1.3b Supply and use of fuels

*Thousand tonnes of oil equivalent*

	2012 Quarter 3									2013 Quarter 3 p								
	Coal	Manufactured fuels <sup>4</sup>	Primary oil	Petroleum Products	Natural gas <sup>5</sup>	Bioenergy & waste <sup>6</sup>	Primary electricity	Electricity	Heat sold	Coal	Manufactured fuels <sup>4</sup>	Primary oil	Petroleum Products	Natural gas <sup>5</sup>	Bioenergy & waste <sup>6</sup>	Primary electricity	Electricity	Heat sold
<b>SUPPLY</b>																		
Indigenous production	2,615	-	10,656	-	8,081	1,393	4,401	-	-	1,771	-	9,919	-	7,776	1,530	4,525	-	-
Imports	7,214	16	16,519	7,227	8,064	360	-	371	-	8,131	167	16,296	7,299	6,643	607	-	463	-
Exports	-77	-31	-8,586	-7,506	-3,913	-64	-	-20	-	-71	-18	-7,965	-7,225	-2,589	-37	-	-65	-
Marine bunkers	-	-	-	-864	-	-	-	-	-	-	-	-	-797	-	-	-	-	-
Stock change <sup>1</sup>	-1,147	+37	+736	-110	-725	-	-	-	-	-1,352	-70	+656	+74	-1,280	-	-	-	-
<b>Primary supply</b>	8,605	22	19,326	-1,253	11,508	1,689	4,401	351	-	8,479	80	18,906	-649	10,550	2,100	4,525	399	-
Statistical difference <sup>2</sup>	-55	-6	-132	-11	-29	+2	-	+33	-	+15	-1	-12	-15	-37	-	-	-28	-
<b>Primary demand</b>	8,660	29	19,458	-1,242	11,537	1,686	4,401	319	-	8,464	81	18,918	-634	10,587	2,100	4,525	427	-
Transfers <sup>3</sup>	-	1	-362	+353	-1	-	-507	+507	-	-	+1	-586	+601	-1	-	-488	+488	-
<b>TRANSFORMATION</b>	-8,289	371	-19,096	18,908	-4,581	-1,300	-3,894	6,438	275	-7,953	439	-18,332	18,121	-4,122	-1,606	-4,036	6,175	275
Electricity generation	-7,011	-211	-	-159	-4,210	-1,284	-3,894	6,438	-	-6,472	-202	-	-164	-3,751	-1,590	-4,036	6,175	-
Heat generation	-79	-13	-	-18	-371	-16	-	-	275	-79	-13	-	-18	-371	-16	-	-	275
Petroleum refineries	-	-	-19,096	19,084	-	-	-	-	-	-	-	-18,332	18,303	-	-	-	-	-
Coke manufacture	-946	839	-	-	-	-	-	-	-	-1,040	919	-	-	-	-	-	-	-
Blast furnaces	-194	-295	-	-	-	-	-	-	-	-299	-318	-	-	-	-	-	-	-
Patent fuel manufacture	-59	51	-	-	-	-	-	-	-	-62	53	-	-	-	-	-	-	-
Energy industry use	1	181	-	1,269	1,084	-	-	544	42	-	202	-	1,207	988	-	-	468	42
Losses	-	18	-	-	215	-	-	513	-	-	64	-	-	187	-	-	453	-
<b>FINAL CONSUMPTION</b>	370	201	-	16,749	5,655	387	-	6,206	241	510	255	-	16,881	5,289	494	-	6,170	241
Iron & steel	9	112	-	1	95	-	-	74	-	9	154	-	1	105	-	-	73	-
Other industries	243	44	-	1,030	1,583	86	-	1,987	199	384	52	-	937	1,537	84	-	2,037	199
Transport	3	-	-	13,332	-	200	-	88	-	3	-	-	13,347	-	308	-	88	-
Domestic	111	46	-	472	2,605	60	-	1,992	5	108	49	-	441	2,313	58	-	1,911	5
Other final users	4	-	-	336	1,245	41	-	2,065	38	7	-	-	313	1,206	44	-	2,061	38
Non energy use	-	-	-	1,579	128	-	-	-	-	-	-	-	1,842	128	-	-	-	-

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:

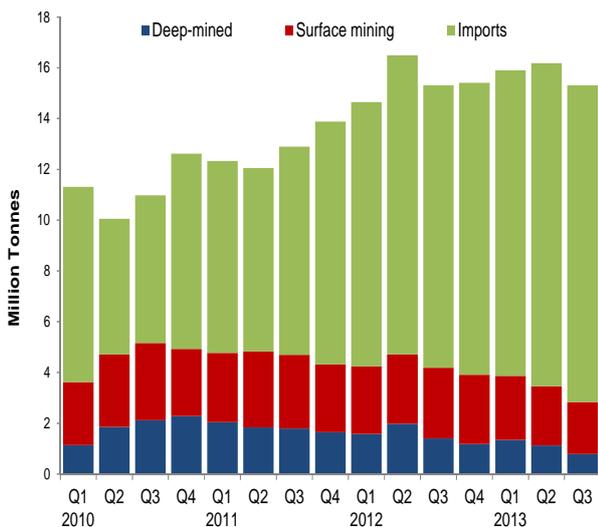
Overall coal production in quarter 3 2013 was down 32 per cent (-1.3 million tonnes) compared to quarter 3 2012, with deep-mined output down 44 per cent (-0.6 million tonnes) and surface mining output down by 24 per cent (-0.6 million tonnes). **(Chart 2.1)**

Coal imports were up 12 per cent (+1.4 million tonnes) on levels shown in quarter 3 2012. **(Charts 2.1 and 2.2)**

The demand for coal by electricity generators in the third quarter of 2013 was 7.7 per cent (-0.9 million tonnes) lower than that in the third quarter of 2012, reflecting lower demand for electricity and greater use of nuclear. **(Chart 2.3)**

Total stock levels were 15.2 million tonnes, down 5.3 per cent (-0.9 million tonnes) compared to quarter 3 2012, but were up by 2.1 million tonnes on quarter 2 2013. **(Chart 2.4)**

**Chart 2.1 Coal supply**



Provisional figures for the third quarter of 2013 show that coal production (including an estimate for slurry) fell to a new record low of 2.8 million tonnes. This was 32 per cent lower than the third quarter of 2012. The decrease was due to a number of reasons, but mainly the closure of several collieries/companies since December 2012, including Aardvark, Maltby, Daw Mill and Scottish Coal Company.

Imports of coal in the third quarter of 2013 were 12 per cent higher than in the third quarter of 2012 at 12.5 million tonnes.

**Table 2A Coal imports by origin**

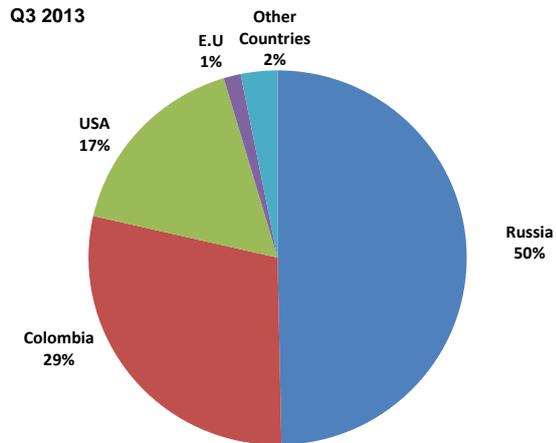
	Thousand Tonnes			
	2011	2012	2012 Q3	2013 Q3p
<b>European Union</b>	1,155	693	164	181
Russia	12,332	18,053	4,312	5,674
Colombia	8,010	11,749	2,872	3,157
USA	6,334	10,790	3,148	2,609
Australia	3,380	2,360	486	420
Other Countries	1,316	1,170	134	426
<b>Total imports</b>	<b>32,527</b>	<b>44,815</b>	<b>11,117</b>	<b>12,467</b>

Total coal imports increased by 12 per cent to 12.5 million tonnes in the third quarter of 2013 to meet demand as production fell, with 46 per cent of total coal imports coming from Russia.

Steam coal imports rose 8.9 per cent to 10.7 million tonnes and accounted for 85 per cent of total coal imports.

Coking coal imports rose 37 per cent to 1.8 million tonnes and accounted for 14 per cent of total coal imports.

**Chart 2.2 Steam coal imports by origin**

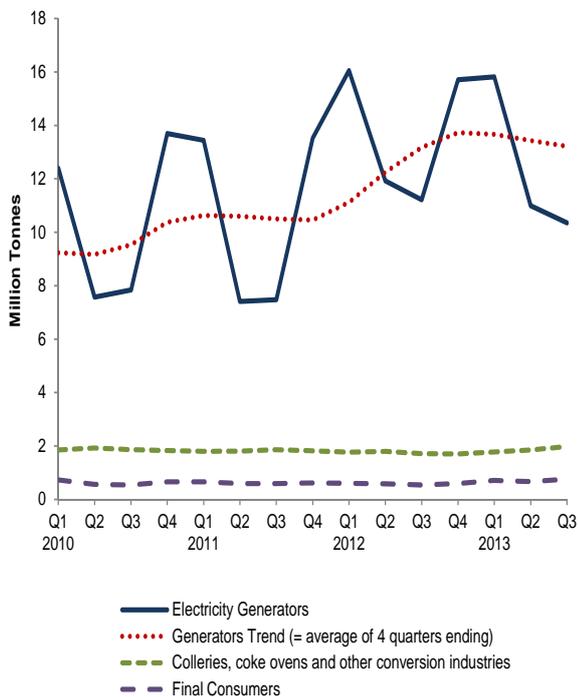


All but 5 per cent of UK steam coal imports came from just three countries: Russia (50 per cent), Colombia (29 per cent) and the USA (17 per cent).

Russian and Colombian steam coal imports increased by 28.3 per cent (+1.2 million tonnes) and 7.2 per cent (+0.2 million tonnes), respectively, from the third quarter of 2012.

Steam coal imports originating from the USA fell by 30 per cent (-0.8 million tonnes) compared to the third quarter of 2012.

**Chart 2.3 Coal consumption**

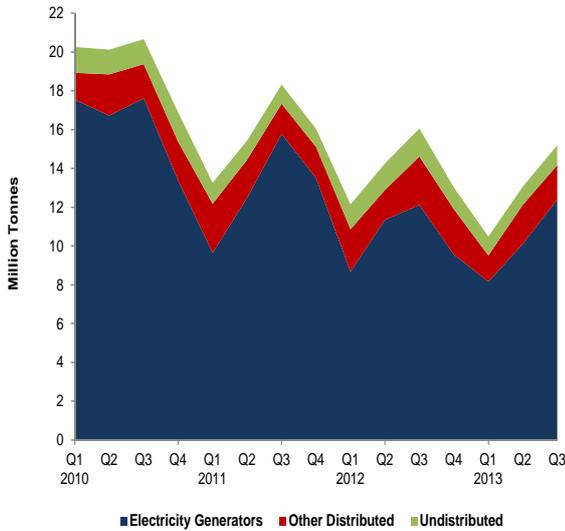


Total demand for coal in the third quarter of 2013, at 13.1 million tonnes, was 2.8 per cent lower than in the third quarter of 2012, with consumption by electricity generators down by 7.7 per cent to 10.4 million tonnes.

Electricity generators accounted for 79 per cent of total coal use in the third quarter of 2013; compared with 83 per cent a year earlier.

Sales to industrial users increased by 56 per cent (0.6 million tonnes) in quarter 3 2013 while sales to other final consumers (as measured by disposals to final consumers) increased by 2.2 per cent to 0.2 million tonnes during the third quarter of 2013.

**Chart 2.4 Coal stocks**



Coal stocks showed a seasonal rise of 2.1 million tonnes during the third quarter of 2013 and stood at 15.2 million tonnes, 0.9 million tonnes lower than at the end of September 2012.

The level of coal stocks at power stations at the end of the third quarter of 2013 was 12.4 million tonnes, 0.3 million tonnes higher than at the end of September 2012.

Stocks held by coke ovens were 1.0 million tonnes at the end of quarter 3 2013, this was 13 thousand tonnes higher than stock levels at the end of the third quarter of 2012.

Stocks held by producers (undistributed stocks) decreased during the third quarter of 2013 to stand at 1.0 million tonnes, 0.4 million tonnes lower than at the end of September 2012.

**Relevant tables**

2.1: Supply and consumption of coal.....Page 16  
 2.2: Supply and consumption of coke oven coke, coke breeze  
 and other manufactured solid fuels.....Page 17  
 2.3: Supply and consumption of coke oven gas, blast furnace gas, benzole and tars.....Page 18

Contact for further information:

**Chris Michaels**  
 Coal statistics  
 Tel: 0300 068 5050  
 E-mail: [coalstatistics@decc.gsi.gov.uk](mailto:coalstatistics@decc.gsi.gov.uk)

## 2 SOLID FUEL AND DERIVED GASES

### Table 2.1 Supply and consumption of coal

<i>Thousand tonnes</i>													
	2011	2012	<i>per cent change</i>	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd quarter p	<i>per cent change<sup>1</sup></i>
<b>SUPPLY</b>													
Indigenous production	18,627	17,047	-8.5	4,699	4,321	4,233	4,717	4,190	3,907	3,866r	3,461r	2,842	-32.2
Deep mined	7,312	6,153	-15.9	1,793	1,642	1,585	1,978	1,406	1,184	1,350	1,124	785	-44.2
Surface mining <sup>2</sup>	10,580	10,134	-4.2	2,713	2,511	2,458	2,540	2,585	2,550	2,404r	2,268r	1,970	-23.8
Other sources	735	760	+3.4	192	167	190	198	198	173	113	69r	87	(-)
Imports <sup>3</sup>	32,527	44,815	+37.8	8,199	9,557	10,418	11,775	11,117	11,505	12,034r	12,722r	12,467	+12.1
Exports <sup>4</sup>	491	488	-0.5	107	135	119	133	102	134	142	122	95	-7.0
Stock change <sup>5</sup>	+836	+2,953		-2,888	+2,279	+3,822	-2,113	-1,799	+3,043	+2,532r	-2,575r	-2,145	
<b>Total supply</b>	51,500	64,327	+24.9	9,902	16,022	18,354	14,245	13,406	18,322	18,289r	13,486r	13,069	-2.5
Statistical difference	-91	+120		-32	+64	-71	-58	-60	+309	-15r	-26r	-17	
<b>Total demand</b>	51,591	64,206	+24.5	9,934	15,958	18,425	14,303	13,466	18,013	18,304r	13,511r	13,085	-2.8
<b>TRANSFORMATION</b>	49,135	61,886	+26.0	9,342	15,344	17,821	13,719	12,927	17,419	17,587r	12,841r	12,330	-4.6
Electricity generation	41,850	54,906	+31.2	7,480	13,523	16,056	11,918	11,217	15,715	15,814r	10,990r	10,354	-7.7
Heat generation <sup>6</sup>	562	592	+5	121	148	165	140	128	159	165	140	128	-
Coke manufacture	5,398	5,079	-5.9	1,428	1,338	1,328	1,330	1,244	1,177	1,208r	1,276r	1,368	+10.0
Blast furnaces	995	987	-0.8	245	247	199	253	255	279	294r	325r	393	+53.8
Patent fuel manufacture	331	322	-2.7	69	87	72	79	83	88	105r	111r	87	+5.3
Energy industry use	4	4		1	1	1	1	1	1	1	0	0	
<b>FINAL CONSUMPTION</b>	2,452	2,317	-5.5	591	613	603	583	538	593	716r	670r	754	+40.4
Iron & steel	53	51		14	13	13	12	12	13	12	12	12	-1.2
Other industries	1,629	1,552	-4.8	400	398	410	387	368	386	472r	496r	582	+58.0
Domestic	716	674	-5.8	159	188	170	174	146	184	218r	151r	146	-0.1
Other final users	54	40	-26.0	18	14	10	10	11	10	14	10r	14	+34.5
<b>Stocks at end of period</b>													
Distributed stocks	15,113	11,896	-21.3	17,332	15,113	10,863	12,887	14,620	11,896	9,514r	12,125r	14,173	-3.1
Of which:													
Major power producers <sup>7</sup>	13,496	9,561	-29.2	15,776	13,496	8,676	11,348	12,118	9,561	8,166r	10,108r	12,394	+2.3
Coke ovens	1,355	846	-37.6	1,324	1,355	1,127	1,018	941	846	558r	1,170r	954	+1.4
Undistributed stocks	926	1,120	+21.0	986	926	1,284	1,374	1,439	1,120	970	934r	1,031	-28.4
<b>Total stocks<sup>8</sup></b>	16,039	13,016	-18.9	18,318	16,039	12,147	14,260	16,059	13,016	10,484r	13,059r	15,204	-5.3

1. Percentage change in the third quarter of 2013 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 re-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 2013 heat generation will not be published until the end of July 2014. Therefore, the 2012 figure is used as an estimate for 2013.

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

	<i>Thousand tonnes</i>												
	2011	2012	<i>per cent change</i>	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd quarter p	<i>per cent change<sup>3</sup></i>
<b>SUPPLY</b>													
Indigenous production	4,342	4,000	-7.9	1,174	1,064	1,040	1,056	956	948	984r	1,052r	1,044	+9.1
Coke Oven Coke	4,021	3,712	-7.7	1,094	993	993	983	884	853	894r	958r	967	+9.5
Coke Breeze	31	31	-2.0	8	8	8	8	8	8	8	8	8	+6.7
Other MSF	289	258	-11.0	73	63	40	66	65	87	83	87	68	+5.1
Imports	47	207	(+)	3	18	11	17	23	156	105r	327r	235	(+)
Exports	499	552	+10.7	112	195	325	143	43	42	36	35	24	-43.9
Stock change <sup>1</sup>	-541	+93		-235	-112	-68	+150	+52	-41	+91r	-103r	-98	
Transfers	-	-		-	-	-	-	-	-	-	0	0	
<b>Total supply</b>	3,349	3,748	+11.9	831r	776	658	1,080	988	1,022	1,144r	1,241r	1,156	+17.0
Statistical difference	-4	-5		-2r	-2	-1	-	-1r	-2	-1	-	-0	
<b>Total demand</b>	3,354	3,753	+11.9	833	778	659	1,080	990	1,024	1,145r	1,241r	1,156	+16.8
<b>TRANSFORMATION</b>	2,645	2,930	+10.8	660	601	515	848	786	781	851r	1,017r	924	+17.5
Coke manufacture	-	-		-	-	-	-	-	-	-	-	-	
Blast furnaces	2,645	2,930	+10.8	660	601	515	848	786	781	851r	1,017r	924	+17.5
Energy industry use	-	-		-	-	-	-	-	-	-	-	-	
<b>FINAL CONSUMPTION</b>	709	823	+16.2	173	177	145	232	203	243	294r	224r	232	+14.1
Iron & steel	395	518	+31.1	99	94	86	156	132	144	192r	126r	148	+11.9
Other industries	35	45	+29.8	10	11	5	13	12	15	14	20	20	+64.2
Domestic	278	260	-6.7	65	73	53	64	59	84	88	77	64	+8.5
<b>Stocks at end of period<sup>2</sup></b>	1,214	854	+11.9	993	1,214	1,016	845	780	854	500r	693r	591	-24.3

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 third quarter of 2013 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												
	2011	2012	<i>per cent change</i>	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd quarter p	<i>per cent change<sup>1</sup></i>
<b>SUPPLY</b>													
Indigenous production	21,007	21,502	+2.4	5,360	5,096	4,663	5,729	5,458	5,651	5,733r	6,547r	6,570	+20.4
Coke oven gas	8,847	8,266	-6.6	2,296	2,209	2,151	2,105	2,021	1,989	1,872r	2,202r	2,208	+9.3
Blast furnace gas	10,503	11,692	+11.3	2,645	2,464	2,101	3,224	3,080	3,286	3,466r	3,943r	3,954	+28.4
Benzole & tars	1,657	1,543	-6.9	419	422	411	400	357	375	395r	402r	408	+14.1
Transfers	60	56	-7.2	11	7	11	4	14	26	29	12	14	+0.5
<b>Total supply</b>	21,067	21,557	+2.3	5,371	5,103	4,675	5,733	5,472	5,677	5,762r	6,559r	6,584	+20.3
Statistical difference	-131	-157		-32	-28	+72	-93	-62	-73	+7r	-16r	-11	
<b>Total demand</b>	21,199	21,714	+2.4	5,403	5,131	4,603	5,827	5,534	5,750	5,755r	6,575r	6,595	+19.2
<b>TRANSFORMATION</b>	8,481	9,903	+16.8	2,135	2,016	1,953	2,677	2,604	2,668	2,382r	2,652r	2,502	-3.9
Electricity generation	7,884	9,305	+18.0	1,986	1,866	1,804	2,528	2,454	2,519	2,232r	2,503r	2,353	-4.1
Heat generation <sup>2</sup>	598	598	-	149	149	149	149	149	149	149	149	149	-
Energy industry use	7,671	8,145	+6.2	1,967	1,875	1,774	2,126	2,104	2,141	1,959r	2,322r	2,351	+11.7
Losses	1,751	1,009	-42.4	443	414	178	319	213	300	446r	612r	742	(+)
<b>FINAL CONSUMPTION</b>	3,296	2,657	-19.4	858	826	699	704	613	642	969r	989r	999	+63.1
Iron & steel	1,439	916	-36.3	392	352	236	253	209	219	520r	554r	561	(+)
Other industries	1,857	1,741	-6.2	466	474	463	451	404	423	448r	435r	438	+8.4

1. Percentage change in the third quarter of 2013 compared with a year earlier.

2. For Heat generation, the 2013 figures currently shown are the 2012 figures carried forward - these will be updated in July 2014.

## Section 3 - Oil and Oil Products

### Key results show:

Total indigenous UK production of crude oil and Natural Gas Liquids (NGL) in Q3 2013 was 7.0 per cent lower than a year ago. **(Chart 3.1)**

Refinery production in Q3 2013 was down 3.0 per cent on the same quarter of last year. Refinery production has been decreasing in recent years but there were notable decreases in the production of aviation turbine fuel and gas and fuel oil. **(Chart 3.2)**

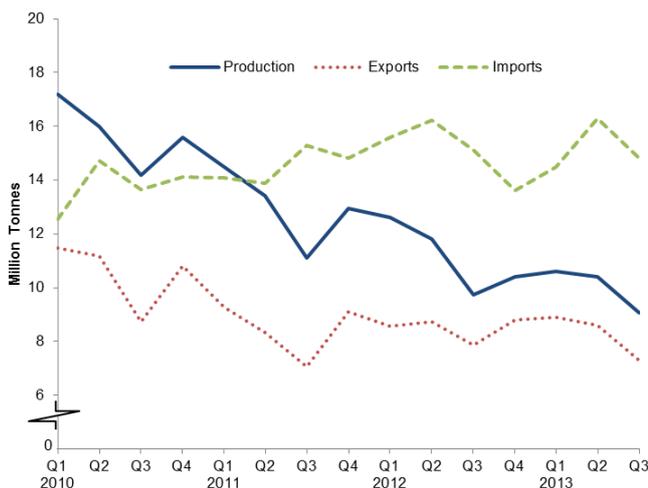
Net imports of crude oil and NGLs in Q3 2012 remained high at 7.6 million tonnes, which is the third largest figure since oil production peaked in 1999. This met around 45 per cent of UK's refinery demand. **(Chart 3.3)**

Net exports of petroleum products decreased again in Q3 2013. In fact, levels of exports were broadly the same as imports in Q3 2013 whereas the UK was a net exporter of petroleum products in Q3 2012 by 0.3 million tonnes. **(Chart 3.3)**

Total deliveries of the key transport fuels were stable when compared to the same period last year. Diesel deliveries increased by 1.3 per cent and while this is a slower rate of increase than the recent trend, diesel share of road fuels have reached 63.5 per cent, up 16 percentage points on 10 years ago. Deliveries of aviation turbine fuel were up by 1.6 per cent. **(Chart 3.5)**

Overall stocks of crude oil and petroleum products were up by 9.6 per cent at end of Q3 2013 compared to a year earlier, with a large increase in crude oil stocks being partially offset by a decrease in stocks of petroleum products. **(Chart 3.7)**

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



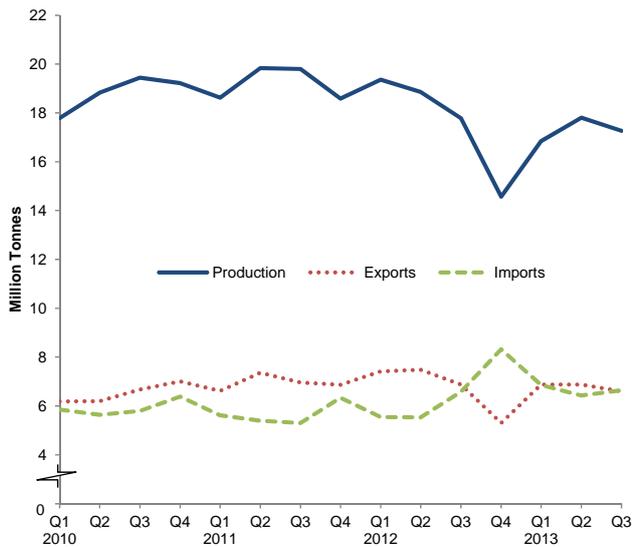
Indigenous UK crude oil production was 8.1 per cent lower in Q3 of 2013 compared with the same quarter a year earlier. In particular, crude oil production in August 2013 was around a fifth lower, this is partly due to an unplanned closure at the Buzzard oil field. Oil production over the last eighteen months has been impacted by maintenance and other production issues over and above the general decline in North Sea production.

Production of NGLs was 18.3 per cent higher than last year. However, 2012 Q3 was an especially low quarter for NGL production due to maintenance work taking place at the St Fergus associated gas terminal.

Despite a decrease in indigenous production, imports of crude oil and NGL's decreased slightly compared with the same quarter a year earlier, this was driven by a decrease in demand. Imports decreased by 4.2 per cent compared with the same quarter a year earlier. Exports decreased by 1.1 per cent to 6.7 million tonnes.

Net imports of primary oils (crude, NGL's and feedstocks) remained at around 7.6 million tonnes in Q3 2013, this met around 45 per cent of the UK's refinery demand.

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



Indigenous production of petroleum products at refineries in the latest quarter of 2013 was 3.0 per cent lower compared with the same quarter a year earlier. This is partly due to shutdowns at refineries for planned maintenance work.

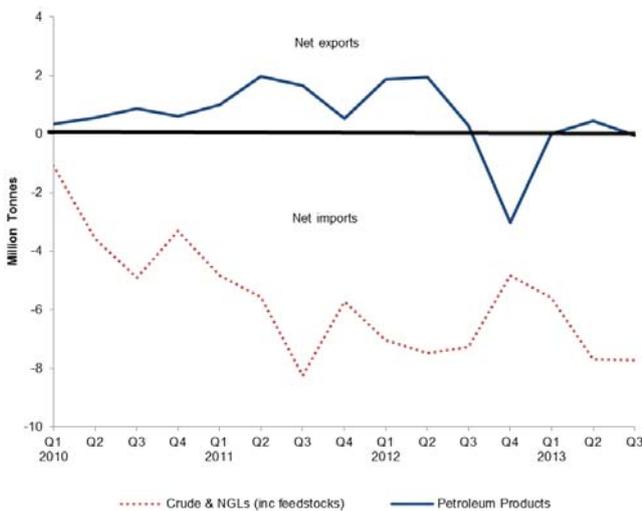
Gas oil, fuel oils and aviation turbine fuel showed the largest absolute changes, decreasing by 13 per cent, 10 per cent and 9 per cent respectively.

Imports of petroleum products were up slightly on the same quarter of 2012 and exports were down by 4.0 per cent due to the decrease in production. As a result the UK imported roughly the same amount of petroleum products as it exported.

Imports of aviation turbine fuel showed the largest absolute increase, up by 11 per cent (0.2 million tonnes).

For exports, motor spirit showed the largest absolute increase, up by around one fifth (0.4 million tonnes).

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



The UK's overall net import dependence for primary oils (Crude, NGL's and feedstocks) was 45 per cent in Q3 2013, up from 42 per cent in Q3 2012.

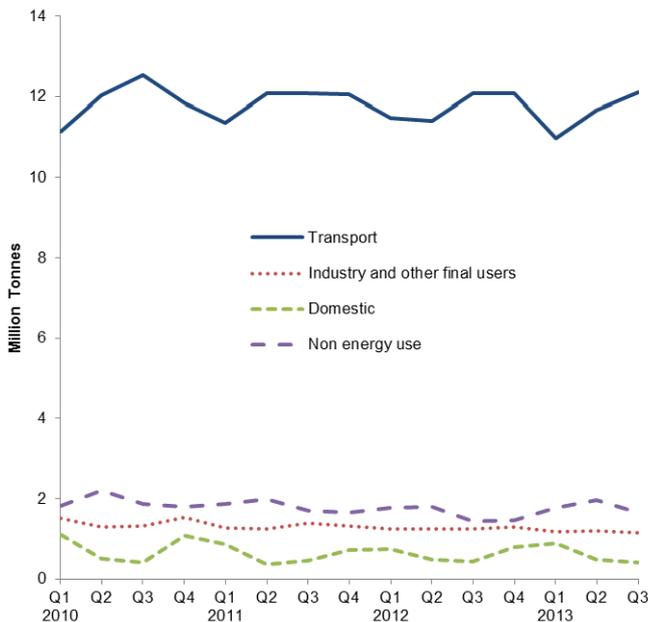
Crude oil import dependence has been on an increasing trend as the production from the UKCS declines. This decline has been magnified by ongoing production issues in the North Sea this quarter.

The principal source of the UK's crude imports is Norway. Petroleum products are sourced widely and for example include significant volumes of diesel road fuel from Sweden, and of aviation fuel from Kuwait, Qatar, and India.

Petroleum products trade was in balance in Q3 2012, a change from the same quarter in 2012 when the UK was a net exporter by 0.3 million tonnes. For the year to date, the UK has been a net exporter of petroleum products. However, in September 2013 the UK was a net importer of petroleum products.

The UK remains structurally short in diesel road fuel and aviation fuel. Decreased production in the latest quarter increased the UK's import dependence rate for DERV, increasing to 31 per cent compared with 27 per cent in Q3 2012. Whilst the dependence rate for aviation fuel increased to 56 per cent from 52 per cent.

**Chart 3.4 Final consumption of oil**

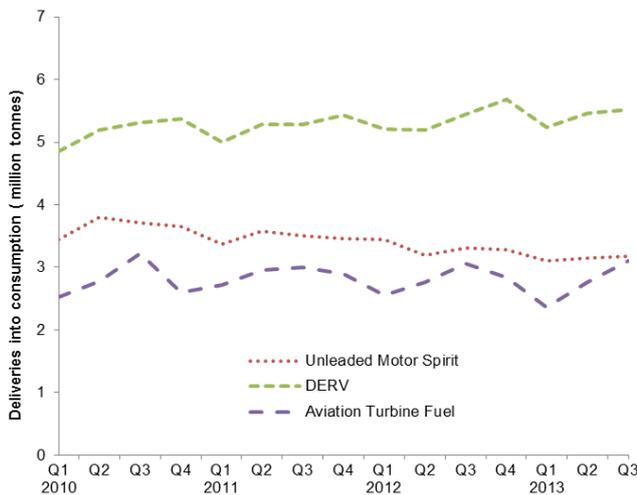


Final consumption in the oil sector is slightly seasonal with different products peaking at different times of the year. Consumption of domestic fuels for heating peaks in Q1 and Q4 each year, and consumption of aviation fuels is higher in Q2 and Q3.

Overall final consumption of petroleum products was up by 0.6 per cent on the same quarter of last year. Within this: domestic consumption, primarily used for heating, was lower by almost 6.5 per cent. However, non-energy use was up by 14.3 per cent, this was due in part to maintenance activity at a large chemical plant in the same quarter of last year.

Transport accounts for about three-quarters of UK final consumption. Transport consumption was at roughly the same level as the same quarter of last year. Transport fuels are examined in more detail below.

**Chart 3.5 Demand for key transport fuels**

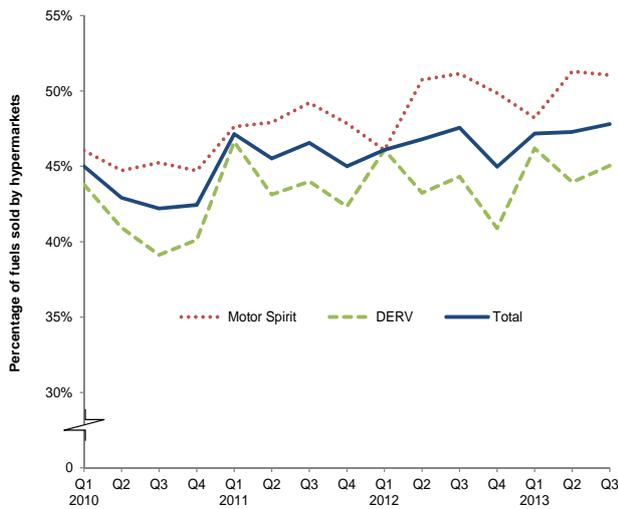


Total deliveries of key hydrocarbon transport fuels were at a very similar level to the same period last year.

While deliveries of motor spirit decreased by 3.8 per cent Diesel deliveries increased by 1.3 per cent on the same quarter last year. Diesel's share of road stands at 63.5 per cent.

Deliveries of aviation turbine fuel were up by 1.6 per cent on the same quarter last year and up 12.3 per cent on Q2 2013 reflecting the seasonal pattern of aviation demand.

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

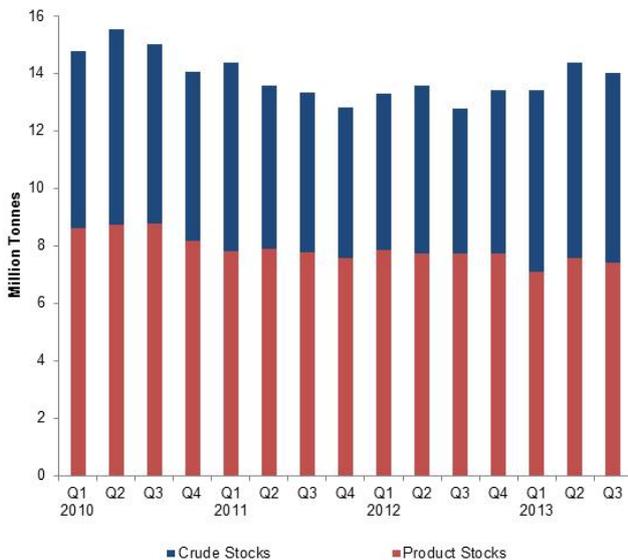


The retail share of motor spirit and diesel sold at hypermarkets stood at 51 per cent, and 45 per cent respectively.

Hypermarket sales of motor spirit were down by about 4 per cent on Q3 2012 but DERV sales were 3.7 per cent higher, reflecting the gradual shift from motor spirit to diesel that has been seen in recent years.

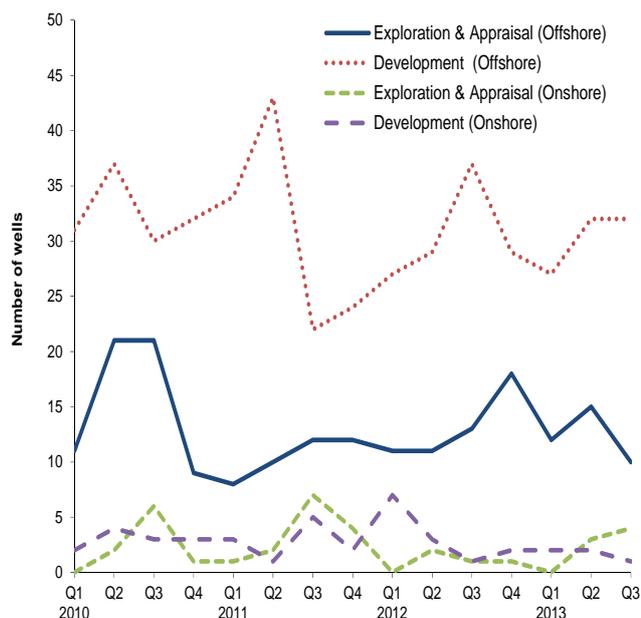
*Some data quality issues with this hypermarket sales data have recently been raised. We will be reviewing our process for the collection and production of these statistics in co-operation with industry in October through January of 2014.*

**Chart 3.7 UK oil stocks**



At the end of Q3 2013, total stocks of crude oil and process oils were 31 per cent (1.6 million tonnes) higher than a year earlier but total stocks of oil products were 4 per cent lower. This was the result of a large increase in crude stocks held abroad for the UK (under bilateral agreements). From 2013 onwards, EC Directive 2009/119/EC came into effect and this has led to changes in how petroleum products were defined and what opportunities UK companies have with respect to how they choose to meet their stocking obligations.

Stocks of petroleum products at the end of September 2013 were lower by 4.2 per cent (0.3 million tonnes). As mentioned above, this was mainly the result of a large decrease in petroleum products held abroad for the UK under bilateral agreements, down by a quarter in March compared with a year earlier. 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 Q3 2013, UK companies held stocks equal to around 74 days of consumption.

**Chart 3.8 Drilling activity on the UKCS**

Drilling activity on the UKCS fell during Q3 2013.

There were 10 exploration and appraisal wells started offshore in the third quarter of 2013, compared to 13 in the corresponding quarter of 2012.

There were 32 development wells drilled offshore in the third quarter of 2013, compared to 37 in the corresponding quarter of 2012.

There were 4 exploration and appraisal well started onshore in the third quarter of 2013, compared to 1 in the corresponding quarter of 2012.

There was 1 development well drilled onshore in the third quarter of 2013, the same number as in the corresponding quarter of 2012.

## Relevant tables

3.1: Supply and use of crude oil, natural gas liquids and feedstocks.....	Page 24
3.2: Supply and use of petroleum products.....	Page 25
3.3: Supply and use of petroleum products - annual data.....	Page 26
3.4: Supply and use of petroleum products - latest quarter.....	Page 27
3.5: Demand for key petroleum products.....	Page 28
3.6: Stocks of petroleum at end of period.....	Page 29
3.7: Drilling activity on the UK Continental Shelf.....	Page 30

Contacts for further information:

### William Spry

Oil and Gas Statistics Team

Tel. 0300 068 6988

E-mail: [William.Spry@decc.gsi.gov.uk](mailto:William.Spry@decc.gsi.gov.uk)

### Charanjit Ransi

Oil and Gas Statistics Team

Tel. 0300 068 5055

E-mail: [Charanjit.Ransi@decc.gsi.gov.uk](mailto:Charanjit.Ransi@decc.gsi.gov.uk)

# 3 OIL AND OIL PRODUCTS

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

Thousand tonnes

			per cent change	2011	2011	2012	2012	2012	2012	2013	2013	2013	per cent change <sup>8</sup>
	2011	2012		3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter p	
<b>SUPPLY</b>													
Indigenous production <sup>2</sup>	51,972	44,561	-14.3	11,117	12,949	12,604	11,812	9,751	10,394	10,600r	10,404r	9,068	-7.0
Crude oil	48,571	42,052	-13.4	10,445	12,095	11,764	11,111	9,361	9,816	10,006r	9,735r	8,606	-8.1
NGLs <sup>3</sup>	3,401	2,508	-26.3	672	854	840	701	390	578	594r	668r	461	+18.3
Imports <sup>4</sup>	58,092	60,559	+4.2	15,296	14,820	15,591	16,229	15,120	13,619	14,493r	16,292r	14,899	-1.5
Crude oil & NGLs	50,954	55,340	+8.6	13,298	13,349	14,090	14,629	13,823	12,798	12,874	14,585	13,237	-4.2
Feedstocks	7,139	5,218	-26.9	1,998	1,470	1,501	1,599	1,297	821	1,619r	1,707r	1,662	+28.1
Exports <sup>4</sup>	33,745	33,961	+0.6	7,059	9,101	8,569	8,746	7,848	8,798	8,911r	8,600r	7,285	-7.2
Crude Oil & NGLs	29,836	29,939	+0.3	5,988	8,170	7,620	7,782	6,815	7,722	8,321r	8,093r	6,743	-1.1
Feedstocks	3,908	4,021	+2.9	1,071	931	949	964	1,033	1,076	590	507	542	-47.5
Stock change <sup>5</sup>	+611	-486		+365	+85	-197	-223	+673	-740	+555r	-198r	+601	
Transfers <sup>6</sup>	-2,122	-1,934		-540	-451	-655	-582	-306	-391	-459r	-572r	-490	
<b>Total supply</b>	<b>74,809</b>	<b>68,738</b>	<b>-8.1</b>	<b>19,178</b>	<b>18,301</b>	<b>18,773</b>	<b>18,490</b>	<b>17,390</b>	<b>14,085</b>	<b>16,278r</b>	<b>17,326r</b>	<b>16,793</b>	<b>-3.4</b>
Statistical difference <sup>7</sup>	-271	-124		-219	+125	-11	+102	-114	-101	-99r	+74r	+2	
<b>Total demand</b>	<b>75,080</b>	<b>68,862</b>	<b>-8.3</b>	<b>19,397</b>	<b>18,176</b>	<b>18,784</b>	<b>18,388</b>	<b>17,504</b>	<b>14,186</b>	<b>16,377r</b>	<b>17,252r</b>	<b>16,791</b>	<b>-4.1</b>
<b>TRANSFORMATION</b>													
Petroleum refineries	75,080	68,862	-8.3	19,397	18,176	18,784	18,388	17,504	14,186	16,377r	17,252r	16,791	-4.1

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 third quarter of 2013 compared with a year earlier.

# 3 OIL AND OIL PRODUCTS

## Table 3.2 Supply and use of petroleum products

Thousand tonnes

	2011	2012	per cent change	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd quarter p	per cent change <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production <sup>2</sup>	76,848	70,572	-8.2	19,802	18,585	19,358	18,854	17,785	14,575	16,801r	17,772r	17,245	-3.0
Imports <sup>3</sup>	22,656	25,978	+14.7	5,301	6,334	5,541	5,533	6,579	8,325	6,861r	6,431r	6,641	+0.9
Exports <sup>3</sup>	27,800	27,083	-2.6	6,957	6,867	7,419	7,486	6,874	5,304	6,874r	6,879r	6,600	-4.0
Marine bunkers	3,602	3,126	-13.2	1,006	817	770	761	814	781	748r	769r	748	-8.2
Stock change <sup>4</sup>	+188	+128		-21	-199	+25	+209	-102	-5	+30	+53	+63	
Transfers <sup>5</sup>	-19	+53		+40	-15	+47	+50	-17	-27	-51r	-30r	-34	
<b>Total supply</b>	<b>68,270</b>	<b>66,522</b>	<b>-2.6</b>	<b>17,159</b>	<b>17,023</b>	<b>16,783</b>	<b>16,399</b>	<b>16,557</b>	<b>16,783</b>	<b>16,019r</b>	<b>16,578r</b>	<b>16,567</b>	<b>+0.1</b>
Statistical difference <sup>6</sup>	-20	-109		+47	-125	-47	-28	-9	-25	-41r	+6r	-18	
<b>Total demand</b>	<b>68,291</b>	<b>66,631</b>	<b>-2.4</b>	<b>17,112</b>	<b>17,147</b>	<b>16,830</b>	<b>16,427</b>	<b>16,567</b>	<b>16,808</b>	<b>16,060r</b>	<b>16,572r</b>	<b>16,585</b>	<b>+0.1</b>
<b>TRANSFORMATION</b>													
Electricity generation	722	739	+2.4	163	183	214	180	145	200	164	119r	157	+8.6
Heat generation	71	68	-4.3	18	18	17	17	17	17	17	17	17	-0.6
Blast furnaces	-	-		-	-	-	-	-	-	-	-	-	
<b>Energy industry use</b>	<b>5,119</b>	<b>4,863</b>	<b>-5.0</b>	<b>1,308</b>	<b>1,204</b>	<b>1,371</b>	<b>1,311</b>	<b>1,221</b>	<b>960</b>	<b>1,067r</b>	<b>1,135r</b>	<b>1,135</b>	<b>-7.0</b>
Petroleum Refineries	4,586	4,255	-7.2	1,175	1,071	1,219	1,159	1,069	808	915r	983r	983	-8.0
Blast Furnaces	-	-		-	-	-	-	-	-	-	-	-	
Others	533	608	+14.1	133	133	152	152	152	152	152	152	152	-0.0
<b>FINAL CONSUMPTION</b>													
Iron & steel	4	5	+19.7	1	2	1	1	1	1	1	2r	1	-32.8
Other industries	3,943	3,853	-2.3	1,087	963	968	955	929	1,001	921r	900r	848	-8.7
Transport	47,573	47,039	-1.1	12,070	12,062	11,476	11,415	12,078	12,070	10,973r	11,666r	12,095	+0.1
Domestic	2,401	2,433	+1.3	460	712	733	480	425	795	892	483r	398	-6.5
Other final users	1,253	1,165	-7.0	299	352	273	284	310	298	256	289	288	-6.9
Non energy use	7,206	6,465	-10.3	1,706	1,651	1,777	1,782	1,441	1,465	1,768r	1,963r	1,646	+14.3

1. Percentage change in the third quarter of 2013 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

	2011									2012								
	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>	76,848	19,856	16,801	8,683	6,411	7,907	7,465r	2,377	7,348	70,572	17,627	15,772	8,941	5,775	7,164	6,666r	2,268	6,360
Imports <sup>5</sup>	22,656	3,259	7,736	1,245	6,881	808	189r	618	1,920	25,978	4,184	9,541	1,186	7,127	660	293r	702	2,284
Exports <sup>5</sup>	27,800	9,363	3,127	4,667	1,210	5,140	820	173	3,299	27,083	8,561	3,377	4,270	1,320	5,300	1,147	112	2,996
Marine bunkers	3,602	-	-	1,566	-	2,036r	-	-	-	3,126	-	-	1,644	-	1,483r	-	-	-
Stock change <sup>6</sup>	+188	+39	+83	+43	-28	-15	-11	-2	80	+128	+26	-133	+7	+96	+90	+9	+40	-6
Transfers <sup>7</sup>	-19	+91	-498	+444	-491	-12	+52	+441	-45	+53	-54	-268	+217	-479	-14	+23	+446	+182
<b>Total supply</b>	<b>68,270</b>	<b>13,881</b>	<b>20,994</b>	<b>4,182</b>	<b>11,562</b>	<b>1,513</b>	<b>6,874</b>	<b>3,260</b>	<b>6,004</b>	<b>66,522</b>	<b>13,222</b>	<b>21,535</b>	<b>4,437</b>	<b>11,199</b>	<b>1,117</b>	<b>5,844</b>	<b>3,343</b>	<b>5,824</b>
Statistical difference <sup>8</sup>	-20	-13	+3	-1	-11	-5	+10	-28	+26	-109	-8	-3	-61	-22	+8	+4	+14	-42
<b>Total demand</b>	<b>68,291</b>	<b>13,895</b>	<b>20,991</b>	<b>4,183</b>	<b>11,574</b>	<b>1,518</b>	<b>6,865</b>	<b>3,288</b>	<b>5,978</b>	<b>66,631</b>	<b>13,231</b>	<b>21,538</b>	<b>4,498</b>	<b>11,221</b>	<b>1,109</b>	<b>5,840</b>	<b>3,329</b>	<b>5,866</b>
<b>TRANSFORMATION</b>	792	-	-	62	-	380	301	-	48	807	-	-	60	-	388	248	-	111
Electricity generation	722	-	-	57	-	328	289	-	48	739	-	-	55	-	335	238	-	111
Heat generation	71	-	-	6	-	52	13	-	-	68	-	-	5	-	53	10	-	-
Petroleum refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coke manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blast furnaces	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Patent fuel manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy industry use	5,119	-	-	533	-	476	2,584	-	1,526	4,863	-	-	608	-	348	2,301	-	1,606
<b>FINAL CONSUMPTION</b>	62,380	13,895	20,991	3,588	11,574	662	3,979	3,288	4,403	60,961	13,231	21,538	3,830	11,221	373	3,291	3,329	4,150
Iron & steel	4	-	-	-	-	4	-	-	-	5	-	-	-	-	2	-	-	-
Other industries	3,943	-	-	1,542	-	292	795	1,314	-	3,853	-	-	1,839	-	93	588	1,332	-
Transport	47,573	13,895	20,991	793	11,574	201	98	-	21	47,039	13,231	21,538	768	11,221	173	93	-	17
Domestic	2,401	-	-	142	-	-	286	1,973	-	2,433	-	-	140	-	-	297	1,996	-
Other final users	1,253	-	-	986	-	165	101	-	-	1,165	-	-	953	-	105	108	-	-
<b>Non energy use</b>	<b>7,206</b>	<b>-</b>	<b>-</b>	<b>125</b>	<b>-</b>	<b>-</b>	<b>2,699</b>	<b>-</b>	<b>4,383</b>	<b>6,465</b>	<b>-</b>	<b>-</b>	<b>130</b>	<b>-</b>	<b>-</b>	<b>2,203</b>	<b>-</b>	<b>4,132</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

	2012 3rd quarter										2013 3rd 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>	17,785	4,513	4,068	2,301	1,533	1,698	1,573	455	1,645		17,245	4,819	3,922	2,005	1,389	1,535	1,731	494	1,350		
Imports <sup>5</sup>	6,579	1,058	2,531	226	1,912	134	63	89	566		6,641	979	2,424	106	2,120	128	95	74	716		
Exports <sup>5</sup>	6,874	2,184	1,041	1,056	318	1,232	325	12	706		6,600	2,613	716	665	371	1,102	293	94	746		
Marine bunkers	814	-	-	441	-	373	-	-	-		748	-	-	461	-	286	-	-	-		
Stock change <sup>6</sup>	-102	-75	-29	+54	-11	+51	-16	-6	-69		+63	-68	-34	+21	+52	-6	+3	+18	+77		
Transfers <sup>7</sup>	-17	-15	-82	+76	-70	-22	+6	+61	+29		-34	+62	-79	+72	-96	-25	+6	+70	-44		
<b>Total supply</b>	<b>16,557</b>	<b>3,297</b>	<b>5,446</b>	<b>1,161</b>	<b>3,045</b>	<b>256</b>	<b>1,300</b>	<b>587</b>	<b>1,465</b>		<b>16,567</b>	<b>3,178</b>	<b>5,516</b>	<b>1,077</b>	<b>3,094</b>	<b>245</b>	<b>1,533</b>	<b>562</b>	<b>1,362</b>		
Statistical difference <sup>8</sup>	-9	-8	-1	-30	-15	+4	+1	+17	+22		-18	+1	-1	-7	-16	+0	-	-5	+11		
<b>Total demand</b>	<b>16,567</b>	<b>3,305</b>	<b>5,447</b>	<b>1,191</b>	<b>3,059</b>	<b>252</b>	<b>1,299</b>	<b>570</b>	<b>1,443</b>		<b>16,585</b>	<b>3,178</b>	<b>5,518</b>	<b>1,085</b>	<b>3,110</b>	<b>245</b>	<b>1,466</b>	<b>567</b>	<b>1,418</b>		
<b>TRANSFORMATION</b>	162	-	-	14	-	86	62	-	0		174	-	-	16	-	69	62	-	27		
Electricity generation	145	-	-	12	-	73	60	-	0		157	-	-	15	-	56	60	-	27		
Heat generation	17	-	-	1	-	13	2	-	-		17	-	-	1	-	13	2	-	-		
Petroleum refineries	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
Coke manufacture	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
Blast furnaces	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
Patent fuel manufacture	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
Energy industry use	1,221	-	-	152	-	85	542	-	442		1,135	-	-	152	-	74	572	-	337		
<b>FINAL CONSUMPTION</b>	<b>15,184</b>	<b>3,305</b>	<b>5,447</b>	<b>1,025</b>	<b>3,059</b>	<b>81</b>	<b>695</b>	<b>570</b>	<b>1,001</b>		<b>15,276</b>	<b>3,178</b>	<b>5,518</b>	<b>916</b>	<b>3,110</b>	<b>102</b>	<b>894</b>	<b>567</b>	<b>991</b>		
Iron & steel	1	-	-	-	-	1	-	-	-		1	-	-	-	-	1	-	-	-		
Other industries	929	-	-	505	-	6	189	228	-		848	-	-	413	-	51	155	227	-		
Transport	12,078	3,305	5,447	202	3,059	37	23	-	5		12,095	3,178	5,518	233	3,110	28	23	-	5		
Domestic	425	-	-	45	-	-	38	342	-		398	-	-	22	-	-	35	340	-		
Other final users	310	-	-	253	-	38	19	-	-		288	-	-	248	-	22	18	-	-		
Non energy use	1,441	-	-	20	-	-	425	-	996		1,646	-	-	1	-	-	663	-	983		

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

			2011		2011		2012		2012		2013		2013	
	2011	2012	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter
<b>MOTOR SPIRIT</b>														
<b>Total sales</b>	13,895	13,231	-4.8	3,502	3,458	3,447	3,191	3,305	3,288	3,108	3,143	3,178	-3.8	
By seller:														
Retail sales: <sup>3</sup>	13,430	12,803	-4.7	3,379	3,340	3,360	3,077	3,190	3,175	3,028	3,034	3,068	-3.8	
hypermarkets <sup>4</sup>	6468 p	6325 p	-2.2	1663 p	1598 p	1549 p	1561 p	1631 p	1583 p	1460 p	1556 p	1566 p	-4.0	
refiners/other traders	6,962	6,478	-7.0	1,716	1,742	1,812	1,516	1,558	1,592	1,568	1,477	1,502	-3.6	
Commercial sales <sup>5</sup>	465	428	-8.0	123	119	86	114	115	112	80	110	110	-4.5	
By grade:														
4-Star/Leaded/LRP <sup>6</sup>	12	10	-13.4	3	3	2	3	2	3	2	2	2	-2.4	
Super Premium Unleaded	560	438	-21.8	128	196	107	106	117	108	101	101r	102	-12.7	
Premium Unleaded/ULSP <sup>7</sup>	13,324	12,783	-4.1	3,371	3,260	3,337	3,083	3,186	3,177	3,005	3,040r	3,073	-3.5	
<b>GAS DIESEL OIL</b>														
<b>Total sales</b>	25,174	26,036	+3.4	6,403	6,502	6,335	6,325	6,638	6,738	6,191r	6,532r	6,606	-0.5	
DERV fuel	20,991	21,538	+2.6	5,280	5,431	5,209	5,196	5,447	5,685	5,239	5,463	5,518	+1.3	
Retail sales: <sup>3</sup>	13,549	13,965	+3.1	3,522	3,570	3,225	3,410	3,541	3,789	3,240	3,642	3,614	+2.1	
hypermarkets <sup>4</sup>	5950 p	6079 p	+2.2	1549 p	1511 p	1486 p	1475 p	1569 p	1549 p	1497 p	1601 p	1628 p	+3.7	
refiners/other traders	7,598	7,886	+3.8	1,972	2,058	1,738	1,936	1,971	2,240	1,744	2,041	1,986	+0.8	
Commercial sales <sup>5</sup>	7,442	7,573	+1.8	1,758	1,861	1,984	1,786	1,907	1,896	1,999	1,820	1,904	-0.1	
Other gas diesel oil <sup>8</sup>	4,183	4,498	+7.5	1,123	1,071	1,126	1,129	1,191	1,052	952r	1,070r	1,088	-8.7	
<b>AVIATION FUELS</b>														
<b>Total sales</b>	11,594	11,238	-3.1	3,005	2,907	2,564	2,771	3,064	2,839	2,372r	2,773r	3,115	+1.7	
Aviation spirit	21	17	-16.0	6	4	3	5	5	4	3	4	5	+9.2	
Aviation turbine fuel	11,574	11,221	-3.1	2,999	2,902	2,560	2,766	3,059	2,835	2,369r	2,768r	3,110	+1.6	
<b>FUEL OIL</b>														
<b>Total Sales</b>	1,042	761	-27.0	270	250	193	179	167	222	199r	153r	171	+2.1	
Light	501	393	-21.6	126	137	59	102	89	143	95r	61r	93	+4.5	
Medium	117	118	+1.1	34	24	33	21	30	35	32r	46r	31	+3.5	
Heavy	424	249	-41.2	110	89	102	56	48	44	72r	45r	46	-3.3	

1. Monthly data for inland deliveries of oil products are available - See DECC website: [www.gov.uk/government/organisations/departments-of-energy-climate-change/series/oil-statistics](http://www.gov.uk/government/organisations/departments-of-energy-climate-change/series/oil-statistics)

2. Percentage change in the third quarter of 2013 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>	Net	Total <sup>5</sup>	Motor Spirit <sup>6</sup>	Kerosene <sup>7</sup>	Gas/Diesel Oil <sup>8</sup>	Fuel oils	Other products <sup>8</sup>	Total	Total Net bilaterals <sup>5</sup>	Total Stocks in UK <sup>10</sup>	Total stocks	
				bilaterals of Crude and Process oil <sup>5</sup>							Net bilaterals of products <sup>5</sup>				
2008	4,616	1,092	664	415	6,787	1,021	1,323	2,304	709	953	2,104	8,414	2,519	12,683	15,201
2009	3,848	1,136	682	367	6,033	817	1,633	2,124	690	1,182	2,728	9,173	3,095	12,112	15,206
2010	4,110	1,049	520	210	5,889	797	1,397	1,946	544	917	2,563	8,164	2,773	11,280	14,053
2011	3,889	694	540	151	5,274	696	1,454	1,949	525	845	2,100	7,569	2,251	10,592	12,843
2012	3,829	1,194	473	195	5,690	605	1,427	1,940	491	841	2,441	7,743	2,636	10,798	13,434
<i>Per cent change</i>	-1.6	+72.0	-12.3	+29.1	+7.9	-13.2	-1.8	-0.5	-6.5	-0.5	+16.2	+2.3	+17.1	+1.9	+4.6
2011 3rd quarter	3,917	818	627	212	5,574	805	1,116	1,836	538	848	2,647	7,789	2,859	10,503	13,362
4th quarter	3,889	694	540	151	5,274	696	1,454	1,949	525	845	2,100	7,569	2,251	10,592	12,843
2012 1st quarter	4,006	861	488	90	5,445	731	1,357	1,934	699	853	2,277	7,851	2,367	10,930	13,296
2nd quarter	3,825	1,248	522	247	5,843	750	1,171	1,958	595	843	2,431	7,747	2,678	10,912	13,590
3rd quarter	3,344	988	456	245	5,033	692	1,193	1,954	539	929	2,448	7,756	2,693	10,096	12,788
4th quarter	3,829	1,194	473	195	5,690	605	1,427	1,940	491	841	2,441	7,743	2,636	10,798	13,434
2013 1st quarter	3,522r	858r	392	1,565	6,336r	1,073	1,103	1,771	477	963	1,727	7,113	3,291	10,158r	13,449r
2nd quarter	3,683r	937r	496r	1,688r	6,805r	992r	1,293r	1,953r	481r	872r	2,007r	7,597r	3,694r	10,708r	14,402r
3rd quarter p	3,245	976	462	1,904	6,587	1,020	1,334	1,951	474	804	1,846	7,430	3,749	10,267	14,017
<i>Per cent change<sup>11</sup></i>	-3.0	-1.2	+1.4	(+)	+30.9	+47.4	+11.9	-0.2	-12.1	-13.4	-24.6	-4.2	+39.2	+1.7	+9.6

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 fields (UKCS).

5. The difference between stocks held abroad for UK use under approved bilateral agreements and the equivalent stocks held in the UK for foreign use. From 2013 onwards, EU Directive 2009/119/EC came into effect and this has led to changes in how UK companies manage their stock-holding. The increase in crude stocks held abroad was at the expense of a decrease in product stocks held under similar agreements.

6. Motor spirit and aviation spirit.

7. Aviation turbine fuel and burning oil.

8. Gas oil, DERV fuel, middle distillate feedstock (mdf) and marine diesel oil.

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

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

11. Percentage change from the same quarter last year.

# 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>
2010		28	34	62	130	9	12
2011		14	28	42	123	14	11
2012		22	31	53	122	4	13
<i>Per cent change</i>		+57.1	+10.7	+26.2	-0.8	-71.4	+18.2
2011	3rd quarter	5	7	12	22	7	5
	4th quarter	4	8	12	24	4	2
2012	1st quarter	5	6	11	27	-	7
	2nd quarter	5	6	11	29	2	3
	3rd quarter	4	9	13	37	1	1
	4th quarter	8	10	18	29	1	2
2013	1st quarter	7	5	12	27	-	2
	2nd quarter	3	12	15	32	3	2
	3rd quarter p	3	7	10	32	4	1
<i>Per cent change<sup>3</sup></i>		-25.0	-22.2	-23.1	-13.5	(+)	-

1. Including sidetracked wells

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

3. Percentage change in the third quarter of 2013 compared with a year earlier

## Section 4 - Gas

### Key results show:

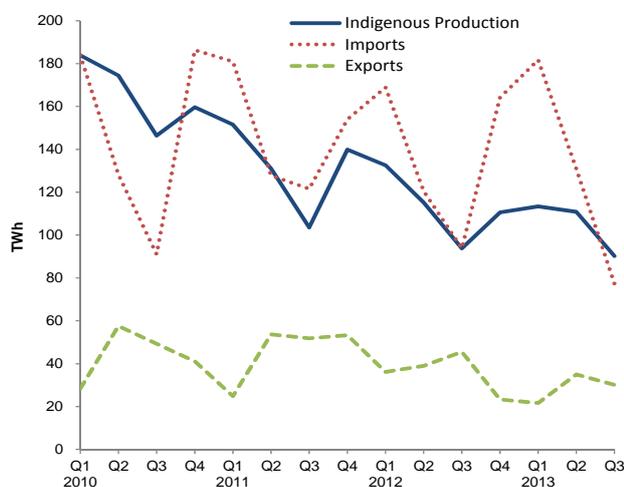
Gross UK production of natural gas in Q3 2013 was 3.8 per cent lower than in the same period a year ago, driven by long-term decline and maintenance issues. **(Chart 4.1).**

Within total UK production, production of associated gas (natural gas produced from oil fields) increased by 9.9 per cent whilst dry gas production decreased by 16.5 per cent **(Chart 4.2).**

Imports of gas decreased by 17.6 per cent in Q3 2013 compared with the same quarter in 2012, with shipped imports of LNG falling by 44.8 per cent. Exports also decreased by 33.8 per cent. **(Chart 4.4).**

Overall UK gas demand fell by 8.2 per cent to around 123 TWh, the lowest third quarter demand since the third quarter of 1995, largely driven by warmer temperatures for Q3 2013 and a fall in gas demand for electricity generation. **(Chart 4.6)**

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



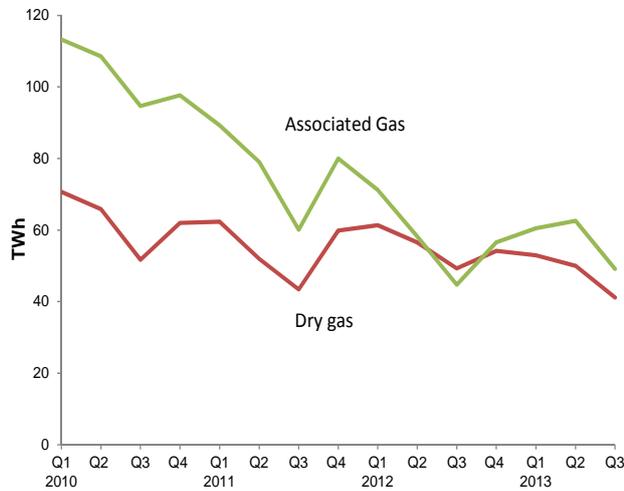
Total indigenous UK production of natural gas in Q3 2013 was 3.8 per cent lower than in the same quarter a year earlier.

In general terms, UKCS production is continuing to decline year on year, and over the last ten years UKCS production has decreased by around 9.2 per cent on average per annum. The smaller decline in this period reflects the return of the Elgin field to production.

In Q3 2013, imports and exports of natural gas were 77 TWh and 30 TWh respectively, 17.6 and 33.8 per cent lower than a year ago. The trade position shows net imports have decreased 2.3 per cent compared to the same period a year ago, reflecting lower demand for gas.

## Gas

**Chart 4.2 Production of dry gas and associated gas**

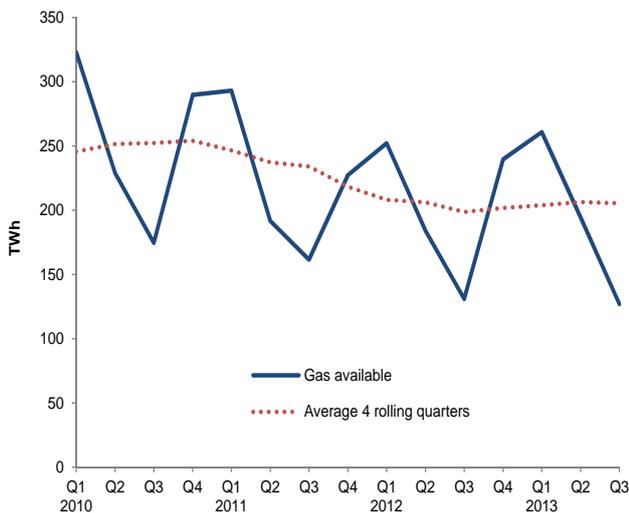


In Q3 2013 associated gas production (natural gas produced from oil fields) increased by 9.9 per cent from 45 TWh in Q3 2012 to 49 TWh in Q3 2013.

The main driver behind this was the recovery in production from the Elgin platform which in Q3 2012 produced no gas. A like-for-like comparison between Q3 2013 and Q3 2012, with the exclusion of the Elgin platform, shows a 3.5 per cent decrease in associated gas production in Q3 2013.

Compared to the same quarter a year ago, dry gas production decreased by 16.5 per cent to 41 TWh reflecting the continuing decrease in UK gas production.

**Chart 4.3 Gas availability**



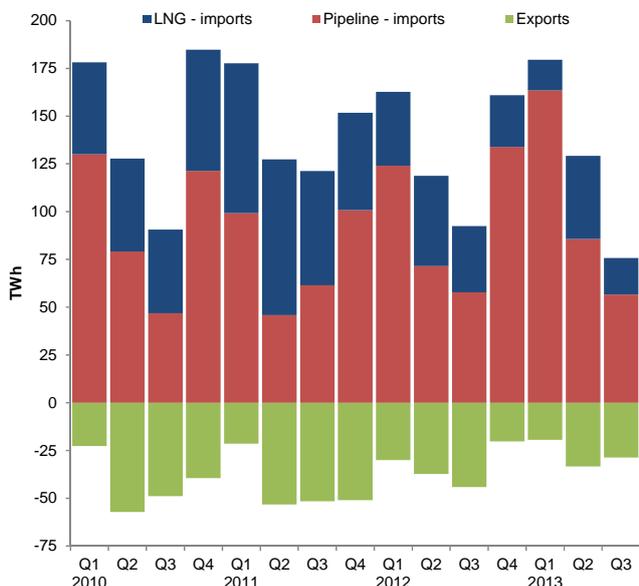
Gas available at terminals is equal to the gross gas production, minus producers own use, plus net imports.

Gas availability is seasonal, mirroring gas demand, and peaks during Q1 and Q4 each year. Gas availability in Q3 2013 fell by 3.2 per cent compared to Q3 2012 to 127 TWh.

So far in 2013, gas availability in Q1–Q3 is 2.6 per cent higher compared with the same period last year.

The average availability over 4 rolling quarters had decreased in 2011 and up to Q3 2012. However, since then it has stayed relatively constant.

**Chart 4.4 Import and exports**



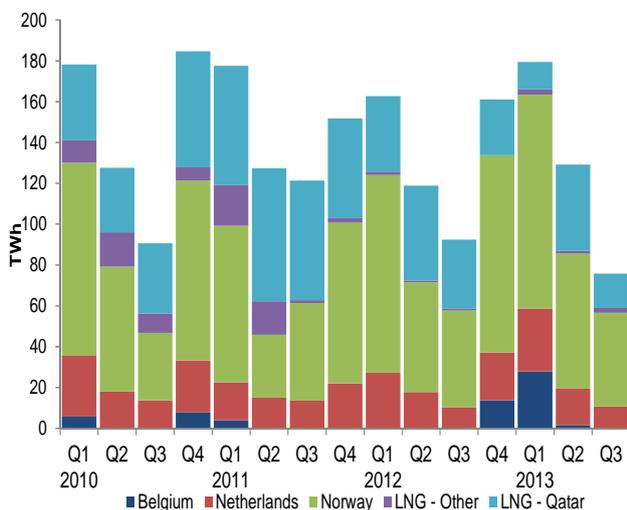
Total imports in Q3 2013 decreased by 17.6 per cent compared to the same quarter a year ago.

The main bulk of this decrease between Q3 2012 and Q3 2013 was a reduction in imports of Liquefied Natural Gas (LNG). LNG imports decreased sharply by 44.8 per cent, falling from 35 TWh in Q3 2012 to 19 TWh in Q3 2013. LNG imports accounted for 25.3 per cent of total imports in Q3 2013 compared with 37.6 per cent a year ago.

Pipeline imports decreased very slightly – from 58 TWh in Q3 2012 to 57 TWh in the latest quarter.

Total exports also decreased by 33.8 per cent in Q3 2013. This is largely due to lower exports through the Bacton – Zeebrugge interconnector during Q3 2013.

**Chart 4.5 Imports by origin**



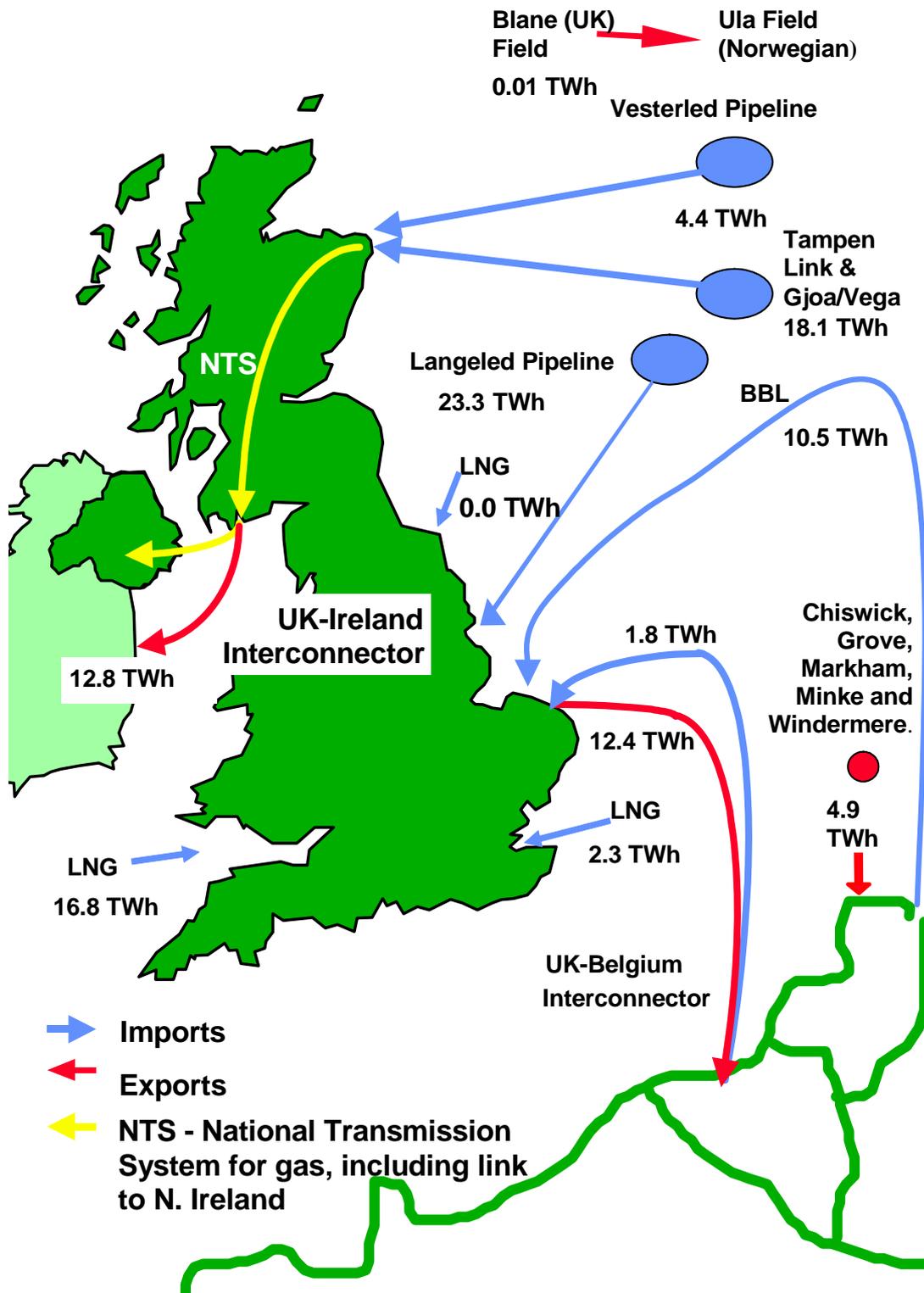
The majority of LNG imports are sourced from Qatar. There was a sharp decrease in LNG imports from Qatar in Q3 2013, 50.2 per cent lower than the same quarter in 2012.

The fall in LNG imports is likely to be a combination of factors, such as the decline in UK gas demand and the strong competition for LNG in the global market, especially Japan following the closure of their nuclear facilities in 2011.

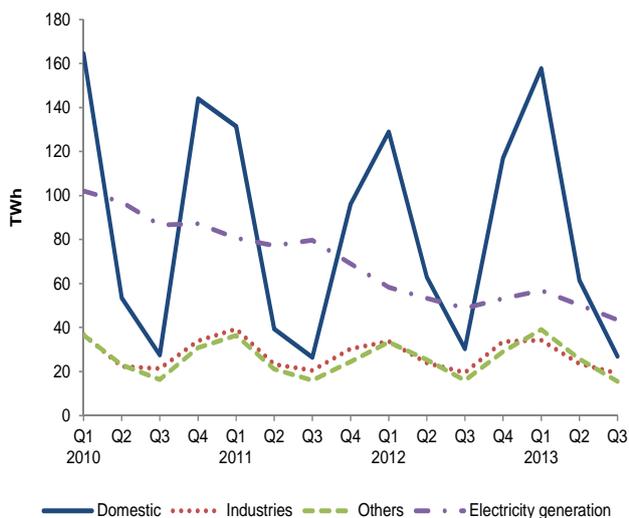
Pipeline imports from the Netherlands were 1.9 per cent higher in the most recent quarter compared with the previous year, rising from 10.3 TWh in Q3 2012 to 10.5 TWh in Q3 2013. In contrast, imports from Norway were 3.1 per cent lower than a year ago.

A complete country breakdown for pipeline and LNG imports is provided in Energy Trends table 4.4 - *Supplementary information on the origin of UK gas imports*.

Map: UK imports and exports of gas Q3 2013



**Chart 4.6 UK demand for natural gas**



UK demand for natural gas in Q3 2013 was 8.2 per cent lower than in the same period a year ago and was the lowest third quarter demand since 1995. This is largely driven by warmer temperatures during Q3 2013 and a fall in gas demand for electricity generation, which was lower by 10.9 per cent in Q3 2013 compared with Q3 2012, reflecting lower electricity generation overall.

Domestic demand for gas decreased by 11.2 per cent, with mean temperatures in the third quarter of 2013 being warmer than in Q3 2012.

Gas used within industry (including iron and steel) decreased slightly, going from 19.5 TWh in Q3 2012 to 19.1 TWh in Q3 2013.

A complete breakdown for gas demand is provided in Energy Trends table 4.1 - *Natural gas supply and consumption*.

**Relevant table**

4.1: Natural gas supply and consumption.....Page 36

Contacts for further information:

**Jack Forster**  
 Oil and Gas Statistics Team  
 Tel. 0300 068 5052  
 E-mail: [Jack.Forster@decc.gsi.gov.uk](mailto:Jack.Forster@decc.gsi.gov.uk)

**Michael Williams**  
 Oil and Gas Statistics Team  
 Tel. 0300 068 6865  
 E-mail: [Michael.Williams2@decc.gso.gov.uk](mailto:Michael.Williams2@decc.gso.gov.uk)

# 4 GAS

## Table 4.1. Natural gas supply and consumption

GWh

	2011	2012	per cent change	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd quarter p	per cent change <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	526,030	452,094	-14.1	103,515	139,874	132,563	115,118	93,807	110,606	113,425r	110,863r	90,255	-3.8
Imports	584,414	547,300	-6.4	121,583	153,983	168,873	120,478	93,784	164,165	181,732	130,904	77,259	-17.6
of which LNG	270,733	147,879	-45.4	59,915	50,935	38,645	47,366	34,703r	27,166	15,986	43,543	19,140	-44.8
Exports	183,689	144,023	-21.6	51,883	53,275	36,215	38,953	45,507	23,348	21,692r	34,978r	30,106	-33.8
Stock change <sup>2</sup>	-22,623	-269		-11,109	+3,055	+13,504	-9,544	-8,427	+4,198	+40,380	-25,196	-14,890	
Transfers	-60	-56		-11	-7	-11	-4	-14	-26	-29	-12	-14	
<b>Total supply</b>	904,072	855,047	-5.4	162,095	243,629	278,713	187,095	133,644	255,594	313,816r	181,581r	122,504	-8.3
Statistical difference	-3,989	-2,145		-715	-1,075	-699	-469	-336	-641	1,286r	-873r	-431	
<b>Total demand</b>	908,061	857,191	-5.6	162,810	244,704	279,412	187,564	133,979	256,235	312,530r	182,454r	122,935	-8.2
<b>TRANSFORMATION</b>													
Electricity generation	306,545	213,539	-30.3	79,651	69,029	58,234	53,320	48,816	53,169	56,834r	50,267r	43,474	-10.9
Heat generation <sup>3</sup>	22,936	22,392	-2.4	4,468	6,211	6,699	5,070	4,311	6,312	6,699	5,070	4,311	-
Energy industry use	59,200	55,622	-6.0	12,993	14,768	14,877	14,351	12,586	13,808	14,350r	13,623r	11,470	-8.9
Losses	14,559	12,271	-15.7	2,857	3,671	3,719	2,765	2,502	3,286	3,675	2,936r	2,172	-13.2
<b>FINAL CONSUMPTION</b>													
Iron & steel	5,569	4,854	-12.8	1,149	1,307	1,346	1,275	1,101	1,132	1,450r	1,247r	1,224	+11.2
Other industries	107,974	105,851	-2.0	19,364	29,038	32,388	22,585	18,404	32,474	32,753r	22,265r	17,871	-2.9
Domestic	293,400	339,080	+15.6	26,380	96,240	128,836	62,915	30,293	117,036	157,729r	61,393r	26,904	-11.2
Other final users	91,928	97,634	+6.2	14,462	22,952	31,826	23,796	14,480	27,532	37,554r	24,166r	14,021	-3.2
Non energy use <sup>3</sup>	5,949	5,949	-	1,487	1,487	1,487	1,487	1,487	1,487	1,487	1,487	1,487	-

1. Percentage change in the third quarter of 2013 compared with a year earlier.

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

3. For Heat generation and non energy use, the 2013 figures currently shown are the 2012 figures carried forward - these will be updated in July 2014.

## Section 5 – Electricity

### Key results show:

Electricity generated in the third quarter of 2013 fell by 4.0 per cent, from 81.5 TWh a year earlier to 78.2 TWh, the lowest third quarter level of generation in the last fifteen years. (Chart 5.1).

Renewables' share of electricity generation increased from 11.7 per cent in the third quarter of 2012 to 13.2 per cent in the third quarter of 2013, due to a sharp rise in bioenergy. (Chart 5.2).

Shares of generation for fossil fuels were broadly unchanged in the third quarter of 2013 compared to a year earlier. Coal's share decreased from 35.3 per cent to 33.3 per cent, whilst gas' share of generation fell from 28.2 per cent in the third quarter of 2012 to 27.2 per cent in the third quarter of 2013, due to high gas prices. (Chart 5.2).

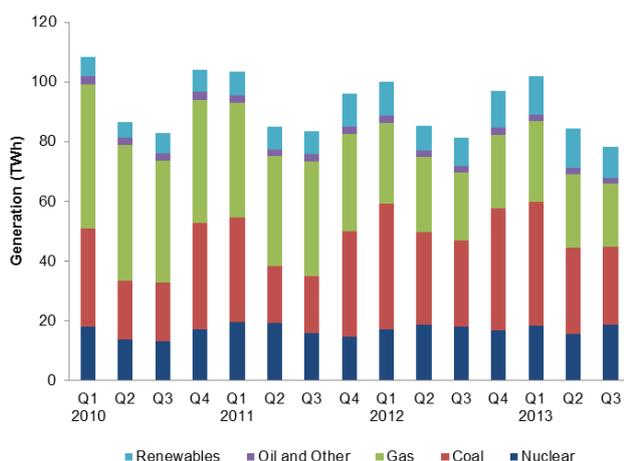
Nuclear's share of generation rose from 22.1 per cent in the third quarter of 2012 to 23.9 per cent in the third quarter of 2013 due to stations returning to operation following outages. (Chart 5.2).

Low carbon electricity's share of generation increased from 33.9 per cent in the third quarter of 2012 to 37.1 per cent in the third quarter of 2013, due to both higher nuclear generation and higher renewables generation. (Chart 5.3).

The UK remains a net importer with 5.6 per cent of electricity supplied from net imports in the third quarter of 2013 (Chart 5.4).

Final consumption of electricity during the third quarter of 2013, at 71.8 TWh, was provisionally 0.6 per cent lower than in the same period last year. Domestic sales fell by 4.1 per cent, to its lowest quarter three level for 14 years. (Chart 5.5).

**Chart 5.1 Electricity generated by fuel type**



In 2013 Q3, total electricity generated fell 4.0 per cent from 81.5 TWh in 2012 Q3 to 78.2 TWh.

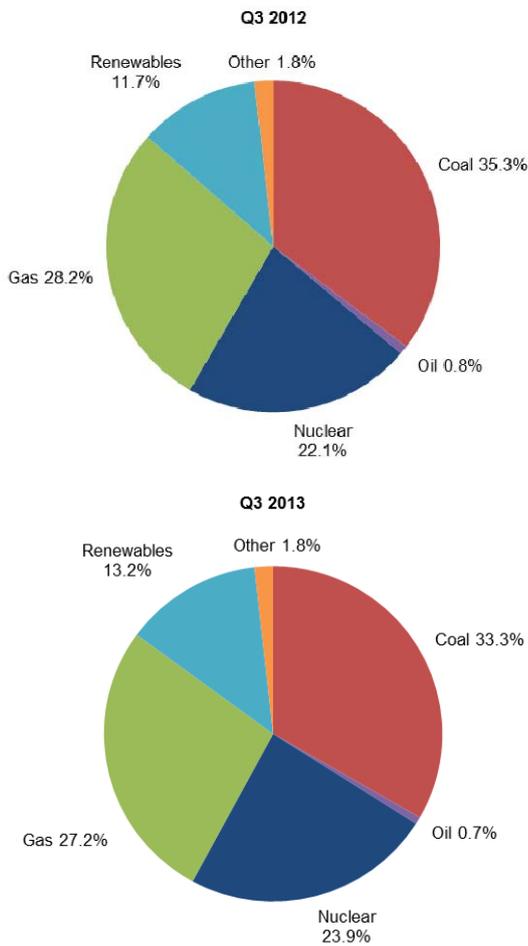
Coal fired generation fell by 9.5 per cent from 28.8 TWh in 2012 Q3 to 26.0 TWh in 2013 Q3.

In 2013 Q3, gas fired generation fell 7.3 per cent from 22.9 TWh to 21.3 TWh, its lowest third quarter level during the last fifteen years. This was due to high gas prices, with several gas stations now closed, mothballed or being run at low levels.

Nuclear generation rose 3.6 per cent from 18.0 TWh in 2012 Q3 to 18.7 TWh in 2013 Q3, due to several stations returning to operation after outages, both planned and unplanned.

In 2013 Q3, wind and PV generation rose marginally by 1.2 per cent, due to increased capacity. Hydro generation fell 26.6 per cent from 1.0 TWh to 0.7 TWh, due to a fall in rainfall in all three months of the quarter.

**Chart 5.2 Shares of electricity generation**



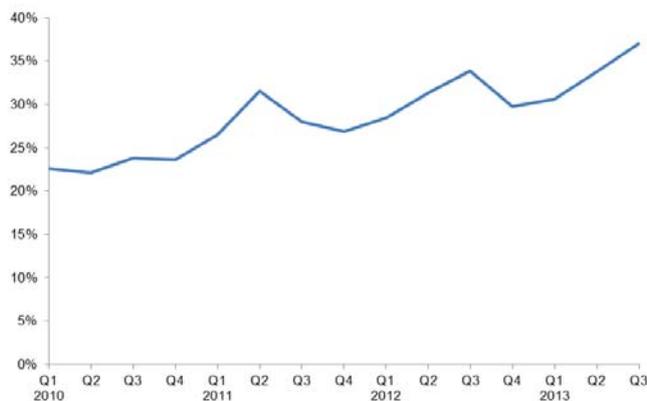
The share of generation from coal decreased from 35.3 per cent in 2012 Q3 to 33.3 per cent in 2013 Q3.

Gas's share of generation decreased from 28.2 per cent in 2012 Q3 to 27.2 per cent in 2013 Q3.

Nuclear's share of generation rose from 22.1 per cent in 2012 Q3 to 23.9 per cent in 2013 Q3, due to stations returning to operation following outages.

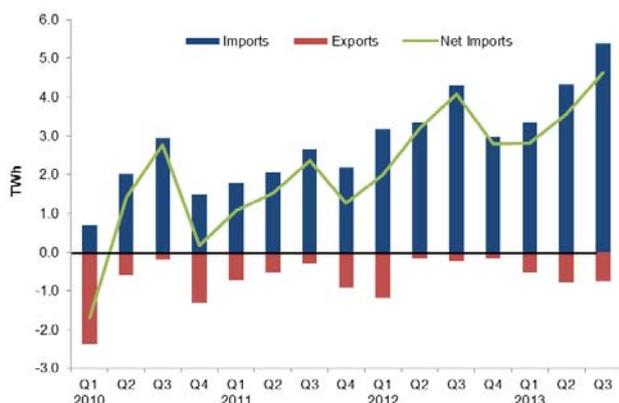
The share of renewables (hydro, wind and other renewables) increased from 11.7 per cent in 2012 Q3 to 13.2 per cent in 2013 Q3. This was due to increased wind generation capacity as well as the increase in generation from Tilbury B, offset by reduced generation from co-firing due to coal stations burning much less biomass with coal.

**Chart 5.3 Low carbon electricity's share of generation**



Low carbon electricity's share of generation increased from 33.9 per cent in 2012 Q3 to 37.1 per cent in 2013 Q3, due to much higher renewables generation.

**Chart 5.4 UK trade in electricity**

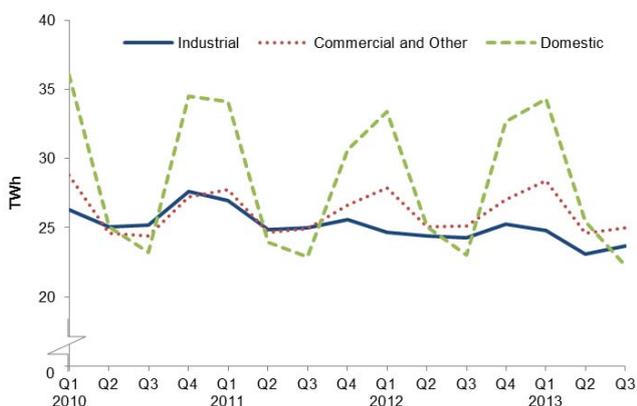


In 2013 Q3, compared with the same period in 2012, imports of electricity rose by 25.0 per cent. Exports were also up by 0.5 TWh from 2012 Q3, and were 0.8 TWh at the end of 2013 Q3. For every quarter from 2010 Q2, the UK has been a net importer after two quarters of being a net exporter (2009 Q4 and 2010 Q1).

Net imports of electricity rose by 13.6 per cent from 4.1 in 2012 Q3 to 4.6 TWh in 2013 Q3, due mainly to increased imports from the Netherlands via the interconnector which came into full operation in April 2011. Net imports represented 5.6 per cent of electricity supplied in 2013 Q3.

In 2013 Q3, the UK was a net importer from France and the Netherlands (whom the UK started trading with in February 2011) with net imports of 2.1 TWh and 2.4 TWh respectively. The UK was however a net exporter to Ireland with exports of 10 GWh, for the second quarter in a row.

**Chart 5.5 Electricity Final Consumption**



Final consumption of electricity fell by 0.6 per cent in 2013 Q3, from 72.2 TWh in 2012 Q3, to 71.8 TWh.

Domestic use fell by 4.1 per cent, from 23.2 TWh to 22.2 TWh, the lowest level for the third quarter for fourteen years.

Industrial use of electricity rose 2.4 per cent, from 24.0 TWh to 24.5 TWh, while consumption by commercial and other users <sup>1</sup> fell marginally by 0.2 per cent.

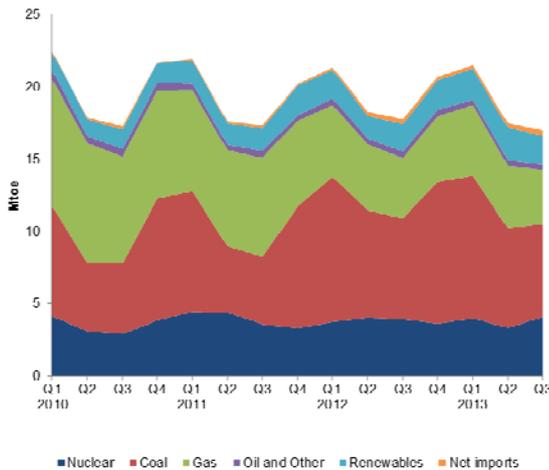
In 2013 Q3, temperatures were on average 1.3 degrees higher than in 2012 Q3.<sup>2</sup>

<sup>1</sup> Includes commercial, transport and other final users.

<sup>2</sup> Temperature data comes from ET 7.1, at: [www.gov.uk/government/statistical-data-sets/december-2012-energy-trends-weather-data](http://www.gov.uk/government/statistical-data-sets/december-2012-energy-trends-weather-data)

## Electricity

**Chart 5.6 Fuel used for electricity Generation**

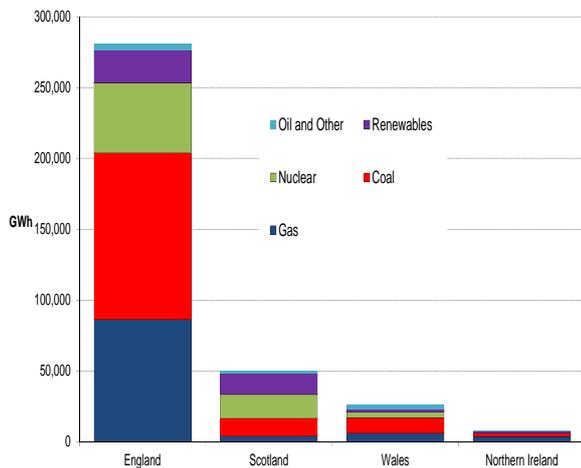


Fuel used by generators fell 5.2 per cent, from 17.9 mtoe in 2012 Q3 to 17.0 mtoe in 2013 Q3<sup>3</sup>.

In 2013 Q3, gas use was 10.9 per cent lower than in 2012 Q3. Coal use during the quarter was 7.7 per cent lower than a year earlier, while nuclear sources were 3.6 per cent higher.

<sup>3</sup> For wind (and other primary renewable sources), the fuel used is assumed the same as the electricity generated, unlike thermal generation where conversion losses are incurred.

**Chart 5.7 Generation by fuel in 2012 for England, Scotland, Wales and Northern Ireland**



In 2012, England had a share of 77.2 per cent of electricity generation in the UK with 280.7 TWh. Of England's generation 30.7 per cent was from gas and 41.9 per cent was from coal.

Scotland had a share of 13.6 per cent of electricity generation in the UK with 49.5 TWh. Of Scotland's generation 34.4 per cent was from nuclear, 29.8 per cent from renewables, and 24.9 per cent was from coal.

Wales had a share of 7.2 per cent of electricity generation in the UK with 26.2 TWh. Of Wales's generation 23.2 per cent was from gas, with 41.2 per cent from coal.

Northern Ireland had a share of 2.0 per cent of electricity generation in the UK with 7.4 TWh. Over half was from gas and almost one third was from coal.

Of electricity generated in the UK, 11.3 per cent came from renewables in 2012. The shares of electricity generated by renewables for each country are: Scotland 29.8 per cent, Northern Ireland 15.9 per cent, Wales 8.7 per cent and England 8.2 per cent.

Data from special feature article "*Electricity generation and supply figures for Scotland, Wales, Northern Ireland and England, 2009 to 2012*" (page 49).

### Relevant tables

5.1: Fuel used in electricity generation and electricity supplied .....Page 41  
 5.2: Supply and consumption of electricity.....Page 42

Contacts for further information:

**Mita Kerai**  
 Electricity Statistics  
 Tel: 0300 068 5044  
 E-mail: [electricitystatistics@decc.gsi.gov.uk](mailto:electricitystatistics@decc.gsi.gov.uk)

**Claire Gavin**  
 Electricity Statistics  
 Tel: 0300 068 5046  
 E-mail: [electricitystatistics@decc.gsi.gov.uk](mailto:electricitystatistics@decc.gsi.gov.uk)

# 5 ELECTRICITY

Table 5.1. Fuel used in electricity generation and electricity supplied

	2011	2012	per cent change	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd 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	26.03	34.33	+31.9	4.65	8.41	10.04	7.45	7.01	9.83	9.89r	6.87r	6.47	-7.7
Oil	0.78	0.78	-0.3	0.20	0.20	0.24	0.19	0.16	0.19	0.16	0.15	0.16	-2.9
Gas	26.41	18.41	-30.3	6.86	5.91	5.02	4.59	4.21	4.59	4.90r	4.33r	3.75	-10.9
Nuclear	15.63	15.21	-2.7	3.57	3.31	3.71	4.00	3.89	3.60	3.95	3.34	4.04	+3.6
Hydro	0.49	0.45	-7.1	0.11	0.17	0.16	0.06	0.09	0.14	0.11	0.08	0.06	-26.6
Wind and Solar <sup>2</sup>	1.35	1.79	+31.9	0.26	0.49	0.46	0.36	0.42	0.55	0.63	0.58r	0.42	+1.2
Bioenergy <sup>3</sup>	4.66	5.29	+13.3	1.14	1.33	1.30	1.14	1.46	1.38	1.39r	1.59r	1.45	-0.5
Other fuels	1.02	1.11	+8.5	0.28	0.23	0.24	0.25	0.32	0.30	0.22	0.23	0.22	-31.3
Net imports	0.53	1.04	+93.6	0.20	0.11	0.17	0.27	0.35	0.24	0.24	0.31	0.40	+13.6
<b>Total all generating companies</b>	<b>76.91</b>	<b>78.40</b>	<b>+1.9</b>	<b>17.27</b>	<b>20.16</b>	<b>21.34</b>	<b>18.33</b>	<b>17.91</b>	<b>20.82</b>	<b>21.49</b>	<b>17.48r</b>	<b>16.97</b>	<b>-5.2</b>
<b>ELECTRICITY GENERATED</b>													
<b>All generating companies</b>													
	TWh												
Coal	108.57	143.18	+31.9	19.12	35.27	42.15	31.23	28.79	41.02	41.56r	29.04r	26.04	-9.5
Oil	3.12	3.07	-1.6	0.77	0.88	0.85	0.67	0.69	0.87	0.79r	0.76r	0.55	-20.2
Gas	146.52	100.07	-31.7	38.58	32.57	27.20	25.22	22.94	24.72	27.02r	24.64r	21.25	-7.3
Nuclear	68.98	70.41	+2.1	15.76	14.62	17.20	18.53	18.03	16.65	18.28	15.47	18.69	+3.6
Hydro (natural flow)	5.69	5.28	-7.1	1.23	2.01	1.89	0.75	1.02	1.63	1.27	0.97	0.75	-26.6
Wind and Solar <sup>2</sup>	15.75	20.78	+31.9	3.07	5.72	5.31	4.19	4.87	6.39	7.32r	6.79r	4.93	+1.2
- of which, Offshore	5.13	7.46	+45.6	1.10	1.92	1.49	1.64	1.69	2.64	2.85	2.47	1.82	+7.4
Bioenergy <sup>3</sup>	13.20	15.20	+15.1	3.28	3.59	4.07	3.29	3.67	4.17	4.36r	5.21r	4.61	+25.7
Pumped Storage	2.91	2.97	+2.1	0.70	0.78	0.79	0.67	0.71	0.79	0.74	0.69	0.71	+0.4
Other fuels	2.71	2.89	+6.3	0.70	0.68	0.65	0.72	0.76	0.76	0.66	0.71r	0.68	-10.6
<b>Total all generating companies</b>	<b>367.45</b>	<b>363.84</b>	<b>-1.0</b>	<b>83.22</b>	<b>96.11</b>	<b>100.11</b>	<b>85.27</b>	<b>81.47</b>	<b>96.98</b>	<b>102.01r</b>	<b>84.29r</b>	<b>78.20</b>	<b>-4.0</b>
<b>ELECTRICITY SUPPLIED<sup>4</sup></b>													
<b>All generating companies</b>													
	TWh												
Coal	103.12	135.89	+31.8	18.17	33.49	40.01	29.64	27.33	38.91	39.43r	27.55r	25.46	-6.8
Oil	2.81	2.74	-2.5	0.70	0.79	0.76	0.60	0.61	0.76	0.72r	0.70r	0.50	-19.4
Gas	143.83	98.17	-31.7	37.88	31.97	26.67	24.76	22.50	24.24	26.51r	24.16r	20.88	-7.2
Nuclear	62.66	63.95	+2.1	14.31	13.28	15.62	16.83	16.38	15.12	16.61	14.05	16.97	+3.6
Hydro	5.65	5.25	-7.1	1.22	1.99	1.87	0.75	1.01	1.62	1.26	0.97	0.74	-26.7
Wind and Solar <sup>2</sup>	15.75	20.78	+31.9	3.07	5.72	5.31	4.19	4.87	6.39	7.32r	6.79r	4.93	+1.2
- of which, Offshore	5.13	7.46	+45.6	1.10	1.92	1.49	1.64	1.69	2.64	2.85	2.47	1.79	+5.8
Bioenergy <sup>3</sup>	11.75	13.40	+14.0	2.92	3.20	3.60	2.89	3.23	3.68	3.86r	4.62r	4.08	+26.1
Pumped Storage (net supply) <sup>5</sup>	-0.95	-1.02		-0.23	-0.24	-0.26	-0.24	-0.25	-0.27	-0.27	-0.26	-0.26	
Other fuels	2.56	2.71	+5.8	0.66	0.64	0.61	0.68	0.71	0.71	0.62	0.66r	0.64	-10.6
Net imports	6.22	12.04	+93.6	2.36	1.27	1.99	3.19	4.08	2.78	2.82	3.56	4.64	+13.6
<b>Total all generating companies</b>	<b>353.40</b>	<b>353.90</b>	<b>+0.1</b>	<b>81.06</b>	<b>92.10</b>	<b>96.19</b>	<b>83.28</b>	<b>80.48</b>	<b>93.94</b>	<b>98.87r</b>	<b>82.81r</b>	<b>78.57</b>	<b>-2.4</b>

1. Percentage change in the third quarter of 2013 compared with a year earlier.

2. Includes wave and tidal

3. Up to 2006 Q4, this includes non-biodegradable wastes. From 2007 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>												
			2011		2011		2012		2012		2013		
	2011	2012	<i>Per cent change</i>	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter p	<i>Per cent change</i> <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	367,454	363,836	-1.0	83,216	96,107	100,110	85,275	81,466	96,985	102,014r	84,287r	78,203	-4.0
Major power producers <sup>2,3</sup>	329,406	325,139	-1.3	74,088	86,191	89,980	75,893	72,123	87,144	92,377	74,352r	69,475	-3.7
Auto producers	35,142	35,730	+1.7	8,426	9,136	9,337	8,707	8,638	9,048	8,897r	9,243r	8,021	-7.1
Other sources <sup>4</sup>	2,906	2,966	+2.1	702	780	794	675	705	793	741	692	708	+0.4
Imports	8,689	13,791	+58.7	2,656	2,192	3,169	3,352	4,311	2,958	3,354	4,340	5,389	+25.0
Exports	2,467	1,746	-29.2	297	922	1,182	162	227	176	538	777	750	(+)
Transfers	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total supply</b>	<b>373,676</b>	<b>375,880</b>	<b>+0.6</b>	<b>85,575</b>	<b>97,376</b>	<b>102,098</b>	<b>88,465</b>	<b>85,550</b>	<b>99,767</b>	<b>104,831r</b>	<b>87,850r</b>	<b>82,842</b>	<b>-3.2</b>
Statistical difference	-658	-361		-96	83	-460	-330	380	49	249r	220r	-325	
<b>Total demand</b>	<b>374,334</b>	<b>376,241</b>	<b>+0.5</b>	<b>85,672</b>	<b>97,293</b>	<b>102,557</b>	<b>88,795</b>	<b>85,171</b>	<b>99,718</b>	<b>104,581r</b>	<b>87,630r</b>	<b>83,168</b>	<b>-2.4</b>
<b>TRANSFORMATION</b>													
Energy industry use <sup>5</sup>	28,317	29,720	+5.0	6,544	7,258	7,843	7,105	7,030	7,742	7,827r	7,137r	6,150	-12.5
Losses	28,143	28,946	+2.9	6,557	6,889	8,367	7,333	5,963	7,282	8,358r	6,494r	5,264	-11.7
<b>FINAL CONSUMPTION</b>	<b>317,874</b>	<b>317,575</b>	<b>-0.1</b>	<b>72,571</b>	<b>83,147</b>	<b>86,346</b>	<b>74,357</b>	<b>72,178</b>	<b>84,694</b>	<b>88,396r</b>	<b>73,999r</b>	<b>71,754</b>	<b>-0.6</b>
Iron & steel	3,842	3,366	-12.4	962	949	820	840	857	848	848r	848r	848	-1.0
Other industries	98,507	94,454	-4.1	23,967	24,856	24,193	23,087	23,109	24,066	24,787r	23,078r	23,688	+2.5
Transport	4,083	4,089	+0.1	1,021	1,021	1,022	1,022	1,022	1,022	1,022	1,022	1,022	-
Domestic	111,603	114,698	+2.8	22,900	30,644	33,518	25,206	23,169	32,805	34,336r	25,446r	22,224	-4.1
Other final users	99,839	100,968	+1.1	23,721	25,677	26,793	24,202	24,021	25,952	27,403r	23,605r	23,971	-0.2
Non energy use	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Percentage change in the third quarter of 2013 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 2012 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., Dong Energy Burbo UK Ltd., Drax Power Ltd., EDF Energy plc., Eggborough Power Ltd., E.On UK plc., Energy Power Resources, Falck Renewables Ltd., GDF Suez Teesside Power Ltd., Immingham CHP, Infinis plc, International Power Mitsui, London Waste Ltd., Magnox North Ltd., Peel Energy Ltd., Premier Power Ltd., RGS Energy Ltd, Riverside Resource Recovery 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:

Renewables' share of electricity generation was 13.2 per cent in 2013 Q3, an increase of 1.4 percentage points on a year earlier, reflecting increased capacity. However, this was 2.2 percentage points lower than the record share set in 2013 Q2. **(Chart 6.1)**

Renewable electricity generation was 10.3 TWh in 2013 Q3, an increase of 7.6 per cent on the 9.6 TWh in 2012 Q3, but 21 per cent lower than the quarterly generation of 2013 Q2 (13.0 TWh). **(Chart 6.2)**

Bioenergy generation was up by 26 per cent in 2013 Q3, from 3.7 TWh in 2012 Q3 to 4.6 TWh, due to the conversions of Ironbridge and Drax (Unit 1) stations earlier in 2013. Despite much increased capacity, low wind speeds in 2013 Q3 resulted in generation from onshore wind falling by 7.6 per cent, and offshore wind increasing by just 7.4 per cent. **(Chart 6.2)**

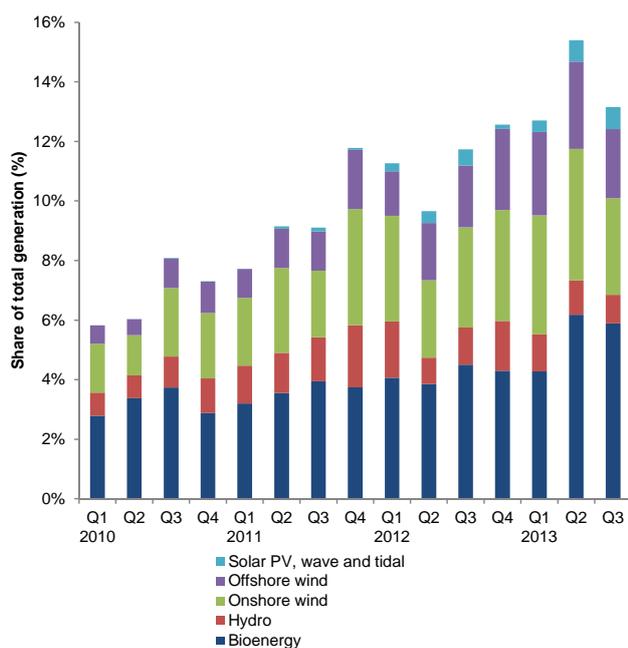
Renewable electricity capacity was 19.1 GW at the end of 2013 Q3, a 28 per cent increase (4.2 GW) on a year earlier, but a fall of 1.9 per cent (0.4 GW) on the previous quarter, due to the closure of Tilbury biomass station during the quarter. **(Chart 6.3)**

In 2013 Q3, 170 MW of installed capacity joined the Feed in Tariff scheme, increasing the total to 2.1 GW, approximately 11 per cent of all renewable installed capacity. **(Chart 6.5)**

Liquid biofuels consumption rose by 46 per cent, from 304 million litres in 2012 Q3 to 445 million litres in 2012 Q3, with record bioethanol consumption. Biofuels' share of petrol and diesel consumed in road transport rose 0.7 percentage points, to 3.4 per cent. **(Chart 6.6)**

Under the 2009, Renewable Energy Directive, renewables' share of gross final energy consumption was 4.2 per cent in 2012, up from 3.8 per cent in 2011. Over the two years, the average share was 4.00 per cent, compared with the UK's interim target of 4.04 per cent.

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



Renewables' share of electricity generation increased from 11.7 per cent in 2012 Q3 to 13.2 per cent in 2013 Q3. This was a 2.2 percentage point fall on 2013 Q2's record share of 15.4 per cent.<sup>1</sup>

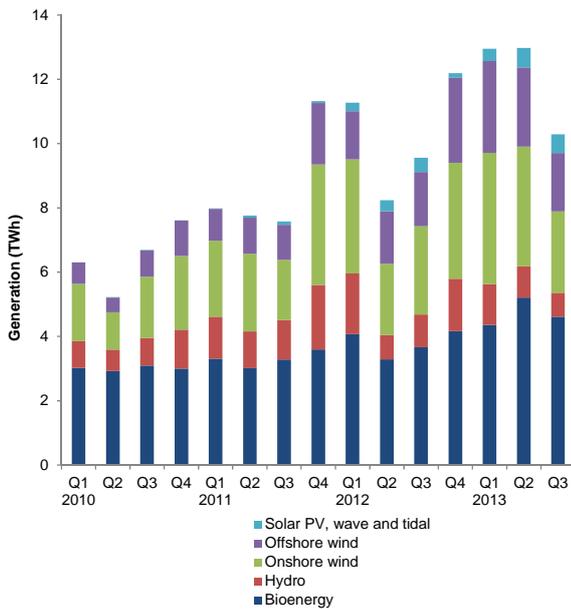
The increase on a year earlier reflects increased capacity available during the quarter, particularly in biomass conversions. This more than offset the impacts of low wind speeds and rainfall.

Total generation from renewables in 2013 Q3 was up by 7.6 per cent on 2012 Q3, from 9.6 TWh to 10.3 TWh. Overall electricity generation (78.2 TWh) in 2013 Q3 was down 4.0 per cent on a year earlier (81.5 TWh). The decline in overall generation contributed 0.5 percentage points of the 1.4 percentage point increase in renewables' share.

Renewables' share of electricity generation in the first three-quarters of 2013 increased to 13.7 per cent, from 10.9 per cent one year earlier. Total electricity generation fell by 0.9 per cent; this contributed 0.1 of the 2.8 percentage point increase in renewables' share.

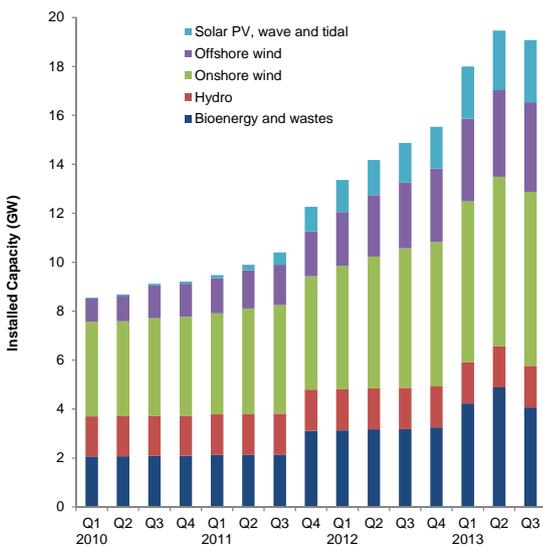
<sup>1</sup> Total electricity generation figures (all generating companies) can be found in table ET 5.1, at: [www.gov.uk/government/publications/electricity-section-5-energy-trends](http://www.gov.uk/government/publications/electricity-section-5-energy-trends)

**Chart 6.2 Renewable electricity generation**



*To note that the solar PV (and onshore wind) figures not only include installations confirmed on the Feed in Tariffs (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 supported by the Renewables Obligation (RO) or un-accredited capacity).*

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



In 2013 Q3, hydro generation fell by 27 per cent on a year earlier, from 1.0 TWh to 0.7 TWh, its lowest level since 2010 Q2, and the lowest for Q3 for five years. Average rainfall over the quarter was 30 per cent lower than a year earlier, with rainfall in July down 46 per cent August by 26 per cent and September by 21 per cent.

Electricity generated from onshore wind fell by 7.6 per cent in 2013 Q3, from 2.7 TWh in 2012 Q3 to 2.5 TWh, while generation from offshore wind was up by 7.4 per cent, from 1.7 TWh to 1.8 TWh, with the impact of increased capacity being offset by low wind speeds.

Average wind speeds for 2013 Q3, at 7.2 knots, were 0.6 knots (7.9 per cent) lower than a year earlier, and the lowest for the quarter for eleven years. Although wind speeds in August (7.7 knots) were up on a year earlier, in July (6.4 knots), they were the lowest for that month in the last 13 years, while September's (7.4 knots) were down 1.6 knots on a year earlier.<sup>2</sup>

Generation from bioenergy<sup>3</sup> in 2013 Q3 increased by 26 per cent on a year earlier, from 3.7 TWh to 4.6 TWh. Generation from plant biomass more than doubled, from 0.9 TWh to 2.2 TWh, due to the conversions of Ironbridge and Drax (unit 1) coal stations earlier in 2013. However, as a result, generation from co-firing fell by 92 per cent, from 0.4 TWh to less than 0.1 TWh.

In 2013 Q3, bioenergy had the largest share of renewables generation (45 per cent) with 25 per cent from onshore wind, 18 per cent from offshore wind, 7.3 per cent from hydro, and 5.6 per cent from solar PV.

At the end of 2013 Q3, renewable electricity capacity totalled 19.1 GW, an increase of 28 per cent (4.2 GW) on that installed a year earlier, but a fall of 1.9 per cent (0.4 GW) on that installed at the end of 2013 Q2.

The 0.4 GW fall in 2013 Q3 was due to the closure of Tilbury biomass station (818 MW) in August, having exhausted its operational hours under the Large Combustion Plant Directive. This was partially offset by increases in onshore wind (205 MW), due to the opening of several new sites, and offshore wind (113 MW) (due to the completion of Lincs and Teeside, and the beginning of operations at the new Gwynt-y-mor site).

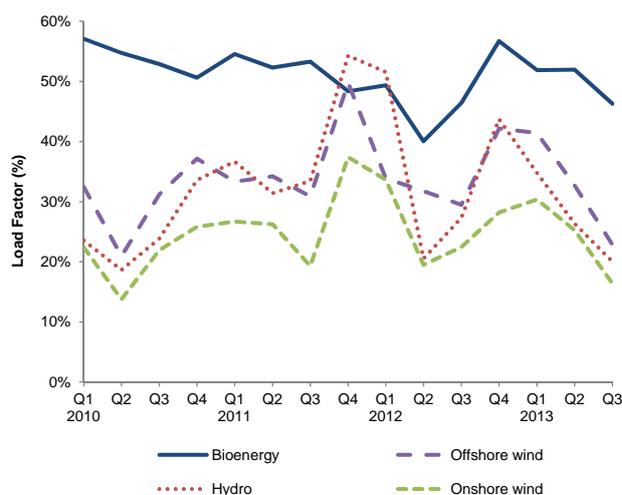
Solar photovoltaics (PV) capacity increased by 119 MW during 2013 Q3, with 21 MW from – mainly large-scale – schemes accredited under the RO, around 28 MW due to new FiTs capacity, and 70 MW un-accredited sub 5 MW capacity. At the end of 2013 Q3, solar PV, at 2.5 GW, was 13 per cent of all renewable capacity.

At the end of 2013 Q3, onshore wind had the largest share of capacity (37 per cent), followed by bioenergy (21 per cent) and offshore wind (19 per cent).

<sup>2</sup> Statistics on weather (temperature, wind speeds, rainfall and sun levels) can be found in tables ET 7.1 – 7.4, at: [www.gov.uk/government/statistical-data-sets/december-2012-energy-trends-weather-data](http://www.gov.uk/government/statistical-data-sets/december-2012-energy-trends-weather-data)

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

**Chart 6.4 Renewable electricity load factors**



In 2013 Q3, onshore wind's load factor fell by 6.1 percentage points, from 22.4 per cent in 2012 Q3 to 16.4 per cent. Meanwhile, offshore wind's load factor fell by 6.6 percentage points, from 29.5 per cent to 22.8 per cent. Both were the lowest since 2010 Q2<sup>4</sup>

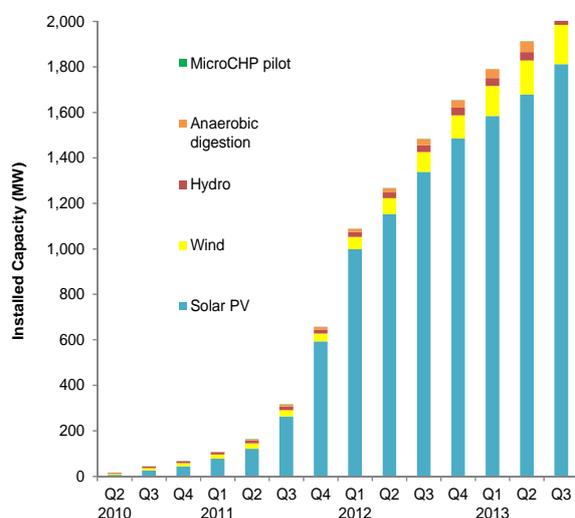
Compared with 2013 Q2, onshore and offshore wind's load factors in 2013 Q3 were down by 8.9 and 9.8 percentage points respectively, with wind speeds 1.7 knots lower.

Hydro's load factor in 2013 Q3 fell by 7.3 percentage points, from 27.3 per cent in 2012 Q3 to 20.0 per cent, due to low rainfall in the quarter, (and the preceding two quarters), compared with a year earlier.

Compared with 2013 Q2, hydro's load factor in 2013 Q3 was down 6.3 percentage points, from 26.3 per cent. Although, rainfall was around the same level, high rainfall levels in the final quarter of 2012 would have ensured reservoirs were still well stocked for the first two quarters of 2013.

For bioenergy, the load factor in 2013 Q3 was down 0.1 percentage points on a year earlier, and 5.7 percentage points on 2013 Q2. Whilst Tilbury biomass station closed during the quarter (thus reducing the load factor compared with 2013 Q2), it operated at similar levels in 2012 Q3 as it gradually resumed operations following the fire earlier in the year.

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



At the end of 2013 Q3, 2,078 MW of capacity was confirmed on the GB Feed in Tariff (FiTs) scheme. This was a 9 per cent increase on the 1,912 MW confirmed on the scheme at the end of 2013 Q2, and 40 per cent higher than the amount confirmed at the end of 2012 Q3.<sup>5</sup>

In terms of number of installations, at the end of 2013 Q3, there were 424,100 confirmed on the FiT scheme, a 7 per cent increase on the 398,090 confirmed at the end of the previous quarter.

Solar photovoltaics (PVs) represent the majority of both installations and installed capacity confirmed on FiTs, with, respectively, 99 per cent and 87 per cent of the total. The majority of PV installations are sub-4 kW retrofitted schemes, which increased by 23,755 (77 MW) in 2013 Q3.<sup>6</sup>

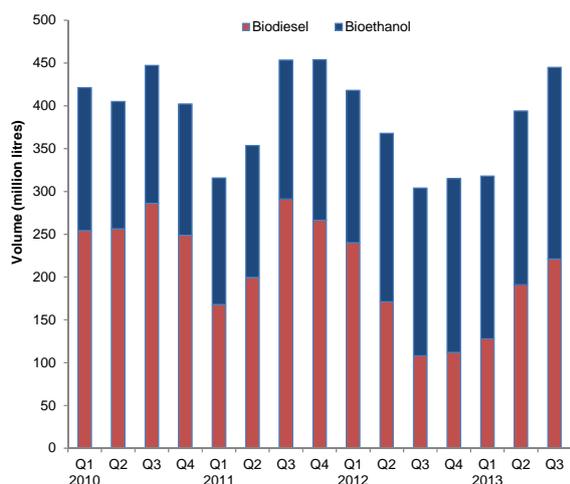
Renewable installations confirmed on FiTs (all except MicroCHP) represented 10 per cent of all renewable installed capacity.

<sup>4</sup> Load Factors are calculated using an average of capacity at the start and end of the quarter. Therefore, they can be influenced by the time in the quarter when any new capacity came online.

<sup>5</sup> Statistics on Feed in Tariff uptake can be found in the monthly central Feed-in-Tariff register table, at: [www.gov.uk/government/statistical-data-sets/monthly-central-feed-in-tariff-register-statistics](http://www.gov.uk/government/statistical-data-sets/monthly-central-feed-in-tariff-register-statistics)

<sup>6</sup> To note that Feed in Tariff uptake statistics are based on the *confirmation* date, which can be several months later than the commissioning (installation) date. Hence the amount of capacity installed in a quarter may differ substantially from that confirmed on the FiTs scheme in the same quarter.

**Chart 6.6 Liquid biofuels for transport consumption**



In 2013 Q3, 445 million litres of liquid biofuels were consumed in transport, a rise of 46 per cent on the total in 2012 Q3 (304 million litres), but still 2.0 per cent lower than 2011 Q4's record high of 454 million litres.

In 2013 Q3, biodiesel accounted for 3.2 per cent of diesel, and bioethanol 4.9 per cent of motor spirit. The combined contribution of the two fuels was 3.4 per cent, 0.7 percentage points higher than 2012 Q3's share.

Bioethanol consumption rose by 14.3 per cent, from 196 million litres to a new record high of 224 million litres. Biodiesel consumption rose by 105 per cent, from 108 million litres in 2012 Q3 to 221 million litres in 2013 Q3.

After six years of biodiesel contributing the largest share of biofuels consumption, for the sixth successive quarter, in 2013 Q3 bioethanol had the highest share of total biofuels consumption, with 50.3 per cent, compared with 49.7 per cent from biodiesel.

**28 November 2013 - Revisions to table DUKES 6.7: Progress under the 2009 EU Renewable Energy Directive (RED) – at: [www.gov.uk/government/publications/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes](http://www.gov.uk/government/publications/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes)**

Table DUKES 6.7 has been revised since first publication in July 2013, in order to be consistent with the UK's submission to the EU on progress under the RED, which included some data and methodology revisions.

The revisions have been mainly to the 2011 and 2012 renewable energy consumption numerators, as follows (aggregate revisions over the two years):

- New data on additional Renewable Transport Fuel Certificates issued (used for measuring sustainable biofuels used in transport): +230 KTOE
- Other revisions to renewable energy components: -45 KTOE

Across 2011 and 2012, the UK achieved an average of 4.00 per cent (revised from 3.94 per cent), against the 4.04 per cent interim target for the time period set out in the RED. The shortfall in renewable energy consumption over the two years (revised from 275 KTOE to 91 KTOE) remains within the margin of error around the estimate.

**Relevant tables**

6.1: Renewable electricity capacity and generation.....Page 47  
 6.2: Liquid biofuels for transport consumption.....Page 48

Contacts for further information:

**James Hemingway**  
 Renewables Statistics  
 Tel: 0300 068 5042  
 E-mail: [James.Hemingway@decc.gsi.gov.uk](mailto:James.Hemingway@decc.gsi.gov.uk)

**Julian Prime**  
 Renewables Statistics  
 Tel: 0300 068 5054  
 E-mail: [Julian.Prime@decc.gsi.gov.uk](mailto:Julian.Prime@decc.gsi.gov.uk)

# 6 RENEWABLES

Table 6.1. Renewable electricity capacity and generation

	2011	2012	per cent change	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd quarter p	per cent change
<b>Cumulative Installed Capacity<sup>1</sup></b>													<b>MW</b>
Onshore Wind	4,638	5,893	+27.1	4,432	4,638	5,040	5,371	5,697	5,893	6,562r	6,915r	7,120	+25.0
Offshore Wind	1,838	2,995	+63.0	1,650	1,838	2,200	2,516	2,682	2,995	3,381	3,544	3,657	+36.3
Shoreline wave / tidal	3	7	(+)	3	3	5	7	7	7	7	7	7	-
Solar photovoltaics	993	1,706	+71.8	500	993	1,305	1,422	1,620	1,706	2,128r	2,423r	2,542	+57.0
Small scale Hydro	204	215	+5.3	201	204	206	215	216	215	219	220	220	+2.1
Large scale Hydro	1,471	1,471	-	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	1,471	-
Landfill gas	1,050	1,036	-1.4	1,050	1,050	1,034	1,034	1,035	1,036	1,041r	1,041r	1,044	+0.8
Sewage sludge digestion	198	199	+0.6	198	198	198	198	199	199	206r	206r	206	+3.9
Energy from waste	544	593	+9.0	414	544	588	588	588	593	593	599	599	+1.9
Animal Biomass (non-AD) <sup>2</sup>	111	111	-	111	111	111	111	111	111	111	111	111	-
Anaerobic Digestion	66	110	+66.2	52	66	71	84	91	110	121r	122r	122	+33.5
Plant Biomass <sup>3</sup>	1,149	1,203	+4.7	320	1,149	1,136	1,159	1,161	1,203	2,162r	2,809	1,992	+71.6
<b>Total</b>	12,264	15,538	+26.7	10,402	12,264	13,363	14,175	14,877	15,538	18,003r	19,469r	19,091	+28.3
Co-firing <sup>4</sup>	338	204	-39.8	338	338	204	204	204	204	36r	36r	36	-82.2
<b>Generation<sup>5</sup></b>													<b>GWh</b>
Onshore Wind <sup>6</sup>	10,384	12,121	+16.7	1,863	3,747	3,555	2,215	2,743	3,608	4,082r	3,717r	2,535	-7.6
Offshore Wind <sup>6,7</sup>	5,126	7,463	+45.6	1,096	1,916	1,493	1,637	1,691	2,642	2,852	2,472r	1,816	+7.4
Shoreline wave / tidal <sup>6</sup>	1	4	(+)	0	0	1	1	1	1	2	2	1	+46.6
Solar photovoltaics <sup>6</sup>	244	1,188	(+)	106	57	265	341	440	141	387r	599r	580	+31.9
Hydro <sup>6</sup>	5,690	5,284	-7.1	1,233	2,005	1,886	754	1,017	1,627	1,268r	973r	747	-26.6
Landfill gas <sup>6</sup>	5,092	5,154	+1.2	1,296	1,247	1,299	1,278	1,280	1,297	1,295r	1,284r	1,275	-0.4
Sewage sludge digestion <sup>6</sup>	764	720	-5.8	191	191	188	181	173	178	189r	211r	196	+13.4
Energy from waste <sup>8</sup>	1,739	2,279	+31.0	355	686	536	560	599	584	535r	523r	552	-7.8
Co-firing with fossil fuels	2,964	1,783	-39.8	768	787	703	530	410	140	170r	36r	32	-92.2
Animal Biomass (non-AD) <sup>2,6</sup>	615	643	+4.6	155	148	177	141	144	180	178	178r	155	+7.2
Anaerobic Digestion	278	523	+88.1	73	101	105	124	140	153	161	160r	154	+9.5
Plant Biomass <sup>3,6</sup>	1,749	4,098	(+)	445	435	1,065	475	922	1,635	1,836r	2,820r	2,248	(+)
<b>Total</b>	34,645	41,258	+19.1	7,580	11,321	11,274	8,236	9,560	12,188	12,954r	12,973r	10,289	+7.6
Non-biodegradable wastes <sup>9</sup>	1,000	1,311	+31.0	204	394	308	322	344	336	308r	301r	318	-7.7
<b>Load Factors<sup>10</sup></b>													
Onshore Wind	27.3%	26.2%		19.3%	37.4%	33.6%	19.5%	22.4%	28.2%	30.3%	25.3%	16.4%	
Offshore Wind	36.8%	35.2%		30.9%	49.8%	33.9%	31.8%	29.5%	42.2%	41.4%	32.7%	22.8%	
Hydro	39.2%	35.8%		33.4%	54.3%	51.5%	20.5%	27.3%	43.7%	34.8%	26.3%	20.0%	
Landfill gas	56.5%	56.2%		55.9%	53.7%	57.1%	56.6%	56.0%	56.7%	57.7%	56.4%	55.4%	
Sewage sludge digestion	44.7%	41.3%		44.2%	43.9%	43.5%	42.0%	39.5%	40.6%	43.2%	46.8%	42.9%	
Energy from waste	40.9%	45.6%		38.8%	64.8%	43.4%	43.6%	46.1%	44.8%	41.8%	40.2%	41.7%	
Animal Biomass (non-AD)	63.5%	66.2%		63.3%	60.7%	73.3%	58.5%	59.1%	74.0%	74.7%	73.7%	63.3%	
Anaerobic Digestion	60.9%	67.6%		70.5%	77.5%	70.4%	73.1%	72.4%	69.0%	64.3%	60.2%	57.1%	
Plant Biomass	27.3%	39.7%		63.2%	26.8%	42.7%	19.0%	36.0%	62.6%	50.5%	51.9%	42.4%	
<b>Total (excluding co-firing and non-biodegradable wastes)</b>	<b>33.7%</b>	<b>32.3%</b>		<b>30.4%</b>	<b>42.1%</b>	<b>37.8%</b>	<b>25.6%</b>	<b>28.5%</b>	<b>35.9%</b>	<b>35.3%</b>	<b>31.6%</b>	<b>24.1%</b>	

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

2. Includes the use of poultry litter and meat and bone.

3. Includes the use of straw and energy crops.

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 table.

6. Actual generation figures are given where available, but otherwise are estimated using a typical load factor or the design load factor, where known. All solar photovoltaic generation is estimated this way.

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

8. Biodegradable part only.

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

10. 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

	2011	2012	<i>per cent change</i>	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter	2013 3rd quarter p	<i>per cent change</i>
<b>Volume</b>													
	<b>Million litres</b>												
Bioethanol	652	774	+18.8	162	188	178	197	196	203	190	203	224	+14.3
Biodiesel	925	631	-31.8	291	266	240	171	108	112	128	191	221	(+)
<b>Total biofuels for transport</b>	<b>1,577</b>	<b>1,405</b>	<b>-10.9</b>	<b>453</b>	<b>454</b>	<b>418</b>	<b>368</b>	<b>304</b>	<b>315</b>	<b>318</b>	<b>394</b>	<b>445</b>	<b>+46.4</b>
<b>Energy</b>													
	<b>Thousand tonnes of oil equivalent</b>												
Bioethanol	367	436	+18.8	91	106	100	111	110	114	107	114	126	+14.3
Biodiesel	760	518	-31.8	239	219	197	141	89	92	105	157	182	(+)
<b>Total biofuels for transport</b>	<b>1,128</b>	<b>955</b>	<b>-15.3</b>	<b>331</b>	<b>325</b>	<b>298</b>	<b>252</b>	<b>199</b>	<b>206</b>	<b>212</b>	<b>271</b>	<b>308</b>	<b>+54.5</b>
<b>Shares of road fuels</b>													
Bioethanol as per cent of Motor Spirit	3.3%	4.1%		3.3%	3.8%	3.9%	4.1%	4.2%	4.3%	4.4%	4.3%	4.9%	
Biodiesel as per cent of DERV	3.6%	2.4%		4.4%	4.0%	3.8%	2.6%	1.6%	1.6%	2.1%	2.8%	3.2%	
<b>Total biofuels as per cent of road fuels</b>	<b>3.5%</b>	<b>3.1%</b>		<b>3.9%</b>	<b>3.9%</b>	<b>3.9%</b>	<b>3.2%</b>	<b>2.7%</b>	<b>2.7%</b>	<b>3.0%</b>	<b>3.4%</b>	<b>3.4%</b>	

Source: HM Revenue and Customs Hydrocarbon Oils Bulletin, available at  
[www.uktradeinfo.com/Statistics/Pages/TaxAndDutybulletins.aspx](http://www.uktradeinfo.com/Statistics/Pages/TaxAndDutybulletins.aspx)

## **Electricity generation and supply figures for Scotland, Wales, Northern Ireland and England, 2009 to 2012**

### **Introduction**

This article shows how generation and consumption of electricity varies across the four countries of the United Kingdom. It updates and extends that published in December 2012. The UK figures shown in the tables in this article are taken from the Digest of United Kingdom Energy Statistics (DUKES) 2013, Chapters 5 and 6 and so the definitions used are identical to those in the Digest. Tables 1 and 2 are shown in “landscape” format at the end of the main text and cover the last four years.

### **Generation and trade**

Table 1 shows generation and supply of electricity in each of the UK countries. Because the mix of generating plant is not the same in each country, the overall percentage for each fuel type in individual years will change according to the fuels and stations that are available and the most advantageous to use.

Between 2011 and 2012, England's share of total UK generation increased marginally to 77.2 per cent. A large increase in coal generation and a small increase in oil generation were offset by a significant decrease in gas generation. Generation shares in Scotland, Wales and Northern Ireland fell marginally to 13.6 per cent, 7.2 per cent and 2.0 per cent respectively due to decline in gas generation. On average, over the last four years, 76.5 per cent of UK electricity generation has taken place in England, 13.6 per cent in Scotland, 7.9 per cent in Wales and 2.1 per cent in Northern Ireland.

Both Scotland and Wales are net exporters of electricity, with England importing electricity from both countries and from continental Europe (via the France and Netherlands interconnectors). Northern Ireland trades electricity with the Republic of Ireland to which it is a net exporter. It also imports electricity from Scotland via the Moyle interconnector - these imports were greater than exports to the Irish Republic in each of the last four years. In 2011, Scotland exported 26.1 per cent of the electricity generated there to consumers elsewhere in the UK, the same as in 2012. Transfers from Scotland to England fell by 7.6 per cent between 2011 and 2012; following a record high in 2011. Wales exported the equivalent of 9.9 per cent of its generation to consumers in England in 2012, a decrease on the 13.3 per cent in 2011 and a new record low.

### **Generation by fuel**

For each of the four UK countries, Table A1 shows the shares of the generation of electricity by the fuel categories used in Table 5.6 of the Digest of UK Energy Statistics 2013, for 2011 and 2012. The position in 2012 is shown in Chart 1, in terms of GWh. The share of nuclear in generation in England fell in 2010 due to maintenance outages at several stations including Sizewell B, which was offline for six months, before increasing once more in 2011 as these stations came back on line, a trend which has continued into 2012. Nuclear's share in Scotland fell in 2010 due to maintenance outages but rose again in 2011 and in 2012 to over one third of all generation due to increased availability. In Wales, nuclear's share of generation has fluctuated in recent years with a fall in 2010 before rising again in 2011. This was succeeded by a fall in 2012 to 15.8% of all generation in Wales.

Due to high gas prices, in England, gas's share of generation fell by thirteen percentage points, between 2011 and 2012, while coal's share rose by ten percentage points, following the same pattern that occurred between 2010 and 2011. This pattern, of an increase in coal's share at the expense of gas, between 2011 and 2012, was repeated in Wales. Gas's share also declined in Scotland, where coal's share increased by four percentage points, after a decline in 2011. In 2012,

### Special feature – Sub national electricity figures

gas' share of generation in each of England, Scotland, Wales and Northern Ireland was at a record low for the 2004 to 2012 period covered.

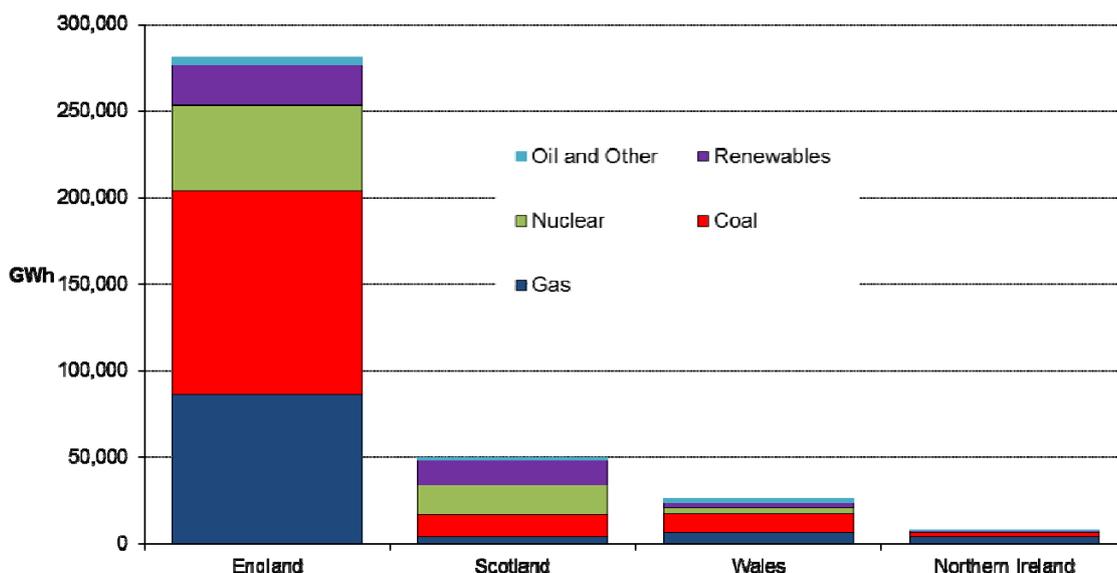
Scotland's renewables share of generation in 2012 is up 3 percentage points on 2011 at 29.8% whilst Northern Ireland's share was also up 3 percentage points to 15.9%. The increase was small in England at 8.2%, up 2 percentage points. However, the increase in Wales was small, up less than 1 percentage point to 8.7%.

**Table A1: Shares of each country's generation, by fuel type, 2011 and 2012**

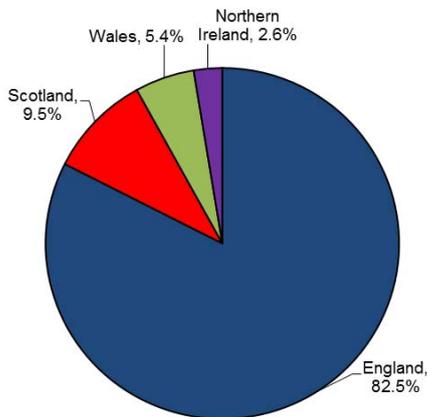
	Scotland	Wales	Northern Ireland	England
<b>2011</b>				
Coal	21.0%	22.5%	18.3%	32.1%
Gas	16.1%	39.3%	68.1%	43.5%
Nuclear	33.0%	19.5%	-	16.6%
Renewables	26.8%	8.0%	12.6%	6.3%
Oil and Other	3.0%	10.7%	1.1%	1.5%
<b>2012</b>				
Coal	24.9%	41.2%	32.5%	41.9%
Gas	8.0%	23.2%	50.5%	30.7%
Nuclear	34.4%	15.8%	-	17.5%
Renewables	29.8%	8.7%	15.9%	8.2%
Oil and Other	2.8%	11.1%	1.1%	1.6%

Combined heat and power (CHP) forms the bulk of "Other generators" generation, although some major power producers (MPPs) also operate generating plant that is partially CHP. CHP statistics for 2012 on a sub-national and regional basis were published in the September 2013 issue of Energy Trends (see references at the end of the article). The share of generation accounted for by generators other than major power producers varies slightly across the UK. In Scotland, in 2012, other generators had a 9 per cent share, while in England the share was 10 per cent, in Wales 8 per cent and in Northern Ireland 11 per cent.

**Chart 1: Generation by country and fuel type in 2012 (all generating companies)**



**Chart 2: Electricity consumption in 2012**



**Consumption and sales**

Transmission and distribution losses are not separately available for Scotland, Wales, Northern Ireland and England so estimates have been made using the UK proportions. Consumption figures have then been calculated by deducting net transfers and losses figures from the electricity supplied figures shown in Table 1. These show (Chart 2) that in 2012, 9.5 per cent of electricity consumption in the UK was in Scotland, 5.4 per cent in Wales, 2.6 per cent in Northern Ireland and 82.5 per cent in England. These show little variation from the average percentage shares for each country for the period 2008 to 2011, namely 82.0 per cent for England, 10.0 per cent for Scotland, 5.4 per cent for Wales and 2.6 per cent for Northern Ireland.

Separate data are collected for sales of electricity from the public supply system in Scotland, England and Wales, and Northern Ireland and published in monthly table ET 5.5 on DECC’s Energy Statistics website (see references at the end of the article), but for this article the breakdown between England and Wales has been estimated. Because of definitional and other differences set out in the technical notes to Chapter 5 of DUKES 2013, there is a statistical difference between the calculated consumption and the sales data in Table 1. The overall statistical difference for the UK equals that shown in Table 5.3 of DUKES for the UK as a whole for the public distribution system.

As part of its commitment to improving the quality of its statistics, DECC continues to examine this statistical difference and look further at the component series to see where the differences might be arising and thus where improvements to the data might be made.

Chart 3 shows the relationship between generation and consumption of electricity in each of the countries by means of a flow diagram.

**Renewables**

The share of renewables in electricity generation or sales is measured in two different ways in the UK<sup>1</sup>. First, there is the “headline” overall measure that shows the percentage of electricity generation accounted for by all renewables. Secondly, there is the measure that is based on the Renewables Obligation (RO) (and the analogous Renewables Obligation (Scotland) - ROS) which shows the percentage of electricity sales accounted for by renewables eligible under these obligations. The main differences are the exclusion from the RO of large-scale hydro and non-biodegradable wastes<sup>2</sup>. Table A2 shows the overall “headline” measure for 2009, 2010, 2011 and 2012.

**Table A2: Renewables percentages**

		UK	Scotland	Wales	Northern Ireland	England
Overall renewables percentage	2009	6.7	21.0	5.0	10.3	4.2
	2010	6.8	19.1	5.0	10.0	4.8
	2011	9.4	26.8	8.0	12.6	6.3
	2012	11.3	29.8	8.7	15.9	8.2

<sup>1</sup> There is also a third method used by the EU – a Renewables Directive basis – see Chapter 6 of the Digest of UK Energy Statistics 2013, table 6.7 and paragraph 6.38.

<sup>2</sup> Specific exclusions from eligibility for the RO are existing hydro plant over 20 MW; all plant using renewable sources built before 1990 (unless re-furbished); and energy from mixed waste combustion unless the waste is first converted to fuel using advanced conversion technology.

### *Special feature – Sub national electricity figures*

Scotland's renewables' share fell in 2010 mainly due to a fall in hydro generation as a result of much lower rainfall. With much higher rainfall, higher wind speeds and increased wind capacity, Scotland's renewables' share rose to 29.8 per cent in 2012. This share is very much higher than other parts of the UK. In 2012, all four countries had a record high percentage of electricity generated by renewables with strong growth in wind generation. On a RO basis, the percentage measure for the UK (6.7 per cent in 2009, 6.8 per cent in 2010, 9.4 per cent in 2011 and 11.3 per cent in 2012) is not meaningful at sub-national level because electricity generated in one part of the UK can be sold in a different part of the UK.

In Scotland, the renewables target (to reach 100 per cent of gross electricity consumption from renewables by 2020) is expressed as generation as a proportion of gross electricity consumption (defined as generation plus transfers into Scotland less transfers out of Scotland). In 2009, this percentage was 27.6 per cent, falling to 24.1 per cent in 2010. In 2011, this rose to 36.3 per cent, thus exceeding the interim target<sup>3</sup> of 31 per cent. This figure has continued to rise to 40.3 per cent in 2012. The next interim target is to reach 50 per cent by 2015.

The amount of electricity from renewable sources transferred from Scotland or Wales to England, or from Scotland to Northern Ireland, is not known. What is known from Table 2 is that the amount of ROS eligible electricity generated in Scotland in 2012 was 12 per cent more than in 2011, while the amount of RO eligible electricity generated in Wales in 2012 was 2 per cent more than in 2011. In England, the increase was 30 per cent. In Northern Ireland RO eligible electricity generated was 18 per cent more. In the UK as a whole, RO eligible electricity production increased by 21 per cent. Over the four years shown in Table 2, the increases in RO eligible electricity production have been substantial across all countries, namely 42 per cent for Northern Ireland, 51 per cent for Scotland, 42 per cent for Wales and 95 per cent for England.

Renewables statistics for 2012 on a sub-national and regional basis were published in the September 2013 issue of Energy Trends (see references at the end of the article).

#### **Mita Kerai**

Electricity Statistics

Tel: 0300 068 5044

E-mail: [Mita.Kerai@decc.gsi.gov.uk](mailto:Mita.Kerai@decc.gsi.gov.uk)

#### **Claire Gavin**

Electricity Statistics

Tel: 0300 068 5046

E-mail: [Claire.Gavin@decc.gsi.gov.uk](mailto:Claire.Gavin@decc.gsi.gov.uk)

#### **References:**

Digest of UK Energy Statistics 2013 (DUKES); published for DECC by The Stationery Office. £62.00, but also available on DECC's energy statistics website at:

[www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes#2013](http://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes#2013).

Energy Trends monthly table 5.5:

[www.gov.uk/government/publications/electricity-section-5-energy-trends](http://www.gov.uk/government/publications/electricity-section-5-energy-trends)

"Combined Heat and Power in Scotland, Wales, Northern Ireland and the regions of England in 2012" – Energy Trends September 2013, page 60:

[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)

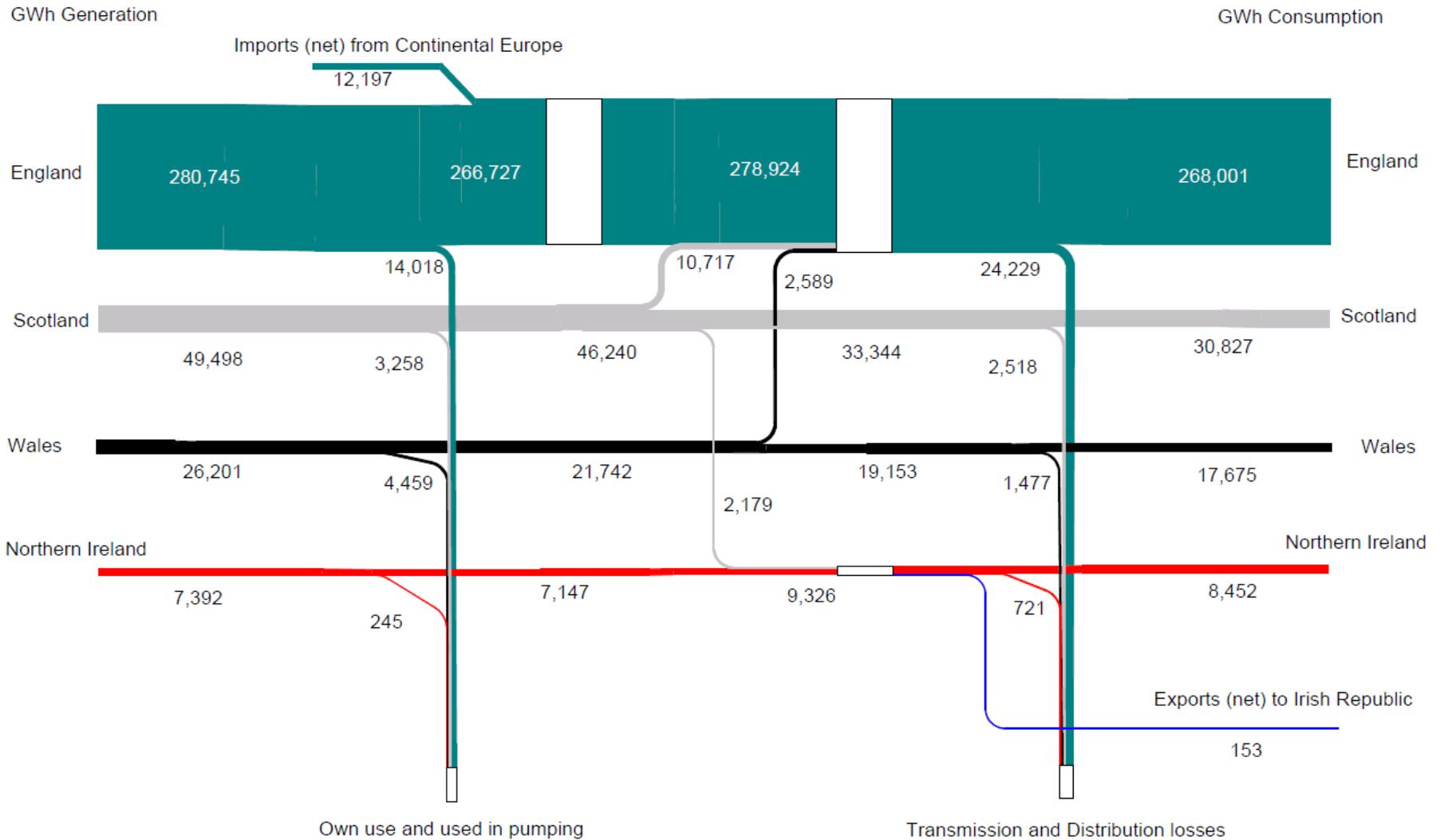
"Renewable energy in Scotland, Wales, Northern Ireland and the regions of England in 2012" – Energy Trends September 2013, page 49:

[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)

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<sup>3</sup> The corresponding percentages for the UK as a whole are 6.7 in 2009, 6.8 in 2010 9.4 in 2011 and 11.3 in 2012, which are similar to the overall renewables percentages in Table 2.

**Chart 3: Electricity generation and consumption flow chart, 2012**



**Table 1: Generation and supply of electricity in Scotland, Wales, Northern Ireland and England, 2009 to 2012**

		2009					2010					<i>GWh</i>
		UK total	Scotland	Wales	Northern Ireland	England	UK total	Scotland	Wales	Northern Ireland	England	
Generated by	Major power producers	342,374	45,284	30,370	7,628	259,092	347,785	44,179	30,018	7,128	266,460	
	Other generators	34,378	5,889	1,619	388	26,482	33,974	5,785	2,142	483	25,563	
Total generated		376,753	51,173	31,989	8,016	285,574	381,759	49,965	32,160	7,612	292,023	
Own use by	Other generators	1,821	312	86	21	1,402	1,705	290	108	24	1,283	
Electricity supplied (net) by	Other generators	32,558	5,577	1,533	367	25,080	32,269	5,495	2,035	459	24,280	
Used in pumping at pumped storage and other own use by	MPPs	19,593	3,649	4,732	184	11,029	18,615	3,264	4,383	199	10,768	
Electricity supplied (net) by	MPPs	322,781	41,635	25,638	7,444	248,063	329,170	40,915	25,634	6,929	255,692	
Electricity transferred to England (net of receipts)		-	10,209	8,140	-	-18,349	-	7,998	7,897	-	-15,896	
Electricity transferred to Northern Ireland (net of receipts)			1937	-	-1937	-	-	2,297	-	-2,297	-	
Electricity transferred to Europe (net of receipts)		-2,861	-	-	367	-3,228	-2,663	0	0	232	-2,895	
Transfers from other generators to public supply		16,303	2,423	579	290	13,011	14,660	2,622	670	364	11,003	
Transmission losses		6,852	671	364	179	5,638	5,975	593	324	155	4,903	
Distribution losses		21,191	1,796	1,065	548	17,781	21,061	1,812	1,049	532	17,667	
Consumption from public supply [A]		313,923	29,449	16,650	8,577	259,247	319,472	30,839	17,034	8,672	262,927	
Consumption by autogenerators		16,234	3,151	953	77	12,053	17,594	2,870	1,364	95	13,265	
Total Electricity consumption		330,157	32,600	17,603	8,654	271,300	337,066	33,709	18,398	8,767	276,192	
Electricity sales (public supply) [B]		313,784	29,955	17,498	8,265	258,065	319,919	31,143	17,737	8,316	262,724	
Statistical difference between calculated consumption [A] and sales [B]		+138	-506	-849	+311	+1,182	-447	-303	-703	+356	+203	

*Figures in this table do not sum exactly to the UK totals shown because of rounding*

**Table 1 continued: Generation and supply of electricity in Scotland, Wales, Northern Ireland and England, 2009 to 2012**

		2011					2012					GWh
		UK total	Scotland	Wales	Northern Ireland	England	UK total	Scotland	Wales	Northern Ireland	England	
Generated by	Major power producers	332,312	44,880	25,043	7,319	255,070	328,106	44,823	24,029	6,573	252,680	
	Other generators	35,142	6,357	2,398	611	25,776	35,730	4,675	2,172	819	28,064	
Total generated		367,454	51,237	27,441	7,930	280,846	363,836	49,498	26,201	7,392	280,745	
Own use by	Other generators	1,947	352	133	34	1,428	2,121	277	129	49	1,666	
Electricity supplied (net) by	Other generators	33,195	6,005	2,266	577	24,348	33,609	4,397	2,043	770	26,399	
Used in pumping at pumped storage and other own use by MPPs		18,323	2,924	4,149	179	11,072	19,859	2,980	4,330	196	12,352	
Electricity supplied (net) by MPPs		313,988	41,956	20,893	7,140	243,998	308,247	41,843	19,699	6,377	240,328	
Electricity transferred to England (net of receipts)		-	11,597	3,652		-15,250	0	10,717	2,589	0	-13,306	
Electricity transferred to Northern Ireland (net of receipts)		-	1,769	-	-1,769	-	-	2,179	-	-2,179	-	
Electricity transferred to Europe (net of receipts)		-6,222	0	0	246	-6,468	-12,044	0	0	153	-12,197	
Transfers from other generators to public supply		15,226	3,035	857	443	10,891	16,669	2,931	701	621	12,417	
Transmission losses		6,470	633	357	169	5,311	6,764	637	366	175	5,585	
Distribution losses		21,673	1,811	1,092	548	18,222	22,156	1,878	1,110	545	18,624	
Consumption from public supply [A]		307,313	29,184	16,651	8,389	253,089	308,040	29,363	16,335	8,303	254,038	
Consumption by autogenerators		17,949	2,966	1,407	134	13,442	16,915	1,463	1,341	149	13,962	
Total Electricity consumption		325,262	32,150	18,058	8,523	266,531	324,954	30,827	17,675	8,452	268,001	
Electricity sales (public supply) [B]		308,033	29,783	17,241	7,931	253,078	308,408	28,636	17,109	7,927	254,735	
Statistical difference		-720	-599	-590	+458	+11	-369	+727	-775	+376	-697	
between calculated consumption [A] and sales [B]												

Figures in this table do not sum exactly to the UK totals shown because of rounding

**Table 2: Generation of electricity by fuel in Scotland, Wales, Northern Ireland and England, 2009 to 2012** *GWh*

		2009					2010				
		UK total	Scotland	Wales	Northern Ireland	England	UK total	Scotland	Wales	Northern Ireland	England
Major power producers:	Coal	99,287	11,896	6,547	1,371	79,473	103,941	14,653	5,929	1,817	81,542
	Oil	3,839	278	-	78	3,484	2,271	206	-	73	1,992
	Gas	152,598	7,430	14,111	5,642	125,415	161,748	6,618	15,227	4,840	135,063
	Nuclear	69,098	16,681	6,122	-	46,295	62,140	15,293	5,532	-	41,315
	Thermal renewables	2,670	242	91	-	2,338	3,691	299	72	-	3,321
	Hydro natural flow	4,294	4,056	216	-	22	2,703	2,521	164	-	18
	Hydro pumped storage	3,685	1,087	2,598	-	-	3,150	779	2,372	-	-
	Non thermal renewables	6,904	3,615	685	538	2,066	8,141	3,811	722	398	3,211
	<b>Total</b>	<b>342,374</b>	<b>45,284</b>	<b>30,370</b>	<b>7,628</b>	<b>259,092</b>	<b>347,785</b>	<b>44,179</b>	<b>30,018</b>	<b>7,128</b>	<b>266,460</b>
Other Generators:	Coal	3,751	69	-	31	3,651	3,753	62	-	41	3,650
	Oil	2,155	1,017	64	34	1,041	2,532	1,007	173	34	1,318
	Gas	13,901	1,940	470	32	11,459	13,908	1,770	806	44	11,289
	Thermal renewables	8,004	1,084	348	43	6,528	8,346	1,126	339	87	6,795
	Other thermal	2,327	-	468	-	1,860	1,559	-	511	-	1,048
	Hydro natural flow	947	808	50	31	58	872	742	49	36	46
	Non thermal renewables	2,424	953	220	217	1,035	2,085	1,066	265	242	512
	Wastes	868	18	-	-	851	919	14	-	-	905
	<b>Total</b>	<b>34,378</b>	<b>5,889</b>	<b>1,619</b>	<b>388</b>	<b>26,482</b>	<b>33,974</b>	<b>5,785</b>	<b>2,142</b>	<b>483</b>	<b>25,563</b>
<b>Total generation by fuel</b>		<b>376,753</b>	<b>51,173</b>	<b>31,989</b>	<b>8,016</b>	<b>285,574</b>	<b>381,759</b>	<b>49,965</b>	<b>32,160</b>	<b>7,612</b>	<b>292,023</b>
<i>within</i>	Renewables Hydro	5,241	4,864	266	31	80	3,575	3,263	213	36	64
<i>which:</i>	Wind, wave, solar	9,328	4,568	905	754	3,101	10,226	4,877	987	639	3,723
	Other	10,674	1,326	439	43	8,866	12,037	1,425	411	87	10,115
	<b>Total</b>	<b>25,243</b>	<b>10,759</b>	<b>1,610</b>	<b>828</b>	<b>12,046</b>	<b>25,838</b>	<b>9,564</b>	<b>1,610</b>	<b>762</b>	<b>13,902</b>
Renewables eligible under the renewables obligation		21,086	7,944	1,485	828	10,829	22,513	7,717	1,516	762	12,519
Percentage shares of generation:	Coal	27.3%	23.4%	20.5%	17.5%	29.1%	28.2%	29.5%	18.4%	24.4%	29.2%
	Oil	1.6%	2.5%	0.2%	1.4%	1.6%	1.3%	2.4%	0.5%	1.4%	1.1%
	Gas	44.2%	18.3%	45.6%	70.8%	47.9%	46.0%	16.8%	49.9%	64.2%	50.1%
	Nuclear	18.3%	32.6%	19.1%	-	16.2%	16.3%	30.6%	17.2%	-	14.1%
	Hydro natural flow	1.4%	9.5%	0.8%	0.4%	-	0.9%	6.5%	0.7%	0.5%	-
	Other renewables	5.3%	11.5%	4.2%	9.9%	4.2%	5.8%	12.6%	4.3%	9.5%	4.7%
	Other	1.8%	2.2%	9.6%	-	0.9%	1.5%	1.6%	9.0%	-	0.7%
	<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

*Figures in this table do not sum exactly to the UK totals shown because of rounding*

**Table 2 continued: Generation of electricity by fuel in Scotland, Wales, Northern Ireland and England, 2008 to 2012 GWh**

		2011					2012				
		UK total	Scotland	Northern			UK total	Scotland	Wales	Northern	
				Wales	Ireland	England				Ireland	England
Major power producers:	Coal	104,797	10,728	6,170	1,414	86,485	140,164	11,867	10,799	2,367	115,130
	Oil	1,074	160	-	52	862	1,130	155	-	44	931
	Gas	132,753	6,227	9,880	5,301	111,346	86,229	3,680	5,167	3,609	73,773
	Nuclear	68,980	16,892	5,364	-	46,725	70,405	17,050	4,141	-	49,214
	Thermal renewables	4,533	274	76	-	4,182	6,157	422	129	-	5,606
	Hydro natural flow	4,594	4,362	210	-	21	4,169	3,859	287	-	24
	Hydro pumped storage	2,906	604	2,301	-	-	2,966	610	2,357	-	-
	Non thermal renewables	12,675	5,632	1,041	553	5,450	16,884	7,181	1,149	553	8,001
	Total		332,312	44,880	25,043	7,319	255,070	328,106	44,823	24,029	6,573
Other Generators:	Coal	3,774	51	-	36	3,687	3,017	467	-	36	2,515
	Oil	2,043	780	121	36	1,106	1,935	569	102	36	1,228
	Gas	13,767	2,036	913	96	10,722	13,844	286	903	123	12,532
	Thermal renewables	8,667	1,140	394	82	7,050	9,041	1,227	297	109	7,408
	Other thermal	1,714	-	508	-	1,207	1,576	27	456	-	1,093
	Hydro natural flow	1,096	969	59	20	49	1,115	985	50	21	59
	Non thermal renewables	3,079	1,369	404	341	966	3,891	1,083	365	494	1,950
	Wastes	1,000	12	-	-	988	1,311	31	-	-	1,280
	Total		35,142	6,357	2,398	611	25,776	35,730	4,675	2,172	819
Total generation by fuel		367,454	51,237	27,441	7,930	280,846	363,836	49,498	26,201	7,392	280,745
<i>within which:</i>											
	Renewables Hydro	5,690	5,331	269	20	70	5,284	4,844	337	21	83
	Wind, wave, solar	15,755	7,001	1,445	893	6,416	20,775	8,264	1,514	1,047	9,950
	Other	13,200	1,415	470	82	11,233	15,198	1,649	426	109	13,014
	Total	34,645	13,747	2,184	996	17,718	41,258	14,756	2,277	1,177	23,048
Renewables eligible under the renewables obligation		30,042	10,682	2,068	996	16,296	36,388	11,998	2,107	1,177	21,106
Percentage shares of generation:	Coal	29.5%	21.0%	22.5%	18.3%	32.1%	39.4%	24.9%	41.2%	32.5%	41.9%
	Oil	0.8%	1.8%	0.4%	1.1%	0.7%	0.8%	1.5%	0.4%	1.1%	0.8%
	Gas	39.9%	16.1%	39.3%	68.1%	43.5%	27.5%	8.0%	23.2%	50.5%	30.7%
	Nuclear	18.8%	33.0%	19.5%	-	16.6%	19.4%	34.4%	15.8%	-	17.5%
	Hydro natural flow	1.5%	10.4%	1.0%	0.3%	-	1.5%	9.8%	1.3%	0.3%	-
	Other renewables	7.9%	16.4%	7.0%	12.3%	6.3%	9.9%	20.0%	7.4%	15.6%	8.2%
	Other	1.5%	1.2%	10.2%	-	0.8%	1.6%	1.3%	10.7%	-	0.8%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Figures in this table do not sum exactly to the UK totals shown because of rounding

## Proposed changes to DECC domestic energy bills estimates

### Background

DECC currently publish bill estimates in Quarterly Energy Prices (QEP, tables 2.2.1 through 2.2.4 for electricity and tables 2.3.1 through 2.3.4 for gas). These are based on standard household consumption levels which have remained unchanged since DECC started publishing such estimates in the 1990's. Currently DECC use 3,300 kWh per year as the average electricity consumption for households using standard meters and 6,600 kWh per year (with night time consumption of 3,600 kWh per year) for those using Economy 7 meters. For gas, DECC use 18,000 kWh per year as the average consumption level.

Using the current method, in March 2013 DECC published estimates of energy bills for 2012. Estimates were published showing bills by the three payment methods (standard credit; direct debit; and pre-payment meters); and whether households were with their home or a non-home supplier (British Gas is the home supplier for all GB gas customers, with the home supplier for electricity based on the holder of the licence following privatisation at the end of the 90's). The table on the right below is an example to show the home / non-home split.

**Tables 1 & 2 - Average Energy Bills 2012<sup>1</sup>**

	Standard credit	Direct debit	Pre-payment	Overall		Home Standard credit	Non-home Standard credit
Electricity	£ 500	£ 460	£ 501	£ 479	Electricity	£ 516	£ 487
Gas	£ 839	£ 773	£ 828	£ 800	Gas	£ 865	£ 804
Total	£ 1,339	£ 1,233	£ 1,329	£ 1,279	Total	£ 1,381	£ 1,291

However, in the past eight years there has been a noticeable reduction in average gas consumption, which has lead DECC to review these estimates. Domestic electricity consumption increased sharply between 1990 and 2005, but has since fallen slightly since then. Long term series of domestic electricity and gas consumption are published in a number of DECC's statistical publications, including: the Digest of UK Energy Statistics (DUKES)<sup>2</sup>; and in Energy Consumption in the UK<sup>3</sup> (ECUK).

### DECC proposed methodology

DECC plans to review the consumption levels used and then publish revised estimates in March 2014. DECC will consider the detailed time series of consumption levels and aims to produce a central estimate to be used reflecting a mean estimate for consumption. In future DECC plan to routinely review consumption levels used in bill estimates every five years.

Table 3.07 of ECUK currently contains estimates of average consumption levels for the last five years, on both an unadjusted and a temperature corrected basis. Over the past five years, average electricity consumption has fallen to around 4,200 kWh per year, with gas consumption averaging around 15,600 kWh per year. The high value for electricity is due to the data in table 3.07 reflecting consumption of households on both standard and economy 7 tariffs. For households on standard electricity tariffs average consumption has recently averaged below 4,000 kWh (derived from DUKES). A breakdown of consumption by meter type is published in table 5.3 of DUKES. For the purposes of the bill estimates, consumption of those on standard electricity tariffs is split from those using economy 7 tariffs.

<sup>1</sup> QEP - <https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics>

<sup>2</sup> DUKES - [www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes](http://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes)

<sup>3</sup> ECUK - [www.gov.uk/government/collections/energy-consumption-in-the-uk](http://www.gov.uk/government/collections/energy-consumption-in-the-uk)

The table below shows average annual consumption over the last five years.

**Table 3 – Average energy consumption in kWh (source ECUK)**

	Electricity		Gas	
	Unadjusted	Temperature adjusted	Unadjusted	Temperature adjusted
2008	4,599	4,627	16,546	16,976
2009	4,526	4,563	15,217	15,608
2010	4,513	4,414	17,774	15,656
2011	4,221	4,328	13,252	14,914
2012	4,227	4,226	15,281	15,257

An alternative data source is meter-point data which is used by DECC for producing sub-national energy consumption statistics.

**Table 4 – Average energy consumption in kWh (source DECC sub-national data)**

	Electricity <sup>4</sup>	Gas <sup>5</sup>
2008	4,198	16,907
2009	4,152	15,383
2010	4,148	15,156
2011	4,078	14,205
2012	4,014	14,080

The above electricity data again combines consumption of those on standard meters with those on economy 7 meters. For 2012, average consumption from this dataset suggest that households with standard meters consumed 3,670 kWh during the year, with consumption on profile 2 (economy 7) meters averaging 5,628 kWh. The gas data is temperature corrected with the data reflecting consumption in the period from October through to September rather than a calendar year. For electricity, it should be noted that the above data is based on meter point data; some customers with economy 7 meters will be on standard tariffs.

### Ofgem publications

In September 2013, Ofgem published documents<sup>6</sup> concluding that changes should be made to the average consumption levels they use. Ofgem publish two different averages, with one reflecting mean consumption levels, whilst another aims to show median levels. Distributions of both gas and particularly electricity consumption are positively skewed, with more consumers using less than the mean level, so different averages are of use for different purposes.

Following their consultation Ofgem decided that they would change their mean consumption levels from 4,000 kWh down to 3,800 kWh for standard electricity, and from 16,900 kWh down to 15,300 kWh for gas. Their median consumption levels were changed to 3,200 kWh for standard electricity (from 3,300 kWh), and 13,500 kWh for gas (from 16,500 kWh).

### Revisions

DECC plans to revise all back data for bills in line with the new volume estimates produced, so that the time series of bills shown reflect changes in average prices.

At the same time, DECC plan to make other amendments to the series published. In particular DECC will produce estimates of average bills across all payment types for historical data, as this is currently only shown from 2007 onwards.

<sup>4</sup> [www.gov.uk/government/statistical-data-sets/regional-and-local-authority-electricity-consumption-statistics-2005-to-2011](http://www.gov.uk/government/statistical-data-sets/regional-and-local-authority-electricity-consumption-statistics-2005-to-2011)

<sup>5</sup> [www.gov.uk/government/statistical-data-sets/gas-sales-and-numbers-of-customers-by-region-and-local-authority](http://www.gov.uk/government/statistical-data-sets/gas-sales-and-numbers-of-customers-by-region-and-local-authority)

<sup>6</sup> [www.ofgem.gov.uk/electricity/retail-market/monitoring-data-and-statistics/electricity-and-gas-supply-market-indicators](http://www.ofgem.gov.uk/electricity/retail-market/monitoring-data-and-statistics/electricity-and-gas-supply-market-indicators)

### **Standing charges**

In calculating bills, for the most recent years, DECC show the split between the fixed and variable elements of bills, and these are published in tables 2.2.4 and 2.3.4 of QEP. Currently, for 2012, the fixed elements of bills (standing charges or the additional costs of unit 1 prices over unit 2 prices for two rate tariffs) average £61 for standard electricity and £113 for gas. These tables can be used to estimate bills for alternate consumption levels.

### **Within year consumption**

In calculating average bills, DECC receives data on the number of customers and prices by tariff. To produce an average bill DECC needs to make assumptions regarding how that consumption is spread across the year. The table below shows the breakdown for electricity and gas. Following a recent check, DECC is not planning to amend these seasonal splits.

**Table 5 – Quarterly Consumption Splits**

	Electricity	Gas
Quarter 1	30%	40%
Quarter 2	20%	20%
Quarter 3	20%	10%
Quarter 4	30%	30%

### **Bills based on actual consumption**

Actual average consumption varies sharply due to variations in the weather. In March editions of Energy Trends, DECC have published estimates of actual bills, reflecting the changes in consumption in the latest years. DECC plans to continue publishing these estimates, with estimates of bills for 2013 to be published on Thursday 27<sup>th</sup> March 2014.

This additional analysis together with DECC average bills helps to show the main effects on consumers during the latest year. In particular between 2010 and 2011, despite prices rising by 9.2%, actual bills fell by 7.2%, as consumption fell sharply reflecting the milder weather in 2011 compared to 2010. In contrast both prices and consumption increased into 2012 resulting in bills increasing by around 15%.

### **User views**

DECC is interested in users' views on these proposals. Please contact either of the articles authors before the end of February if you have any comments or thoughts regarding DECC's proposals.

#### **Iain MacLeay**

Energy Statistics

Tel : 0300 068 5048

E-mail: [Iain.MacLeay@decc.gsi.gov.uk](mailto:Iain.MacLeay@decc.gsi.gov.uk)

#### **Sam Trewin**

Energy Statistics

Tel: 0300 068 5162

E-mail: [Sam.Trewin@decc.gsi.gov.uk](mailto:Sam.Trewin@decc.gsi.gov.uk)

## Small scale solar PV cost data

### Introduction

Cost data for Solar Photovoltaic (PV) has been recorded on the Microgeneration Certification Scheme (MCS) Database<sup>1</sup> since February 2013. This article describes the initial quality assurance carried out on these data and the preliminary findings for the period up to the end of July 2013. It is planned that the analysis will be repeated in April 2014 when data for the full 2013/14 financial year will be available and the average cost per month will be analysed.

Each record contains one cost figure for the installation which is defined as follows:

“Cost of solar photovoltaic generation equipment, plus direct costs of fixing panels to roof/ground mount, any performance displays and connecting to electricity supply, including VAT but excluding (a) the cost of any extended warranty; and (b) the cost of any other materials, works or other items whatsoever (such as, but not limited to, any cost of general rewiring at a property or tracker systems).”

It should be noted that the data are therefore wholesale costs and do not represent the cost that the householder has paid for the installation.

As each installation is a different size the total cost is divided by the installed capacity to get a cost per kW.

### Data Coverage and quality

Table 1 gives an indication of how complete the cost field is on the MCS. For the first two months of data collection under one-fifth of the records entered onto the database had cost data. This has increased to around half from April 2013 onwards.

**Table 1: Number of records with cost data entered on MCS**

Month	Cost data entered (number of installations)			% cost data available
	No	Yes	Total	
February	5,594	1,034	6,628	16%
March	6,722	1,624	8,346	19%
April	4,383	3,999	8,382	48%
May	4,189	4,485	8,674	52%
June	5,874	7,790	13,664	57%
July	2,786	2,441	5,227	47%

Table 2 shows that there are a number of extreme values in the data set which would skew any analysis. Therefore, it was decided that any records where the cost per KW installed was less than £500 and greater than £5,000 would be excluded. This process excludes 501 records (2.3% of the original observations).

<sup>1</sup> To be eligible for the Feed-in tariff Scheme (FITs) small scale installations must be certified via MCS. This applies to solar PV and wind installations with a declared net capacity of up to and including 50kW and micro CHP up to and including 2kW. The MCS database is administered by Gemserve on behalf of DECC

**Table 2: Cost per kW installed (£)**

Month	0-4kW			4-10kW			10-50kW		
	Count	Max	Min	Count	Max	Min	Count	Max	Min
February	982	1,470,784	0.0	31	2,500	376.1	21	2,678	372.0
March	1,471	1,261,292	0.3	51	10,417	385.0	102	2,230	61.3
April	3,665	1,545,455	0.3	139	10,417	600.0	195	3,459	41.7
May	4,152	1,020,408	0.0	145	10,417	0.2	188	12,111	100.0
June	6,944	1,659,664	0.0	343	7,007	0.1	503	14,566	0.1
July	2,299	29,091	0.0	76	21,111	489.2	66	3,824	45.5

The regional distribution of the data was examined to check that the data are representative of all installations, it is possible that cost may vary by region so if some regions have a much higher percentage of completed cost records than others this may skew the results. All regions have a good proportion of completed cost data, Scotland has more complete data, whereas the northern areas of England are slightly under-represented as their data are less complete.

**Table 3: Cost data available (Percentage of records with cost data by region)**

Region	%
East Midlands	46%
East of England	48%
London	54%
North East	41%
North West	41%
South East	56%
South West	58%
West Midlands	51%
Yorkshire and the Humber	41%
Scotland	72%
Wales	50%

### Preliminary cost data results

Table 4 shows the average ‘wholesale’ cost per kW installed (all costs have been rounded to the nearest 10 pounds). For installations sized between 0-4kW the mean cost per kW was £2,020, the median cost was £1,850 suggesting that the data have a positive skew. As the size of the installations increases the cost per kW decreases, for installations sized 4-10kW the mean cost per kW is £1,660 and for installations sized 10-50kW it is £1,330.

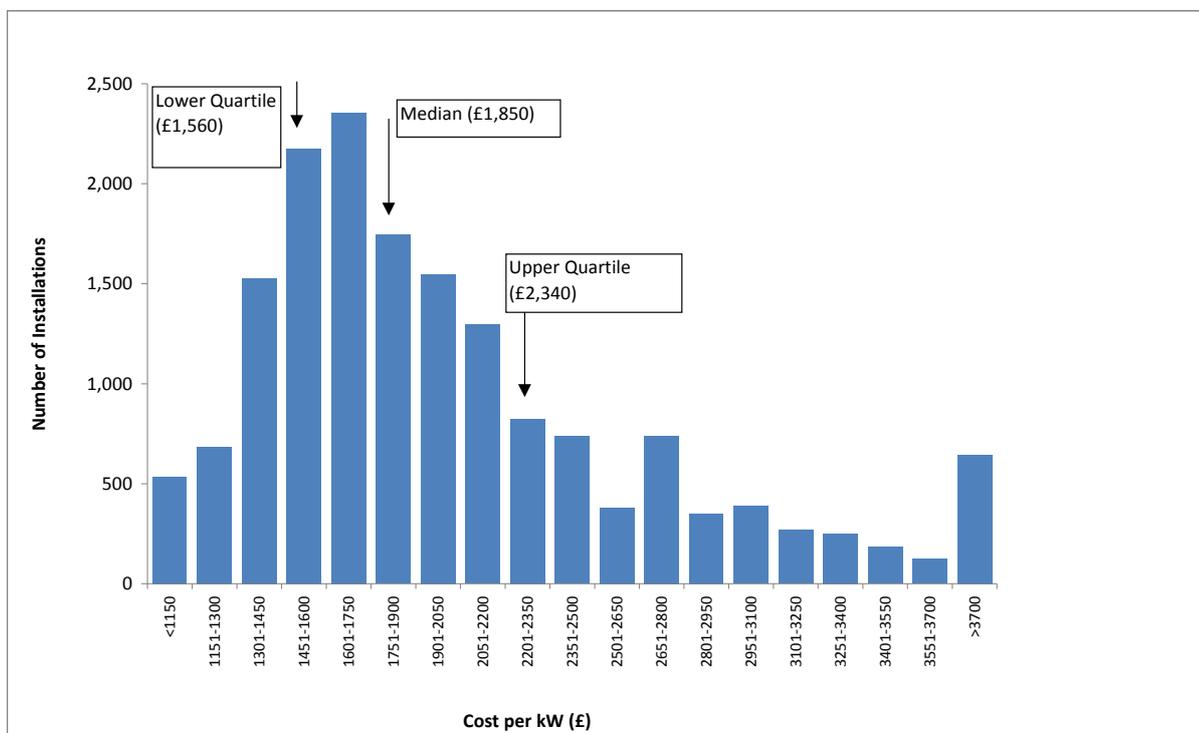
As not all records have cost data, the data analysed are a sample of records, putting a confidence interval around the average cost value gives an indication of how much the mean value might vary if a different sample was selected. As there are a large number of installations in the 0-4kW category the 95% confidence intervals for installations of this size are relatively small, ranging from £2,010 to £2,030. The smaller numbers in the other size categories lead to slightly larger confidence intervals.

**Table 4: Cost per kW installed (£)**

	Count	Median	Mean	Lower CI	Upper CI
0-4kW	19,065	1,850	2,020	2,010	2,030
4-10kW	766	1,570	1,660	1,620	1,690
10-50kW	1,041	1,330	1,390	1,360	1,410

Chart 1 shows the distribution of cost data for schemes sized 0-4kW, the positive skew in the data can be seen. As the data are skewed the median cost per kW would be the best measure of the average to use as it won't be influenced by the more extreme high values that are contained in the final category. The chart also gives an indication of the inter-quartile range (the cost range in which 50 percent of the schemes sit). This shows that half of the schemes with cost data have a cost per kW of between £1,560 and £2,340. Data for the other tariff bands are shown in table 5.

**Chart 1: Distribution of costs (for schemes sized 0-4kW)**



**Table 5: Median and inter quartile range by installation size band (£)**

	Median	Lower quartile	Upper quartile
0-4kW	1,850	1,560	2,340
4-10kW	1,570	1,360	1,890
10-50kW	1,330	1,130	1,550

**Alison Judd**  
 Energy Statistics  
 Tel: 0300 068 2846  
 E-mail: [Alison.Judd@decc.gsi.gov.uk](mailto:Alison.Judd@decc.gsi.gov.uk)

**Mita Kerai**  
 Energy Statistics  
 Tel: 0300 068 5044  
 E-mail: [Mita.Kerai@decc.gsi.gov.uk](mailto:Mita.Kerai@decc.gsi.gov.uk)

## Estimating generation from Feed in Tariff installations

### Introduction

Since its introduction, in April 2010, the total capacity of installations confirmed under the Great Britain (GB) Feed in Tariff (FiT) scheme has risen to 2.1 GW (as at the end of 2013 Q3), 11 per cent of all UK renewable electricity capacity (19.1 GW). With this contribution to the UK's energy mix, it is essential, therefore, that the output of these installations (in terms of generation, consumption and exports) is being fully captured in DECC's energy statistics. With published data limited in its coverage, frequency and timeliness, DECC has produced a method to estimate generation, consumption and exports for these installations. This article outlines the data sources, methods and assumptions used in order to produce these figures.

### Data source

Data on generation and exports from FiT installations are currently collected on a financial year basis by Ofgem from FiT licensees. The data are published in Ofgem's annual FiT report<sup>1</sup>, as well as in DECC's annual FiT generation table<sup>2</sup>, around nine months following the end of the financial year. Information is not available on sector or location. Furthermore, generation and exports are included only for those installations that received payments during that year, with data omitted for many installations that were operational during that period<sup>3</sup>. In order to produce comprehensive quarterly figures, including sector and regional breakdowns, for a better assessment of renewable generation, DECC has to estimate generation for FiT installations.

DECC publishes data on installations confirmed on the Central Feed in Tariff Register (CFR) around one month in arrears<sup>4</sup>. The underlying data, provided by Ofgem, includes information, at installation level, on technology (solar photovoltaics, hydro, wind, anaerobic digestion and micro CHP), capacity, location, sector (domestic, community, commercial and industrial), and commissioning date. This is the main data source used for estimating generation from FiT schemes.

### Methodology summary

Initially, DECC estimated FiTs generation at technology level, by applying monthly technology specific load factors to an average of cumulative capacity commissioned at the start and end of the month. However, given the speed of uptake, and the availability of site level information, a more robust approach would be to estimate generation at site level. The overall approach is therefore to estimate monthly generation for individual installations on the CFR, with regard to the hours available for operation and the typical load factor, given the technology and location of each installation. From this, an estimate is made of how much of this generation is consumed by each sector and how much is exported to the public distribution system (PDS).

### Generation methodology

For each installation, the maximum amount of generation in each month (in kWh) that could be produced is calculated by multiplying the installed capacity (in kW) by the maximum number of operational hours for each month, given by the number of hours in one day multiplied by the number of days in the month (for example August would be 24\*31). This is only calculated for months following a site's commissioning date, with the maximum number of operational hours for the first month of operation adjusted accordingly, by deducting the commissioning date from the end-date of the month. To obtain typical monthly generation, maximum operational generation (as estimated in the first step) is adjusted to account for the typical availability and performance (or load factor) of each technology.

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<sup>1</sup> Available at: [www.ofgem.gov.uk/environmental-programmes/feed-tariff-fit-scheme/feed-tariff-reports/annual-reports](http://www.ofgem.gov.uk/environmental-programmes/feed-tariff-fit-scheme/feed-tariff-reports/annual-reports)

<sup>2</sup> Available at: [www.gov.uk/government/statistical-data-sets/feed-in-tariff-generation-statistics](http://www.gov.uk/government/statistical-data-sets/feed-in-tariff-generation-statistics)

<sup>3</sup> Further information on this can be found in DECC's analysis of the 2010/11 FiT generation data, available at: [www.gov.uk/government/publications/feed-in-tariff-generation-data-2010-to-2011](http://www.gov.uk/government/publications/feed-in-tariff-generation-data-2010-to-2011)

<sup>4</sup> Available at: [www.gov.uk/government/statistical-data-sets/monthly-central-feed-in-tariff-register-statistics](http://www.gov.uk/government/statistical-data-sets/monthly-central-feed-in-tariff-register-statistics)

## **Load factors**

Load factors for individual installations are not available. Therefore, technology and, where appropriate, region/month specific load factors are estimated (since several of the technologies' performance will depend on weather conditions, which will vary from location to location and month to month). DECC is continuing to review the load factor methodologies used; the current methods are outlined below, with the latest values given in Annex 1.

For solar photovoltaics, a typical annual load factor, for the UK, of 9.7 per cent is assumed<sup>5</sup>. To allow for monthly variation in performance (higher in summer months, lower in the winter), monthly load factors derived from similar scale (<= 5 MW) solar PV installations accredited under the Renewables Obligation (RO)<sup>6</sup> are benchmarked to the annual load factor. Whilst solar incidence (and therefore solar PV performance) will vary across Great Britain, the number of RO installations is not enough to provide robust load factors at a regional level.

For wind and hydro, monthly load factors are again derived from similar scale installations accredited under the RO. In these cases, there are enough installations accredited under the RO in each of the three GB countries to provide robust load factors for each.

For anaerobic digestion and microCHP, generation is not weather or location dependent, with little variation in load factors across the year or country. Fixed load factors (initially those used in DECC's FiTs model), reviewed on an annual basis, are applied to generation from these installations.

## **Consumption and exports**

DECC's energy balances also require data on the consuming sector of all electricity supplied, and any electricity transferred from 'auto-generators' (organisations primarily generating for use on site) to the public distribution system (PDS, the 'grid'). This applies to FiT schemes, where the generation is either consumed by the site (e.g. household) or exported to the grid.

With an estimate of generation for each of the four consuming sectors already produced (as above), to assess how much of this is consumed by the sector, and how much is exported, an estimate of the share of generation exported is required. From Ofgem's annual actual data on generation and exports, the share of exports can be calculated (by dividing exports by generation) for each tariff code,

The export shares, by tariff code, are then applied to estimated generation, by tariff code and sector. Upon aggregation, this gives, for each consuming sector, a split of generation between consumption and exports.

## **Other assumptions**

In the CFR, of the 2.1 GW total capacity (424,000 installations) approximately 7.5 per cent (158 MW / 5,624 installations) do not have location information<sup>7</sup>. Assumptions therefore need to be made in terms of the choice of regional load factor for these installations, and ultimate allocation of generation to country.

For solar PV, anaerobic digestion and microCHP, only one load factor is currently used across all countries, so there is no choice of load factor to be made for schemes without a region. For wind and hydro, however, it is assumed that the majority of such installations will be located in Scotland, so the Scottish load factors are used. Generation for solar PV, wind, anaerobic digestion and microCHP schemes without location information is apportioned across the regions, according to the region's share of quarterly generation for that technology, with all hydro allocated to Scotland.

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<sup>5</sup> Used in DECC's Feed in Tariff model

<sup>6</sup> Derived by comparing generation (via RO certificates issued) with capacity. Certificates issued data can be found at: [www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx?ReportVisibility=1&ReportCategory=0](http://www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx?ReportVisibility=1&ReportCategory=0)

<sup>7</sup> See DECC's sub-regional Feed in Tariff statistics, at: [www.gov.uk/government/statistical-data-sets/sub-regional-feed-in-tariffs-confirmed-on-the-cfr-statistics](http://www.gov.uk/government/statistical-data-sets/sub-regional-feed-in-tariffs-confirmed-on-the-cfr-statistics)

## Special feature – FiT generation methodology

### Publications

Generation data from FiTs schemes feed into a number of DECC's electricity and renewables tables and publications, including:

Energy Trends table ET 6.1 - quarterly renewable electricity generation, by technology and UK country (internet only)<sup>8</sup>

Energy Trends article, "Renewable electricity in Scotland, Wales, Northern Ireland and the regions of England" - annual renewable electricity generation, by technology and UK region<sup>9</sup>.

Digest of UK Energy Statistics (DUKES), table DUKES 5.3 – electricity supply and demand balance, disaggregated by PDS/auto-generation and consuming sector. FiTs schemes represent the majority of the auto-generators' domestic sector consumption figure (543 GWh in 2012), while FiTs exports are included within the 16,669 GWh (in 2012) of transfers to the PDS.<sup>10</sup>

### Revisions

The CFR is constantly being retrospectively updated with new schemes, which can result in revisions to previous months' data. For the quarters beyond the latest calendar year published in DUKES, these revisions can be incorporated. However, DECC's revisions policy decrees that any revisions prior to this (and no further than four years) can only be made once a year, when the next edition of DUKES is published.

DECC is currently developing a data collection of actual quarterly generation/exports data for individual installations, for the preceding financial year, around six months in arrears. It is intended that this data, when available, will replace the estimated generation data in DECC's publications, subject to the revisions policy outlined above, with commencement of this announced in a future edition of Energy Trends and on the FiTs page of the DECC statistics website.

### Latest statistics

During quarter 3 2013, FiTs installations accounted for 633 GWh of generation, with 458 GWh from solar PV, 77 GWh from wind, 69 GWh from anaerobic digestion, 30 GWh from hydro and 0.2 GWh from microCHP (see chart 1). This represented 6.1 per cent of all renewable electricity generation (10.3 TWh), and 0.8 per cent of total generation (78,203 GWh). Of this 633 GWh of generation, 207 GWh was consumed in the domestic sector, 200 GWh in the commercial sector, 41 GWh in the industrial sector, 7.5 GWh in the community sector, while 177 GWh was exported to the grid (see chart 2).

Chart 1: FiT Generation, by technology, 2013 Q3

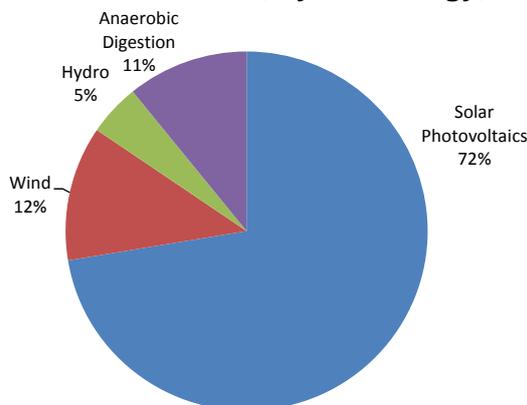
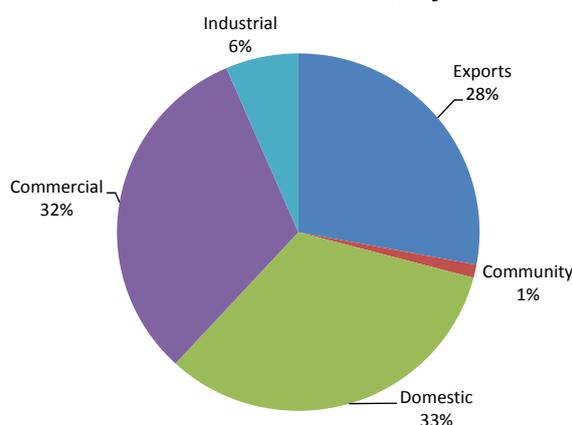


Chart 2: FiT Generation, by user 2013 Q3



<sup>8</sup> Available at: [www.gov.uk/government/publications/renewables-section-6-energy-trends](http://www.gov.uk/government/publications/renewables-section-6-energy-trends)

<sup>9</sup> Latest edition (September 2013) available at: [www.gov.uk/government/publications/energy-trends-september-2013-special-feature-articles-renewable-electricity-in-scotland-wales-northern-ireland-and-the-regions-of-england-in-201](http://www.gov.uk/government/publications/energy-trends-september-2013-special-feature-articles-renewable-electricity-in-scotland-wales-northern-ireland-and-the-regions-of-england-in-201)

<sup>10</sup> Available at: [www.gov.uk/government/publications/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes](http://www.gov.uk/government/publications/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes)

**Annex 1 – Range of Monthly Load Factors (2012) used in estimating Feed in Tariff generation**

	<b>England</b>	<b>Scotland</b>	<b>Wales</b>	<b>No location</b>
<b>Solar photovoltaics</b>	1.4% - 17%	1.4% - 17%	1.4% - 17%	1.4% - 17%
<b>Wind</b>	15.5% - 35.2%	18.4% - 45.3%	15.2% - 33.0%	18.4% - 45.3%
<b>Hydro</b>	25.4% - 44.9%	19.0% - 58.9%	16.5% - 59.1%	19.0% - 58.9%
<b>Anaerobic digestion</b>	63%	63%	63%	63%
<b>MicroCHP</b>	15%	15%	15%	15%

**User feedback**

We welcome all feedback from users; therefore, if you have any comments or queries regarding the methodology used in producing these estimates, please contact James Hemingway using the contact details below.

**James Hemingway**

Energy Statistics

Tel: 0300 068 5042

E-mail: [James.Hemingway@decc.gsi.gov.uk](mailto:James.Hemingway@decc.gsi.gov.uk)

## Areas and types of properties off the gas grid

### Introduction

This article summarises recently published information which can help identify areas and types of properties which are off the gas grid.

DECC and industry partners have been working towards making more data available to help support policy delivery, including renewable heat and fuel poverty. This article covers three sources of data which help build a picture of areas and properties which are off the gas grid:

**1. DECC sub-national estimates of proportion of properties without a gas meter – published December 2013**

Estimates of the proportion of households without a gas meter have been published at local authority (LA) and lower level super output area (LSOA) levels for 2012 and 2011 respectively and are available here: [www.gov.uk/government/collections/sub-national-gas-consumption-data](http://www.gov.uk/government/collections/sub-national-gas-consumption-data).

**2. Xoserve list of off gas postcodes – published November 2013**

A dataset with a list of all postcodes without a record of a gas supply is available on the Xoserve website: [www.xoserve.com/wp-content/uploads/Off-Gas-Postcodes.xlsx](http://www.xoserve.com/wp-content/uploads/Off-Gas-Postcodes.xlsx).

**3. DECC's National Energy Efficiency Data-Framework (NEED) estimates of proportion of properties without a gas meter – published August 2013**

NEED provides estimates of the number of properties without a gas meter by property attributes and household characteristics. Available here: [www.gov.uk/government/collections/national-energy-efficiency-data-need-framework](http://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework).

The above three sources of information complement each other and allow a more comprehensive understanding of the types and locations of properties which do not have access to mains gas. These properties are likely to be using more expensive fuels to heat their homes, such as electricity or oil, and therefore represent a group which could benefit the most from a range of DECC and industry policies.

These data sources represent a significant improvement to DECC's evidence base. There are limitations with each of the sources which should be understood before the data are used to inform decisions. However, despite these limitations, these data provide valuable reference material.

### DECC sub-national off gas grid estimates

On 19 December 2013, DECC published estimates of the number of households within each local authority (2012 data) and lower levels super output area (2011 data<sup>1</sup>) without a gas meter. These estimates are based on the gas meter point data used to produce DECC's sub-national consumption estimates<sup>2</sup>. This is the first time these off gas data have been published for all local authorities in Great Britain.

Working with energy suppliers and other energy industry representatives, DECC receives meter point gas and electricity consumption data for all meters in Great Britain. These data are collected by DECC in order to produce estimates of consumption for small geographic areas; down to LSOA<sup>3</sup>. The meter point data provide an estimate of the number of meters in each area. By comparing the number of domestic gas meters to the number of households in the area, the number of properties without a gas meter can be estimated.

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<sup>1</sup> LSOA estimates for 2012 data will be published on 27 March 2014.

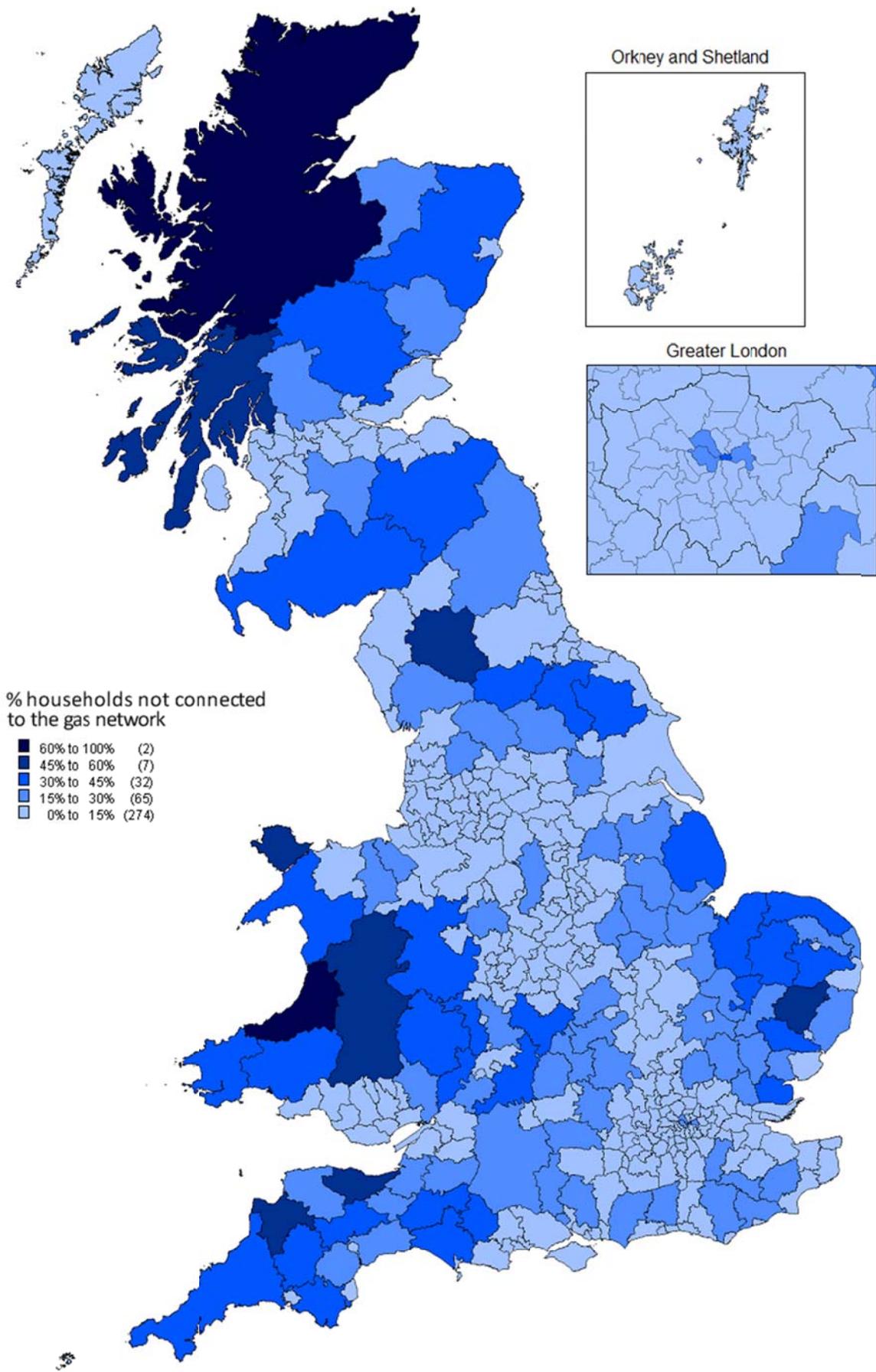
<sup>2</sup> For further details about the analysis, please refer to section 5 of the sub-national gas consumption factsheet which can be accessed here: <https://www.gov.uk/government/collections/sub-national-gas-consumption-data>.

<sup>3</sup> Sub-national gas consumption data are available at: [www.gov.uk/government/collections/sub-national-gas-consumption-data](http://www.gov.uk/government/collections/sub-national-gas-consumption-data) (LA data) and [www.gov.uk/government/statistical-data-sets/lsoa-electricity-and-gas-2011-experimental](http://www.gov.uk/government/statistical-data-sets/lsoa-electricity-and-gas-2011-experimental) (LSOA data).

The published data do not allow the identification of specific households within an area which are off the gas grid, but do allow small geographic areas which have few or no gas meters to be identified. By Region, the South West and Scotland had the highest proportion of properties without a gas meter (20 per cent and 18 per cent respectively).

Figure 1 shows how the proportion of properties without a gas meter varies across local authorities in Great Britain (the numbers in brackets in the key give the number of local authorities which fall into the relevant band). It shows that in the majority of local authorities between 0 and 15 per cent of properties had no gas meter (273 out of 376 local authorities). The data also show that in 2012 there were nine local authorities in Great Britain where more than 45 per cent of properties did not have a gas meter. In 2011 (the latest year for which data are available at LSOA level) 100 per cent of properties had no gas meter in 5 per cent (1,849) of LSOAs.

**Figure 1: Proportion of properties without a gas meter by local authority (DECC sub-national estimates)**



The map gives a strong indication of off gas grid areas; however there are some limitations:

- The gas meter point consumption data is not supplied with a domestic indicator and instead DECC use the gas industry cut off threshold of 73,200kWh to determine whether a gas meter is domestic or not, with all meters with consumption of 73,200 kWh or below assumed to be domestic. This means a number of smaller commercial/industrial consumers are allocated as domestic and therefore estimates of the number of households without gas is an underestimate of the true number. The impact of this assumption on estimates will vary by area.
- Some meters cannot be allocated to a local authority or LSOA due to insufficient or incomplete address information<sup>4</sup>. Approximately 0.2 per cent of domestic meters could not be allocated to a local authority in 2012.
- In some cases incorrect address information may mean meters are allocated to the wrong area. The number of meters which are incorrectly allocated will vary by area.
- In this dataset, there is no differentiation between properties which do not have a gas meter because they are in an area which is off the gas grid and those which are in an area on the gas grid but have a property which is not connected to it (such as inner city blocks of flats).
- For these estimates it is assumed that each property always has one gas meter. Occasionally a property may have more than one gas meter, which would again mean the estimates provided are an underestimate of the true value. In 2012, approximately one per cent of properties allocated as domestic in this dataset had more than one meter.
- Data refer to the data collection during 2012 (or 2011 for LSOA) and therefore does not include any changes which may have occurred since 2012.

### **Xoserve off gas postcodes**

In November 2013, Xoserve<sup>5</sup> published a list of off gas postcodes. The list contains all postcodes - based on the Royal Mail postcode list - where Xoserve hold no record of a gas supply (domestic or non-domestic) by either large or small gas transporters. In some cases a property may have a gas supply but not yet have a meter connected to it, for example for new connections, so although there may appear to be no gas meters, there is a supply in the relevant postcode.

Figure 2 below shows areas of the UK which have access to a gas supply in blue and those which do not in white. The map has been created by shading all postcodes that were not on the Xoserve dataset<sup>6</sup>.

The figure provides a useful insight into which areas of the UK have access to a gas supply. It shows that areas which have no gas supply can be found in all parts of the UK; including urban and rural areas. In urban areas the postcodes which show as off gas are most likely to be near a gas connection, but not have a gas connection within the property (e.g. blocks of flats). The more rural areas are likely to have no gas supply because of the distance from the gas network.

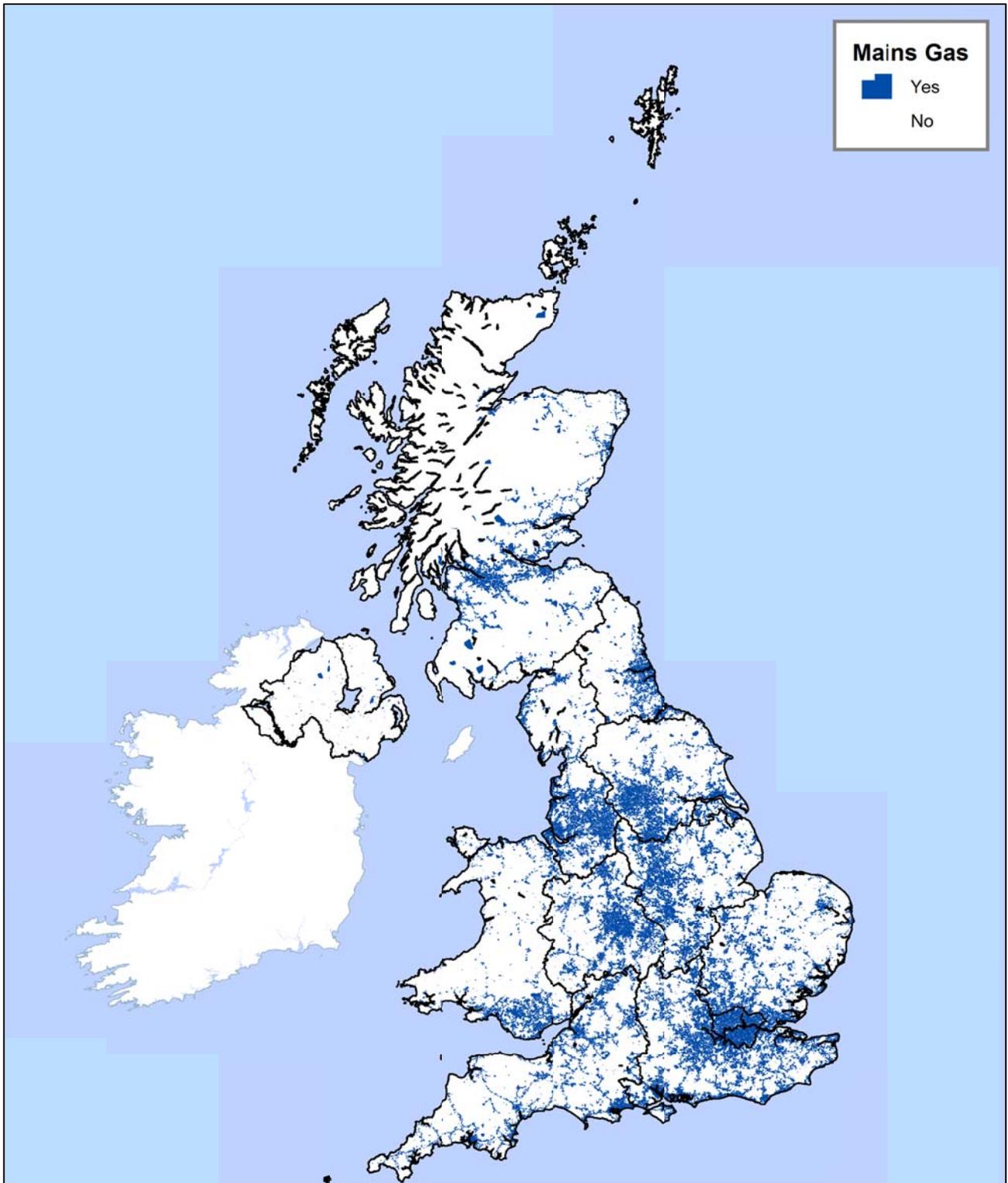
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<sup>4</sup> These meters are included in the overall estimates for Great Britain, but are aggregated in the 'Unallocated' row in the sub-national statistics outputs.

<sup>5</sup> Xoserve provides centralised information and data services for gas transporters and shippers in Great Britain.

<sup>6</sup> The polygon postcode shape file used to create this map is for postcodes as they were in mid-2010. There have been some changes to postcodes between 2010 and 2012 (the point in time the Xoserve data relate to). Where postcodes which existed in 2010 no longer exist in 2012 they will not appear on the Xoserve off gas file and therefore will have been shaded blue on the map; assumed to have access to a gas supply. This assumption is not always correct. One example of this is the postcode area PA80 which was created in June 2010. The map has been correct to show this area is off the gas grid, but a small number of other areas may remain incorrectly allocated. Despite this limitation, the map provides a good representation of the situation in 2012. For detailed information about specific postcodes the Xoserve dataset should be used.

Figure 2: Xoserve off gas grid postcode map<sup>7</sup>



<sup>7</sup> Map produced by Experian. Copyright 2011 Experian Ltd, Copyright NAVTEC 2010. Based on Crown Copyright material and data published by Xoserve.

The dataset published by Xoserve complements the data published by DECC, described above, as it allows identification of lower level geography. The higher level data published by DECC can help with identification of general areas (at LA or LSOA level) while the Xoserve postcode level data can allow users to drill down within these areas. As with the DECC estimates, a number of assumptions have had to be made in order to produce this postcode list.

Both the sub-national and the Xoserve datasets are based on data from Xoserve and the independent gas transporters. This means that the data published by Xoserve has many of the same limitations as the DECC data. However, there are also some differences:

- The Xoserve data lists all postcodes where there is no gas supply recorded in them. There are cases - most commonly new connections - where there is a gas supply with no meter. The DECC dataset is based on meters and therefore would allocate a property with no meter as off gas while the Xoserve dataset should correctly reflect the availability of gas in the area.
- The Xoserve list of postcode areas off the gas grid includes all postcodes where there is no recorded gas supply. A postcode with very few gas supplies recorded in it would not be included in the list.
- The Xoserve data is based on all gas supplies regardless of whether the property being supplied is domestic or non-domestic. Therefore an area will not be classified as off gas on the Xoserve dataset if it contains only non-domestic gas supply. However, these areas would be shown as having no (domestic) gas meters on the DECC dataset.

As with the DECC dataset, the Xoserve dataset is based on a point in time and therefore may not reflect the latest situation, for example if there have been some recent developments in an area. However, it will give a good picture of the situation. It is intended that this dataset will be updated annually.

### **DECC estimates by property type and household characteristics**

In addition to the two data sources above, which give information on geographic areas off the gas grid, the National Energy Efficiency Data-Framework (NEED) can provide more information on the types of properties and households which do not have access to gas. This is estimated by looking at the number of properties which have an electricity meter compared to the number of properties with a gas meter. It is assumed that all properties have an electricity meter and therefore the difference between the number of electricity meters and the number of gas meters is the number of properties without a gas meter.

The data used in NEED are based on the same meter point gas and electricity data used in DECC's sub-national consumption outputs. However, through NEED the data are matched to other sources of data which provide information about each property and its occupants; allowing analysis by these additional attributes. Due to the data matching at household level (rather than postcode or LSOA level) any inaccuracies in address information will have a more pronounced impact with this output. However, match rates are high and therefore results presented should be a good reflection of the population.

Many of the limitations outlined for the above datasets also apply to data in NEED. However, there are some significant differences:

- In NEED a property is assumed to be domestic if it is included on the Valuation Office Agency council tax dataset, and if annual electricity consumption is 25,000kWh or less and annual gas consumption is 50,000 kWh or less. This means the lower consuming non-domestic properties should not be included in this dataset.
- Data are analysed at property level, rather than meter point level. This means that properties are only included in the dataset once, even if they have more than one gas or electricity meter.
- The data analysed in NEED are a sample of data for England and Wales only; data for Scotland are not currently available.

*Special feature – NEED analysis*

More information on NEED is available on the DECC pages of the Government website: [www.gov.uk/government/collections/national-energy-efficiency-data-need-framework](http://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework).

The NEED data suggests that small modern properties are the least likely to have a gas connection, for example, 70 per cent of post 1999 flats have no gas connection. It is likely the majority of these properties without gas are in areas which are on the gas grid, but with no gas connection in the property (e.g. blocks of flats in high density urban areas). The data also show that more generally, the largest and smallest properties are least likely to have a gas connection, for example 43 per cent of properties with a floor area of more than 200 square metres and 42 per cent of properties with a floor area of 50 square metres or less have no mains gas in the home; compared with the average for all properties of 18 per cent. Figure 3 shows the proportion of properties without a gas meter by property age and floor area band.

**Figure 3: Percentage of properties without a gas meter by floor area band and property age**

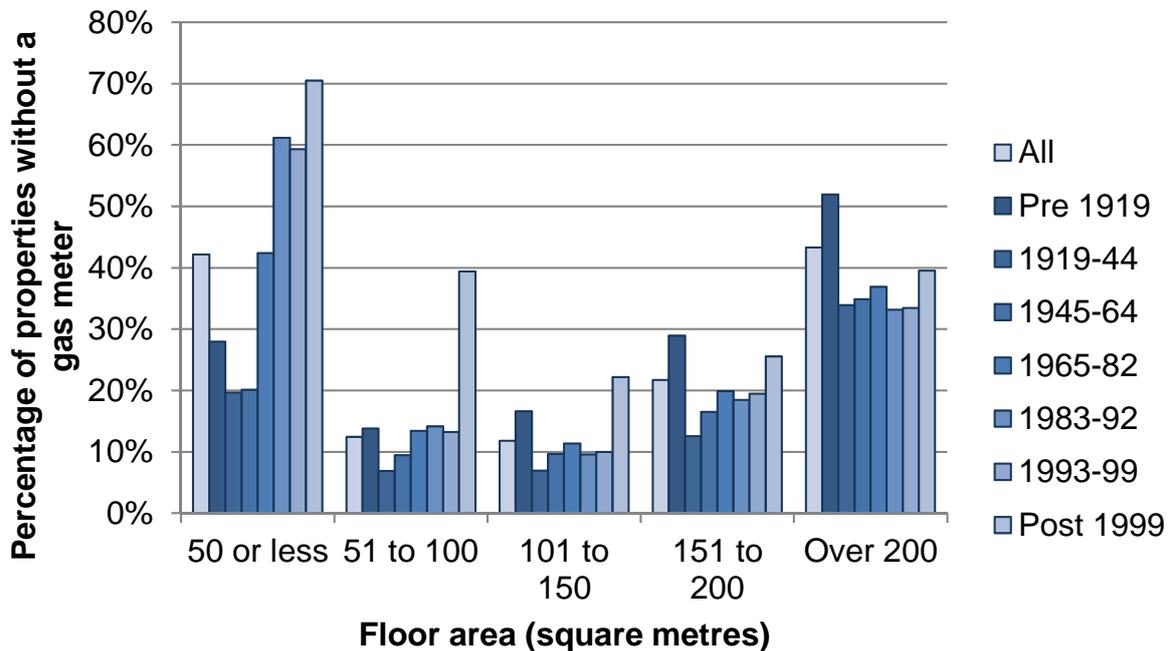
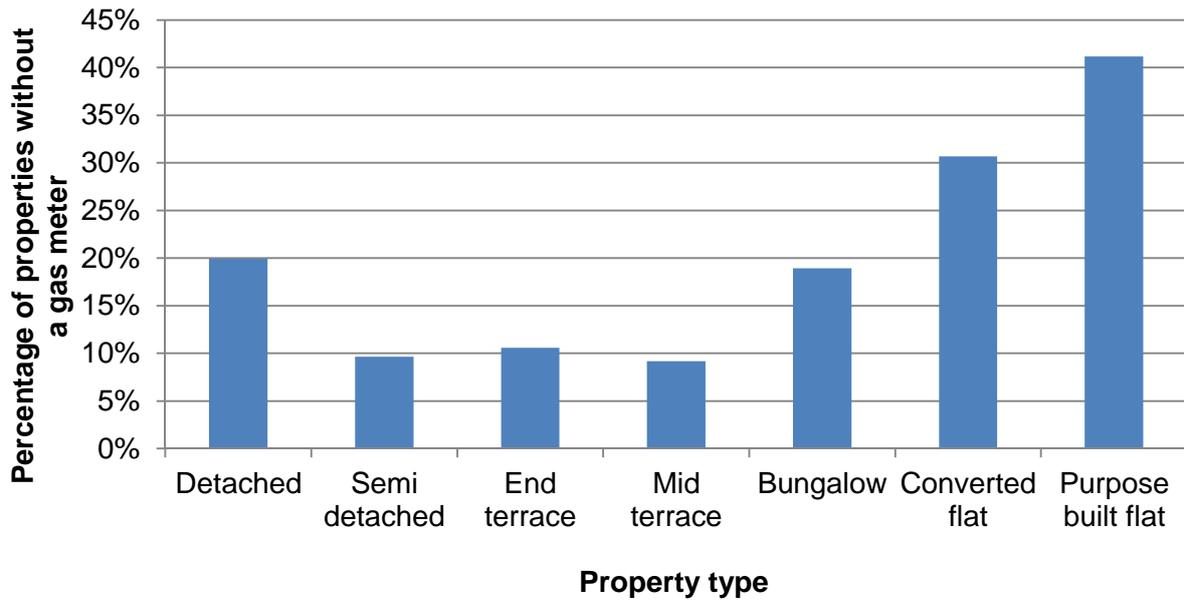


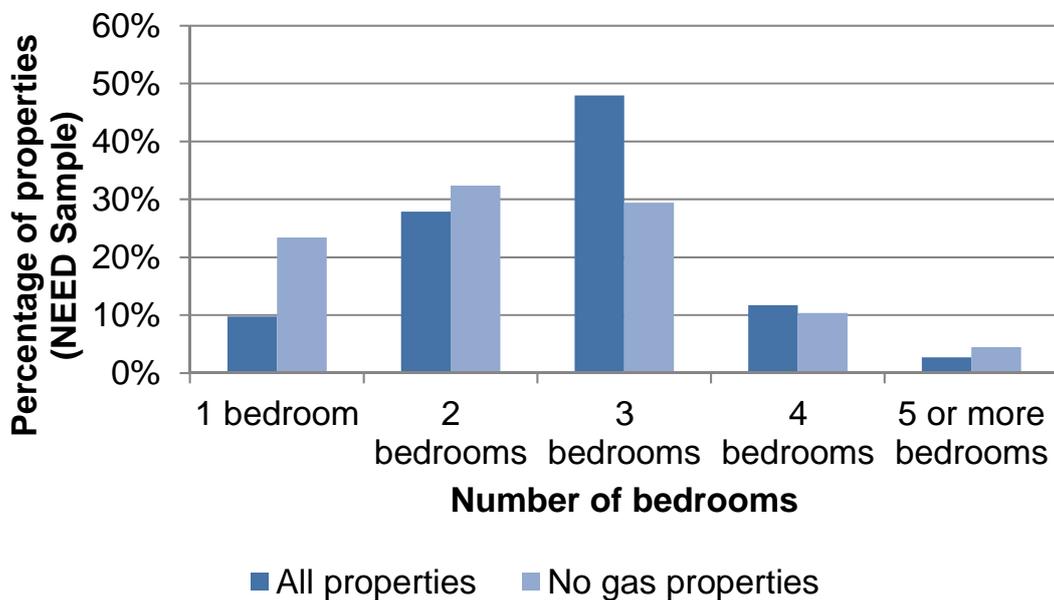
Figure 4 shows the equivalent information for different property types. It shows that purpose built flats are the least likely to have a gas meter, with 41 per cent of these having no gas meter.

**Figure 4: Percentage of properties without a gas meter by property type**



These data can also be used to help understand the composition of the off gas dwelling stock. Figure 5 shows that properties without gas are more evenly spread between one, two and three bedroom properties compared to the housing stock more generally. For example, 48 per cent of all properties have three bedrooms and only 29 per cent of properties without gas have three bedrooms.

**Figure 5: Distribution of total and off gas housing stock by number of bedrooms.**



Further breakdowns of the data from NEED are available on the DECC pages of the Government website (see ad hoc requests 2013, off gas): [www.gov.uk/government/collections/national-energy-efficiency-data-need-framework](http://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework).

**Summary**

The table below shows a summary of the three data sources. It includes a summary of the strengths and weaknesses of each source as well as information on when to use each of the sources.

**Table 1: Summary of data sources**

	<b>DECC Off gas estimates</b>	<b>Xoserve off gas postcodes</b>	<b>NEED Off gas estimates</b>
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Provides assessment of level of gas connection in an area – helping to identify general areas and indication for inner city as well as rural areas.</li> <li>• Covers domestic only – so helps with domestic policies.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower level geography (postcode).</li> <li>• Includes gas supply even if no meter yet installed.</li> <li>• Domestic and non-domestic (strength depending on purpose).</li> </ul>	<ul style="list-style-type: none"> <li>• Only source of information about types of properties and occupants.</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Information not available at postcode level.</li> <li>• No information on gas supply if no meter installed.</li> <li>• Domestic cut-off based on arbitrary consumption figure used by industry.</li> </ul>	<ul style="list-style-type: none"> <li>• Binary variable.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited detail on geography.</li> </ul>
<b>When to use</b>	<ul style="list-style-type: none"> <li>• To identify areas with low numbers of households with a gas meter.</li> </ul>	<ul style="list-style-type: none"> <li>• To identify whether a specific geographic location has a gas supply.</li> </ul>	<ul style="list-style-type: none"> <li>• To identify types of properties which may benefit from support.</li> </ul>

**Sabena Khan & Sam Stadnyk**

Sub-national consumption statistics

Tel: 0300 068 5037

Email: [Energyefficiency.stats@decc.qsi.gov.uk](mailto:Energyefficiency.stats@decc.qsi.gov.uk)

## **Modelling the likelihood of being fuel poor**

### **Background**

This article examines the impact certain household and dwelling characteristics have on the likelihood of a household being classed as fuel poor under the Low Income High Costs (LIHC) indicator. Under this indicator, a household is considered to be fuel poor where:

- i) they have fuel costs that are above average (the national median level); and
- ii) were they to spend that amount, they would be left with a residual income below the official poverty line (i.e. less than 60 per cent of median income).

The aim of this analysis is to develop a model of the most influential characteristics – that are readily identifiable in published data sources and organisations such as Local Authorities – which help determine the probability of households being fuel poor. The modelling set out in the following section has been reviewed (and approved) by the Office for National Statistics Methodology Advisory Service.

It should be noted that the model provides an indicative probability of the likelihood that a household is living in fuel poverty based on a set of known characteristics. However, this does not lead to a definitive classification of these individual households as fuel poor.

### **Logistic regression modelling**

The logistic regression modelling technique assesses how certain characteristics within a household, such as employment status or the type of boiler they have in the house, may affect the likelihood of that household being fuel poor. For example, will a full-time working couple with dependent children living in a block of flats with a 7 year old heating system, be more likely to be classed as fuel poor compared to their next door neighbours, who also live under very similar circumstances but have recently installed a new heating system?

The advantage of using logistic regression is that it is able to verify whether the patterns commonly seen across fuel poverty are actually associated with single characteristics or a combination of a number of characteristics. For example, households in which the main reference person is unemployed are also more likely to be living in fuel poverty compared to the overall population (36% vs. 11%). By holding household characteristics such as the amount of energy consumption constant and equal, logistic regression helps isolate which of these factors – unemployment or the type of heating system – has a stronger association with an increase in the odds of such households to be fuel poor. The modelled output proceeds to show that unemployment is a factor with a great effect on the odds of such households to be living in fuel poverty.

Table 1 summarises the household and dwelling characteristics considered in the modelling to reliably predict households living in fuel poverty under the LIHC indicator.

The table also details the baseline or 'reference' for each variable, and the final set of variables that are retained in the final model. The reference category is the one with which all other categories are compared. For example, the odds of being fuel poor for all family compositions are compared against couples with no dependent children.

**Table 1: Variables considered in the modelling**

Variables	Reference Category	Low Income High Costs
Family Composition	Couple, no dependent child(ren)	
Household size	Number of persons in the household >=5	●
Age band of youngest person in household	Aged between 16 to 59	●
Individual(s) disabled or with chronic illness	No disabled household members or unknown	
Employment status of household reference person	HRP - Full/Part-time employment	●
Employment status (primary) of partner	Partner - Full/Part-time employment	●
National Statistics Socio-Economic Classification	Higher managerial and professional occupations	●
Household on means tested benefits/tax credits	No	●
Attendance allowance or DLA mobility/care component	No or No Answer	●
Method of payment - electricity	Direct debit	●
Method of payment - gas	Direct debit	
Government office region	South East	
Rurality - morphology (COA)	Urban	
Whether dwelling is on the gas network	On gas network	●
Dwelling type	Flat	●
Dwelling age	Post1964	●
Total no of bedrooms	One bedroom	
Useable floor area	Less than 50 sqm	●
Tenure	Local Authority/RSL	●
Under occupancy	Not under occupying	●
Energy efficiency rating band (SAP 2005)	A, B or C	
Loft insulation thickness	150mm or more	●
Type of wall and insulation	Cavity with insulation	
Age of heating system	Less than 3 years	●
Main heating fuel	Gas	●
Main heating system	Central heating	
Water heating system	With central heating	
Type of boiler	All condensing boiler	●

● Included in the final model

The regression model outputs show the individual effect each characteristic has on the odds of a household to be fuel poor, compared to a household with the baseline set of reference characteristics. Characteristics with an odds ratio greater than 1, implies an increased likelihood that a household with that particular characteristic will be in fuel poverty compared to the reference characteristic; conversely, an odds ratio less than 1 implies a reduced likelihood - holding all other characteristics constant and equal.

This is graphically shown in the Chart 1, where the bars indicate the proportionate effect on the odds for each category compared with the baseline reference category. An increase in odds (odds ratio > 1) is shown with a right hand bar, and a decrease (odds ratio < 1), with a left hand bar. The confidence intervals for the effects of each category are also shown in the charts – where these are shorter in length, the more precise is the estimate of the associated odds ratio. Where a confidence interval spans the value of 1, this indicates that the effect of the category is not significantly different from the baseline category. It should be noted that the scale of the chart is logarithmic rather than linear.

The size of the effects, the corresponding 95% confidence intervals, and Wald statistics are provided in Table 2. The validation tests for the model are also provided.

## **Modelled output for households living in fuel poverty**

Chart 1 shows the final modelled outcome for predicting households that are fuel poor. The model was created by using a backward elimination procedure, where variables were dropped from the model as they were not found to be statistically significant. In this work, the following variables were dropped as they were not statistically significant or in some cases due to multicollinearity<sup>1</sup> between the variables: family composition, disability, method of payment for gas, region, rurality, the number of bedrooms in the household and the main heating and water heating system.

Other variables – such as SAP<sup>2</sup> rating - were deliberately left out of the model. Whilst we would expect that this would be a strong predictor of household energy costs, we know that SAP rating is determined by a number of other dwelling characteristics (e.g. heating type, level of insulation, size of dwelling) and, as such, is not as useful in determining the specific factors that are driving households to be fuel poor.

The findings from the regression analysis for all LHC households (Chart 1) are intuitive. Household characteristics associated with higher instances of modelled energy costs and low incomes tend to be the ones that increase the likelihood of being fuel poor. Holding all other characteristics constant and equal, it is apparent that against the baseline characteristic for each group:

- Single one person households have higher odds of being fuel poor compared to larger households with more occupants in – here the odds are almost four times that of households with five or more occupants.
- Households with children aged below 16 also significantly increase the odds of being fuel poor by almost 20%. On the other hand, pension aged households (where the youngest household member is aged 60 or over) have almost half the odds of being fuel poor compared to younger households. This may be due to the fact that such households are likely to have reduced housing costs, and therefore a higher level of equivalised disposable income, compared to younger households.
- The odds of being fuel poor more than double for households in which the main household reference person (HRP) is either unemployed or inactive<sup>3</sup> compared to households where the HRP is employed. Retired HRPs also show a 27% increase in the odds of being fuel poor compared to their employed counterparts.
- In addition, having a retired or unemployed partners' increase the odds of being fuel poor by over three-fold compared to households in which the partners are in some form of employment.
- Households on means-tested benefits also have increased odds of being fuel poor – an almost four-fold increase is seen for households on mean-tested benefits compared to those not on benefits.
- Households that are off the gas grid network are reliant on using alternative main fuel (i.e. other than mains gas) such as electricity or 'other'<sup>4</sup> fuel types. As a result, the effect of being off the gas grid should be viewed in conjunction with the main fuel type consumed. The odds of being fuel poor therefore are 44% higher for households that are off the gas grid and

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<sup>1</sup> Multicollinearity occurs when two or more predictor variables in the model are highly correlated and so provide redundant additional information about the response variable in the model – in this case, whether or not the household is in fuel poverty.

<sup>2</sup> SAP is the Government's Standard Assessment Procedure for Energy Rating of Dwellings. It used for calculation of the energy performance of buildings.

<sup>3</sup> Economically inactive people include those who are in full time education, the permanently sick or disabled, or those looking after the family or home or engaged any other activity.

<sup>4</sup> 'Other' fuel types include: anthracite nuts, bottled gas, bulk LPG, heating oil, house coal, smokeless fuel and wood.

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consuming electricity as their main fuel type, and similarly 38% higher for those consuming 'other' fuel types – compared to households on the mains gas network.

- Of the dwelling types, households living in bungalows or detached properties have the highest odds of being fuel poor (3.52 times that of flats) followed by households living in semi-detached or terraced properties (odds ratios of 3.22 and 2.32 respectively). Also, households living in older properties, generally tend to have increased odds of being fuel poor compared to more recently built properties.
- The odds of being fuel poor increase notably for properties with floor spaces above 50m<sup>2</sup>. Households living in properties larger of 110m<sup>2</sup> or more, have the largest odds of being fuel poor followed by those living in properties with floor spaces between 90 – 109m<sup>2</sup> and 70 – 89m<sup>2</sup> (with odds ratios of 17.89, 11.73 and 7.05 respectively).
- Under-occupied<sup>5</sup> households have reduced odds of being fuel poor - around half the odds of households which are not under-occupied.
- Households living in privately rented accommodation have over twice the odds of being fuel poor compared to households in social housing. This is most likely due to the fact that the energy efficiency in the housing stock across both these tenures are in stark contrast to each other – the energy efficiency across the social housing stock is generally better than average, and that in the private rental market is considerably worse.
- And finally, households that have non-condensing boilers all have increased odds of being fuel poor.

Reviewing the importance of these household and dwelling characteristics on the odds of being fuel poor, the largest and most significant<sup>6</sup> increases in the odds are seen for households living in larger and older properties. Households on means tested benefits are also at a significant risk of being fuel poor, as are households in which the main reference person or their partner is not in active employment.

It is possible to convert the odds effects described above into probabilities of being fuel poor for households with any particular combinations of characteristics from the model<sup>7</sup>. The individual effects (see Table 2) are multiplied together to find an overall effect which is then converted to a probability<sup>8</sup>. Take for example the following households:

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<sup>5</sup> Some dwellings are considered excessive in size for the number of occupants that live there. In these cases, the house is assumed to be "under-occupied", that is only a proportion of the dwelling will need heating.

<sup>6</sup> The rank order of significance for a variable is shown by the magnitude of the corresponding Wald statistic.

High Wald statistics imply an increased significance to the model

<sup>7</sup> Note, any number of variable combinations can be selected here as shown in the proceeding example.

<sup>8</sup> Probability = odds/(1+odds)

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Household A	Odds	Household B	Odds
● 3 person household	0.98	● 2 person household	1.31
● Unemployed HRP	2.59	● Employed HRP	1.00
● Unemployed Partner	3.07	● Employed Partner	1.00
● On income related benefits	3.87	● Not income related benefits	1.00
● Living in a Terraced Property	2.32	● Living in a flat	1.00
● 1940's build	3.45	● 1990's build	1.00
● Property size: 70-89 sqm	7.05	● Property size: 70-89 sqm	7.05
● Not underoccupying	1.00	● Underoccupying	0.50
● With loft insulation	1.00	● No loft	0.97
● No boiler	2.78	● Combination boiler	1.26
The remaining characteristics are the reference characteristics specified in the model			
Multiplied effects	4730.60		5.64

The model gives the odds of being fuel poor for the reference household of 0.0001 or 0.01% (Table 2).

The example household A has 4730.60 times these odds of being fuel poor

$$(4730.60 \times 0.0001) = 0.4736, \text{ or}$$

$$(0.4736 / [1 + 0.4736]) = 32.1\%.$$

And household B has 5.64 times these odds of being fuel poor

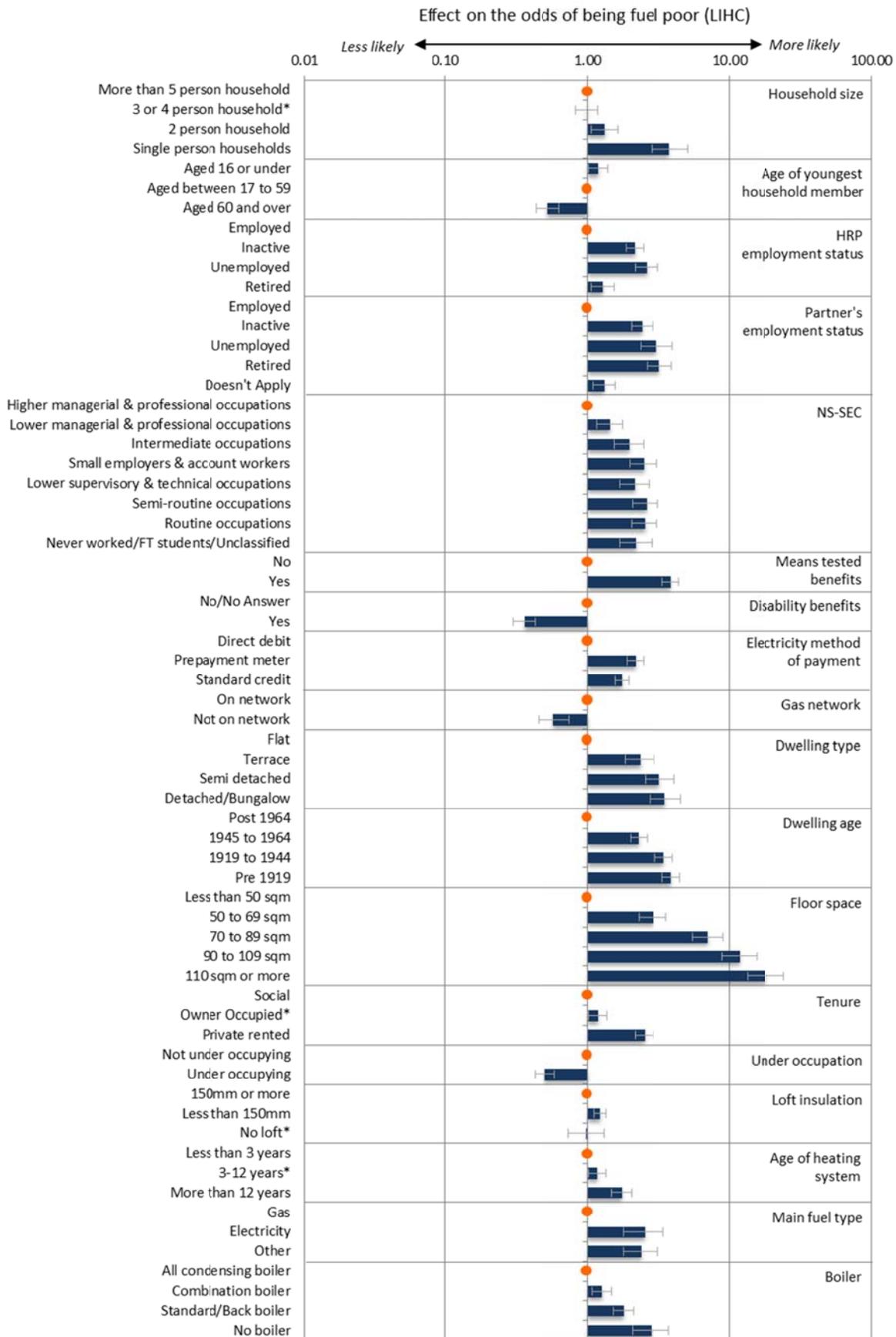
$$(5.64 \times 0.0001) = 0.000564, \text{ or}$$

$$(0.000564 / [1 + 0.000564]) = 0.1\%.$$

So household A's probability of being fuel poor is 32.1% compared to household B's 0.1% probability and the overall population average of 11.1%.

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Chart 1: Effect of characteristics on the odds being fuel poor, 2010



\*Not statistically significant

Source: English Housing Survey

**Table 2: Regression results**

Low Income High Costs - Variable	Variable categories	Effect on the odds	95% Confidence interval		Sig. (0.05)	Wald	B	S.E.
			Lower limit	Upper limit				
Household size	More than 5 person household	1.00						
	3 or 4 person household*	0.98	0.83	1.16	0.81	0.06	-0.02	0.09
	2 person household	1.31	1.06	1.63	0.01	6.12	0.27	0.11
	Single person households	3.77	2.78	5.12	0.00	72.55	1.33	0.16
Age band of youngest person in household	Aged 16 or under	1.18	1.02	1.37	0.03	4.67	0.17	0.08
	Aged between 17 to 59	1.00						
	Aged 60 and over	0.52	0.43	0.63	0.00	47.02	-0.65	0.10
Employment status of household reference person	Employed	1.00						
	Inactive	2.13	1.84	2.46	0.00	102.44	0.76	0.07
	Unemployed	2.59	2.13	3.13	0.00	94.14	0.95	0.10
	Retired	1.27	1.06	1.52	0.01	6.71	0.24	0.09
Employment status (primary) of partner	Employed	1.00						
	Inactive	2.39	2.01	2.83	0.00	98.41	0.87	0.09
	Unemployed	3.07	2.36	4.00	0.00	69.28	1.12	0.13
	Retired	3.21	2.62	3.95	0.00	123.56	1.17	0.11
	Doesn't Apply	1.30	1.09	1.54	0.00	8.70	0.26	0.09
National Statistics Socio-Economic Classification	Higher managerial & professional occupations	1.00						
	Lower managerial & professional occupations	1.42	1.15	1.75	0.00	10.68	0.35	0.11
	Intermediate occupations	1.94	1.53	2.46	0.00	29.83	0.66	0.12
	Small employers & account workers	2.46	1.96	3.09	0.00	60.47	0.90	0.12
	Lower supervisory & technical occupations	2.12	1.68	2.69	0.00	39.53	0.75	0.12
	Semi-routine occupations	2.56	2.06	3.16	0.00	74.08	0.94	0.11
	Routine occupations	2.51	2.02	3.12	0.00	68.16	0.92	0.11
	Never worked/FT students/Unclassified	2.16	1.67	2.80	0.00	33.93	0.77	0.13
Household on means tested benefits/tax credit	No	1.00						
	Yes	3.87	3.41	4.41	0.00	424.20	1.35	0.07
Attendance allowance or DLA mobility/care component	No/No Answer	1.00						
	Yes	0.35	0.30	0.42	0.00	139.65	-1.04	0.09
Method of payment - electricity	Direct debit	1.00						
	Prepayment meter	2.14	1.87	2.46	0.00	117.64	0.76	0.07
	Standard credit	1.73	1.54	1.93	0.00	88.95	0.55	0.06
Whether dwelling is on the gas network	On network	1.00						
	Not on network	0.57	0.45	0.74	0.00	18.80	-0.56	0.13
Dwelling type	Flat	1.00						
	Terrace	2.32	1.83	2.96	0.00	47.50	0.84	0.12
	Semi detached	3.22	2.51	4.12	0.00	85.99	1.17	0.13
	Detached/Bungalow	3.52	2.72	4.55	0.00	92.44	1.26	0.13
Dwelling age	Post 1964	1.00						
	1945 to 1964	2.26	1.98	2.58	0.00	143.71	0.82	0.07
	1919 to 1944	3.45	3.00	3.98	0.00	295.96	1.24	0.07
	Pre 1919	3.89	3.38	4.48	0.00	356.47	1.36	0.07
Floor area	Less than 50 sqm	1.00						
	50 to 69 sqm	2.86	2.27	3.60	0.00	78.83	1.05	0.12
	70 to 89 sqm	7.05	5.51	9.01	0.00	242.98	1.95	0.13
	90 to 109 sqm	11.73	8.87	15.49	0.00	299.64	2.46	0.14
	110 sqm or more	17.89	13.31	24.06	0.00	364.67	2.88	0.15
Tenure	Social	1.00						
	Owner Occupied	1.17	1.01	1.36	0.03	4.49	0.16	0.08
	Private rented	2.49	2.15	2.87	0.00	156.71	0.91	0.07
Under occupancy	Not under occupying	1.00						
	Under occupying	0.50	0.42	0.58	0.00	76.23	-0.70	0.08
Loft insulation thickness	150mm or more	1.00						
	Less than 150mm	1.21	1.10	1.34	0.00	14.63	0.19	0.05
	No loft*	0.97	0.73	1.30	0.86	0.03	-0.03	0.15
Age of heating system	Less than 3 years	1.00						
	3-12 years	1.16	1.01	1.34	0.04	4.32	0.15	0.07
	More than 12 years	1.72	1.46	2.02	0.00	43.49	0.54	0.08
Main heating fuel	Gas	1.00						
	Electricity	2.48	1.78	3.45	0.00	28.92	0.91	0.17
	Other	2.35	1.77	3.13	0.00	34.23	0.85	0.15
Type of boiler	All condensing boiler	1.00						
	Combination boiler	1.26	1.07	1.47	0.00	8.15	0.23	0.08
	Standard/Back boiler	1.77	1.51	2.07	0.00	50.90	0.57	0.08
	No boiler	2.78	2.05	3.77	0.00	43.27	1.02	0.16
Model constant	Constant	0.0001			0.00	1390.81	-9.08	0.24

\* Not statistically significant

## Model Validation

The Hosmer and Lemeshow test provides an overall fit of the logistic regression model and tests whether the difference between the observed and expected values are statistically significant. A finding of non-significance implies that the model adequately fits the data. At a 5% level of significance, this test is found to be insignificant (p-value: 0.380) and therefore the logistic regression model above is valid.

### Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	8.568	8	0.380

The accuracy of the model to discriminate between fuel poor and non-fuel poor households is evaluated using the Receiver Operating Characteristic (ROC) curve. The Area under this curve (AUC), known as the c-statistic, can range from 0.5 (no predictive ability) to 1 (perfect discrimination). The statistically significant value of 0.851 shows this model offers a very good level of discrimination.

### Area Under the Curve

Area	Std. Error	Asymptotic Sig	Asymptotic 95% Confidence Interval	
			Lower Bound	Upper Bound
0.851	0.004	0.000	0.844	0.858

### Masuma Ahmed

Fuel Poverty statistics

Tel: 0300 068 5922

E-mail: [Masuma.Ahmed@decc.gsi.gov.uk](mailto:Masuma.Ahmed@decc.gsi.gov.uk)

## **International comparisons of energy efficiency indicators**

### **Introduction**

International comparisons of energy efficiency are a helpful way to measure performance of the UK relative to other countries and understand the key energy demands of the UK economy. This article presents indicators for each of the main energy consuming sectors based on data published by the ODYSSEE European energy efficiency indicators project. These indicators are designed to make meaningful comparisons but care must be taken when making comparisons regarding efficiency due to significant differences in the types of energy used in different countries due to differences in heating demand, building type and structure of industry which cannot be fully controlled for.

Data are taken from the ODYSSEE database unless otherwise noted. The ODYSSEE project is a European Commission supported project made up of partners from EU Member States together with Norway to produce detailed energy efficiency indicators for European countries. The majority of European Union (EU) countries have data covering at least 2001 to 2011. However, in some cases a country will not have 2011 data available yet so in this case 2010 data has been used. For Estonia, Hungary and Malta, all data are for 2010. If a country is not displayed on a cross-European chart, it is because that country does not have data for that indicator.

This article provides a brief overview of energy efficiency in the domestic sector, the manufacturing sector, the service sector and the transport sector.

### **Domestic**

The indicator in chart 1 shows average energy consumption per dwelling adjusted for climatic differences across the EU. In 2011, UK average consumption per dwelling when scaled to the EU climate<sup>1</sup> was 16,100 kWh per dwelling<sup>2</sup>, 2 per cent lower than the European Union (EU)<sup>3</sup> average of 16,500 kWh per dwelling but consumed 2 per cent more energy per dwelling than Germany but 30 per cent less per dwelling than France.

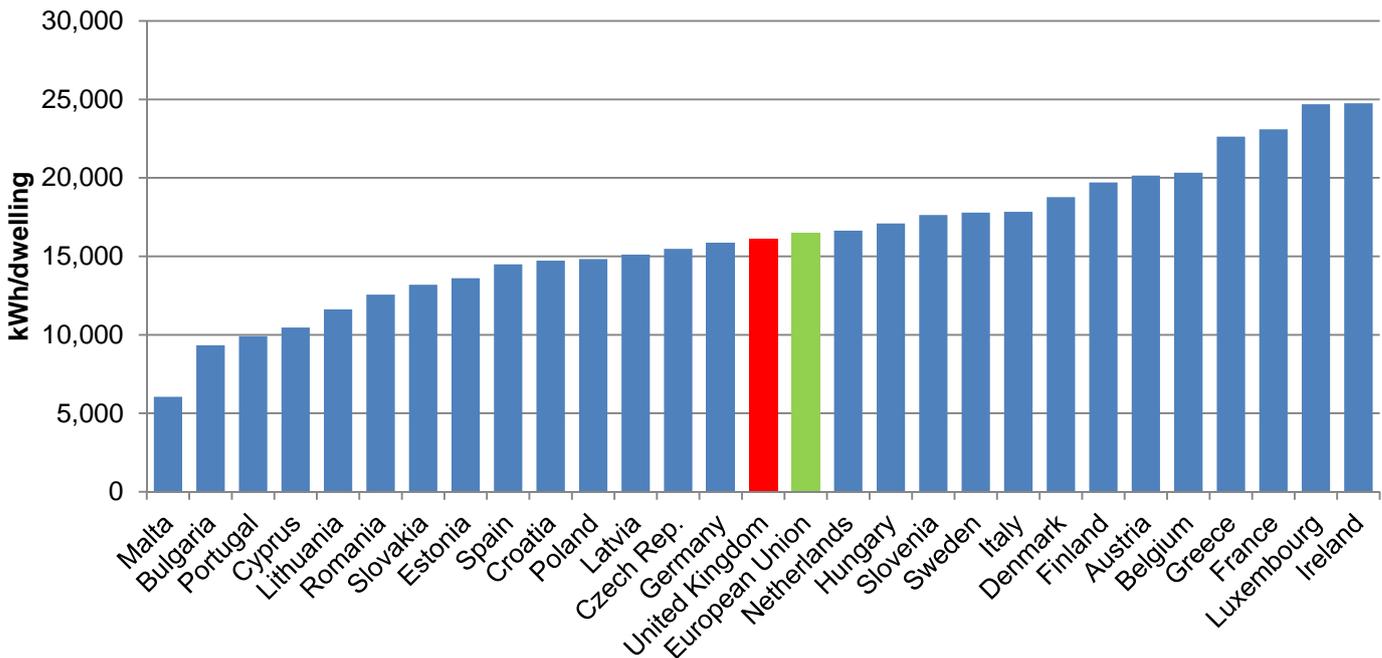
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<sup>1</sup> Temperature correction of a country's energy consumption data adjusted for difference in temperature compared to the average EU climate.

<sup>2</sup> The UK data for charts 1 and 2 is different to the raw ODYSSEE data. The reason for this is that for the UK data we have applied our own national temperature correction methodology prior to the scaling to the EU climate. We will continue to discuss methodology issues with the ODYSSEE network regarding the methodology going forward.

<sup>3</sup> The 'European Union' (EU) statistics refer to a weighted average of 27 of the 28 member states. For certain indicators, not all EU member states will have data points and therefore would not be included in the average. Croatia is shown throughout this chapter but is not included in the calculation of the 'EU' statistics.

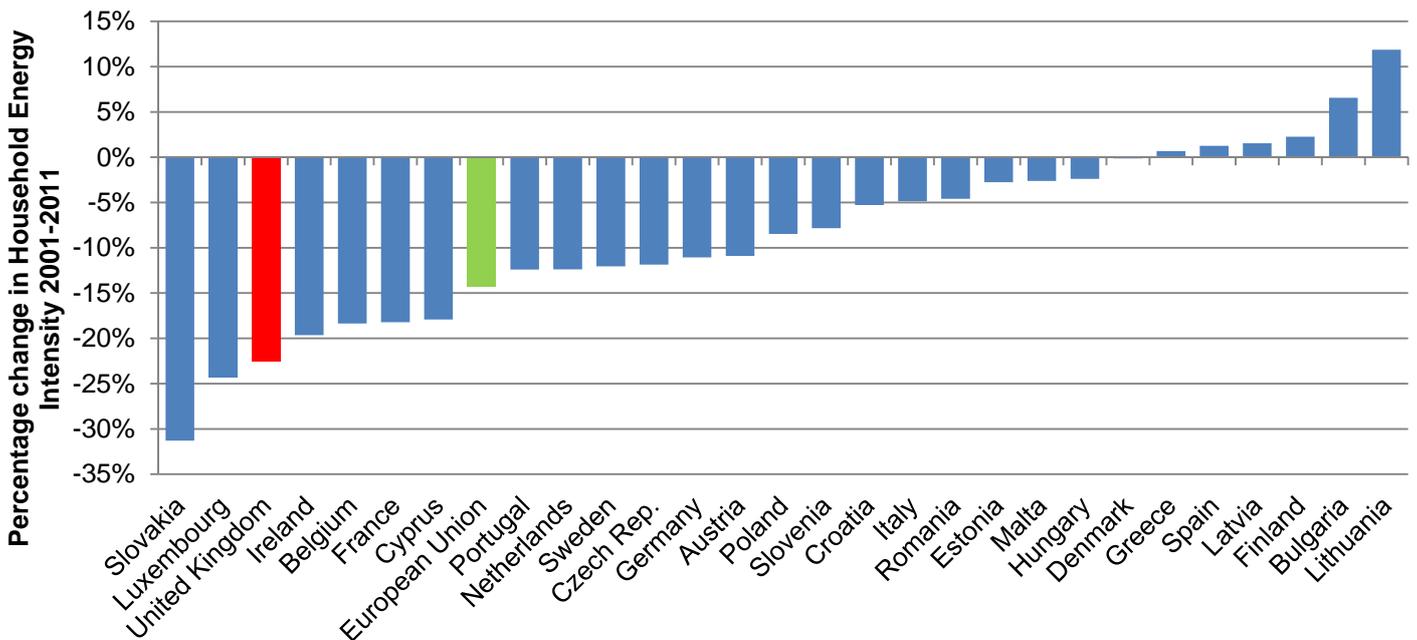
**Chart 1 Household energy consumption per domestic dwelling adjusted to the EU climate, 2011. (provisional statistics)**



Source: ODYSSEE

Overall, UK energy consumption per dwelling fell by 23 per cent between 2001 and 2011, the third largest percentage decrease in Europe after Slovakia and Luxembourg. By comparison, the EU27 average fell by 14 per cent over the same period, with energy consumption per dwelling falling in the majority of EU countries over this period.

**Chart 2, Change in household energy consumption per dwelling adjusted to the EU climate between 2000-2011. (provisional statistics)**

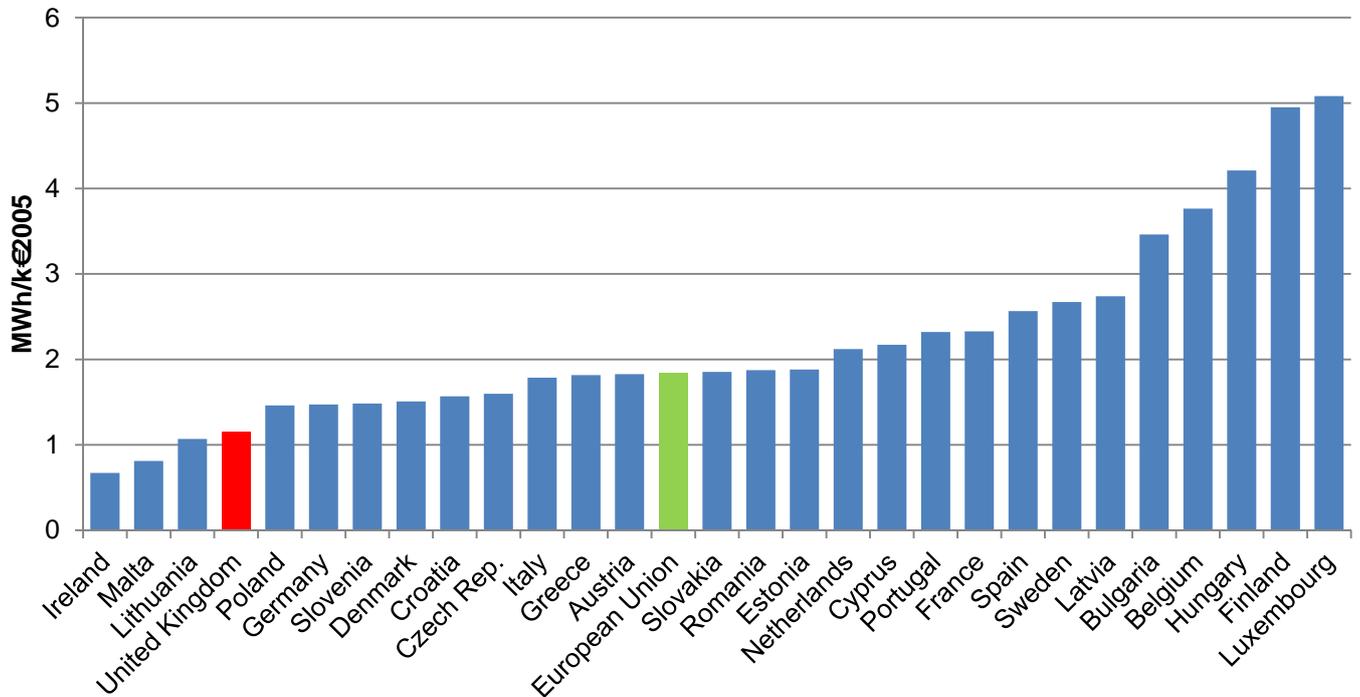


Source: ODYSSEE

## Manufacturing

The UK has the fourth lowest manufacturing energy intensity in Europe, 37 per cent below the EU27 average relative to gross value added (GVA).<sup>4</sup>

**Chart 3 Manufacturing energy consumption per unit of GVA: 2011 (PPP adjusted)**



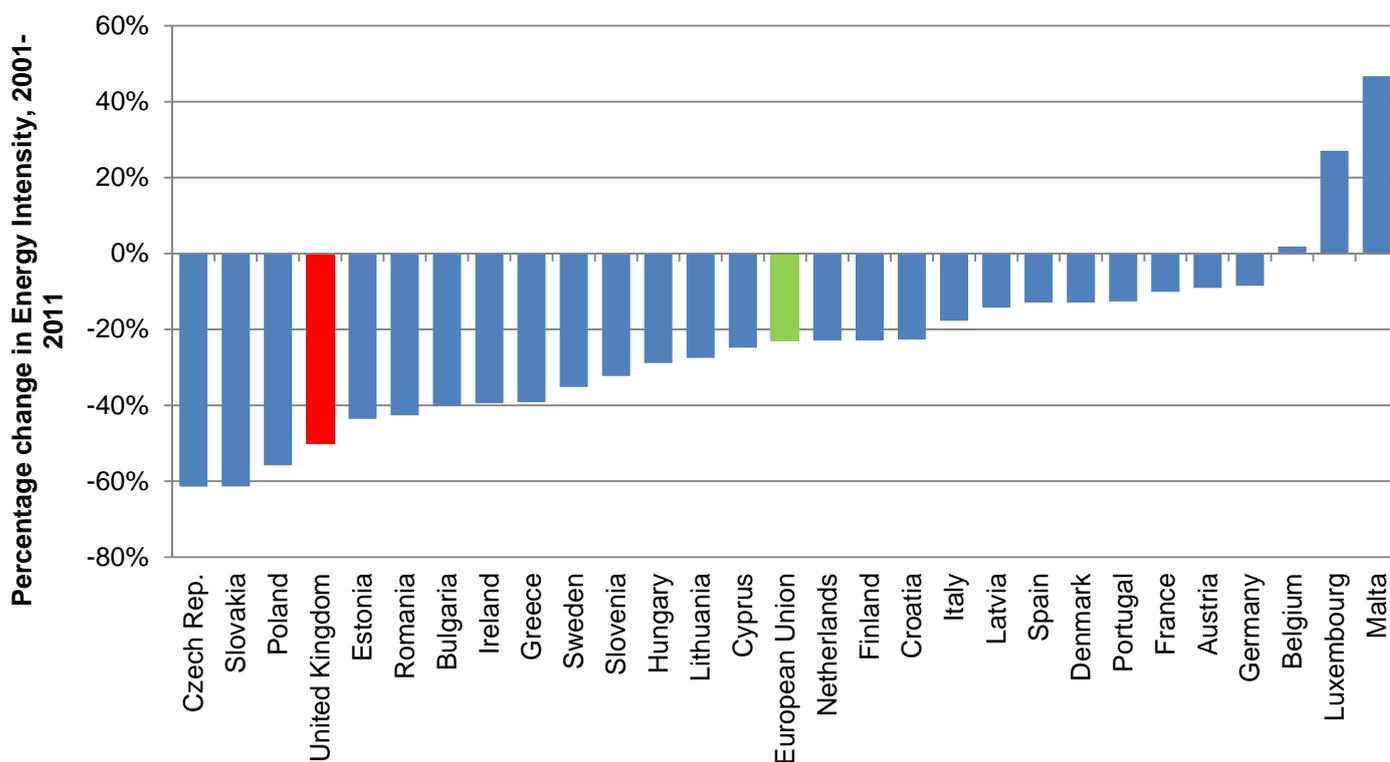
Source: ODYSSEE

Since 2001, UK energy intensity has fallen by 50 per cent as shown in chart 4. The UK has made the largest reduction in manufacturing energy intensity out of the larger EU economies and the fourth largest in the EU. In the EU as a whole decreased its manufacturing energy intensity by 23 per cent. Between 2001 and 2011, the GVA of the UK's manufacturing industry<sup>5</sup> fell by 8 per cent and in 2011, manufacturing only accounted for 10 per cent of the UK's GVA.

<sup>4</sup> Adjusted for purchasing power parity (PPP).

<sup>5</sup> ONS Blue Book, Chained Volume indices

**Chart 4 Change in manufacturing energy consumption per unit of GVA, 2001-2011 (PPP adjusted)**

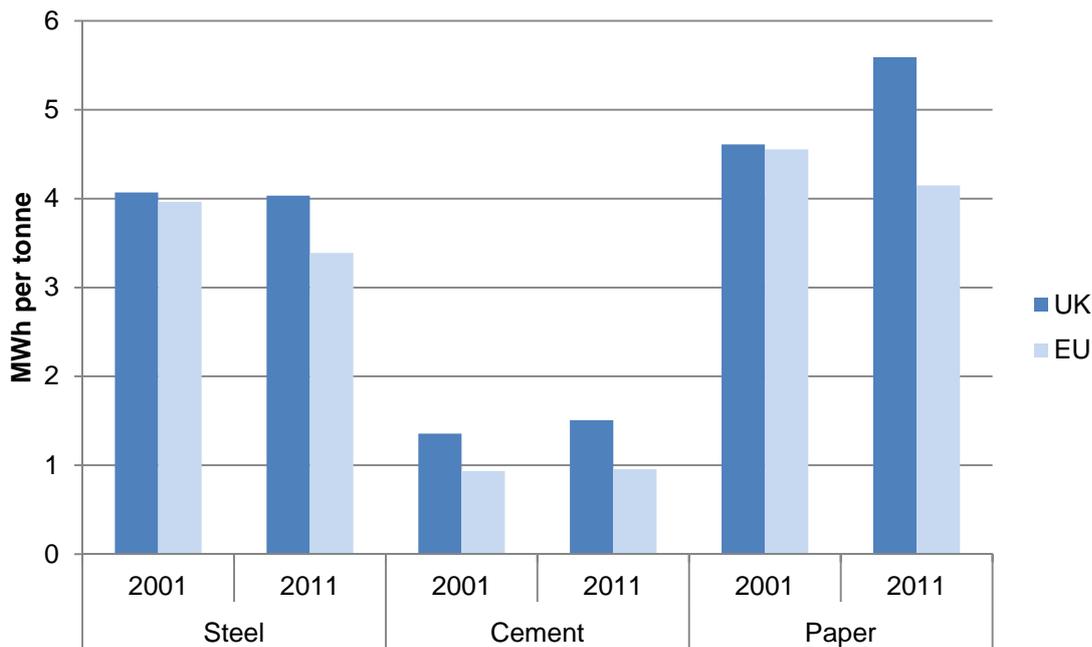


Source: ODYSSEE

Manufacturing energy intensity as a broad indicator can be difficult to assess due to the varying structures of the manufacturing industries in different EU countries. While the indicator does show that the UK manufacturing industry has lower energy intensity relative to the EU, it is important to look at the sub-sectors within manufacturing to compare the relative efficiencies of countries. Care should be taken whilst making international comparisons of manufacturing as the type and quality of products produced varies between countries. For example in the steel industry, energy intensity will vary depending on the share of coke that is manufactured on-site relative to what is imported.

Energy intensity with the cement, steel and paper sectors are primarily measured by energy by tonne of output (as opposed to GVA). Using this measure for these energy intensive sectors the UK is generally shown to be more energy intensive than the EU as a whole. In 2011, the UK was more energy intensive than the EU in cement by 58 per cent, paper by 35 per cent and steel by 19 per cent. Furthermore, the UK's energy intensity in cement increased by 11 per cent and paper by 21 per cent between 2001 and 2011, this may be partly due to a decline in output from the sectors which is likely to reduce the overall efficiency of production. UK output of the cement sector fell 25 per cent between 2001 and 2011, whilst the paper sector fell 30 per cent and the steel sector 41 per cent over the same time period.

**Chart 5 Energy intensity by manufacturing sector: UK & EU 2001 & 2011.**



Source: ODYSSEE

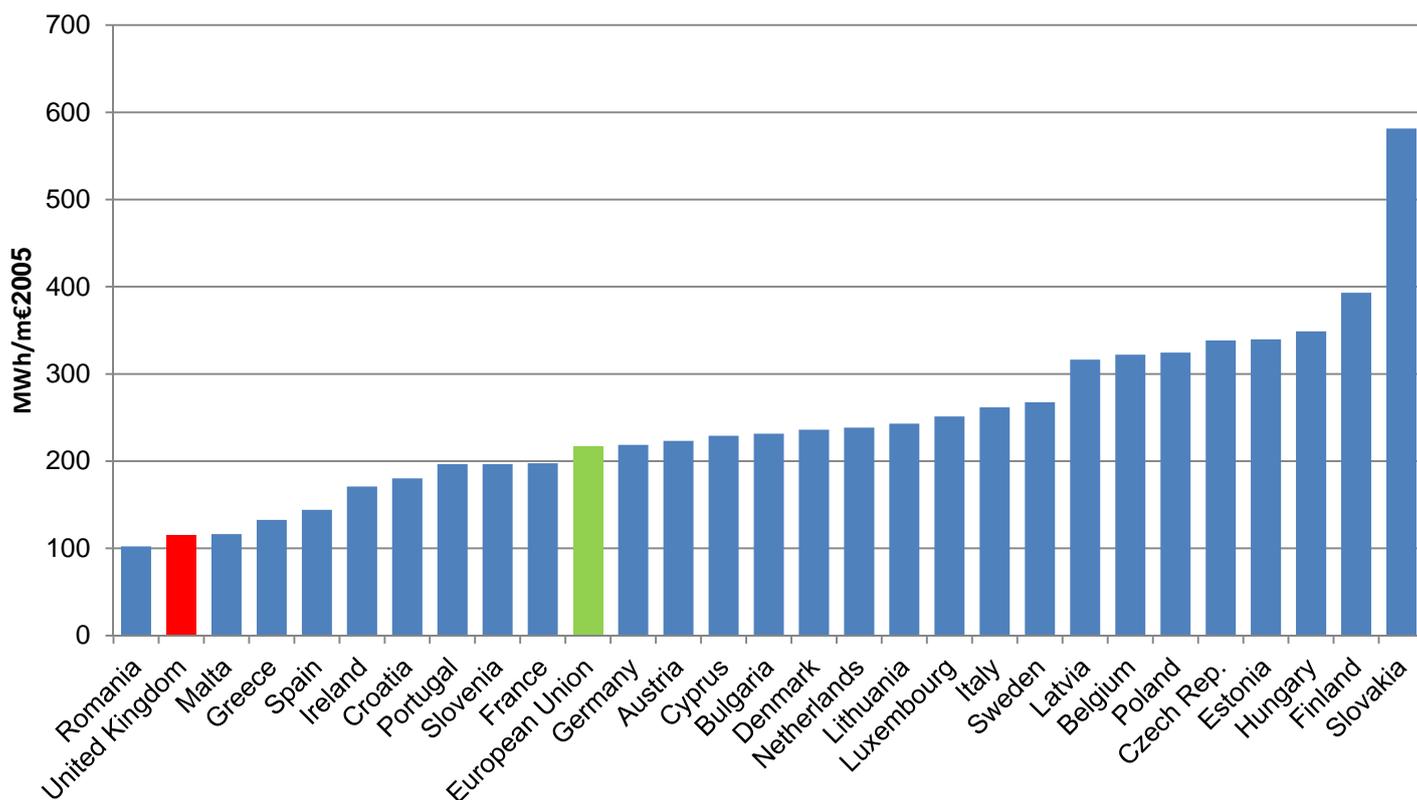
### Non-domestic: Commercial and Public Sector Services

The UK has one of the least energy intensive service sectors in the EU as measured by energy consumption per unit of GVA, as shown by chart 6. The UK performs particularly well on this indicator due to the high value professional services that generate high GVA for relatively low energy use. UK service sector energy consumption per unit of GVA was 47 per cent lower than the EU average. The UK service sector is the dominant sector of the UK economy, contributing 78 per cent of GDP output in Q3 2013.<sup>6</sup>

Between 2001 and 2011, the UK's service sector energy intensity fell 64 per cent, compared to a fall of 11 per cent in the EU as a whole. Over the same time period, the GVA of the service sector in the UK increased 24 per cent

<sup>6</sup> ONS Index of Services – August 2013 - [www.ons.gov.uk/ons/rel/ios/index-of-services/august-2013/index.html](http://www.ons.gov.uk/ons/rel/ios/index-of-services/august-2013/index.html)

**Chart 6 Service Sector energy consumption per unit of GVA: 2011 (PPP adjusted).**



Source: ODYSSEE

## Transport

Chart 7 shows the average energy consumption (litres) per 100 km travelled for cars in EU countries, where figures are available. For the vehicle fleet as a whole, the UK has the lowest consumption per distance travelled of 5.8 litres/100km (equivalent to 49 miles per gallon). This is 16 per cent below the EU average.

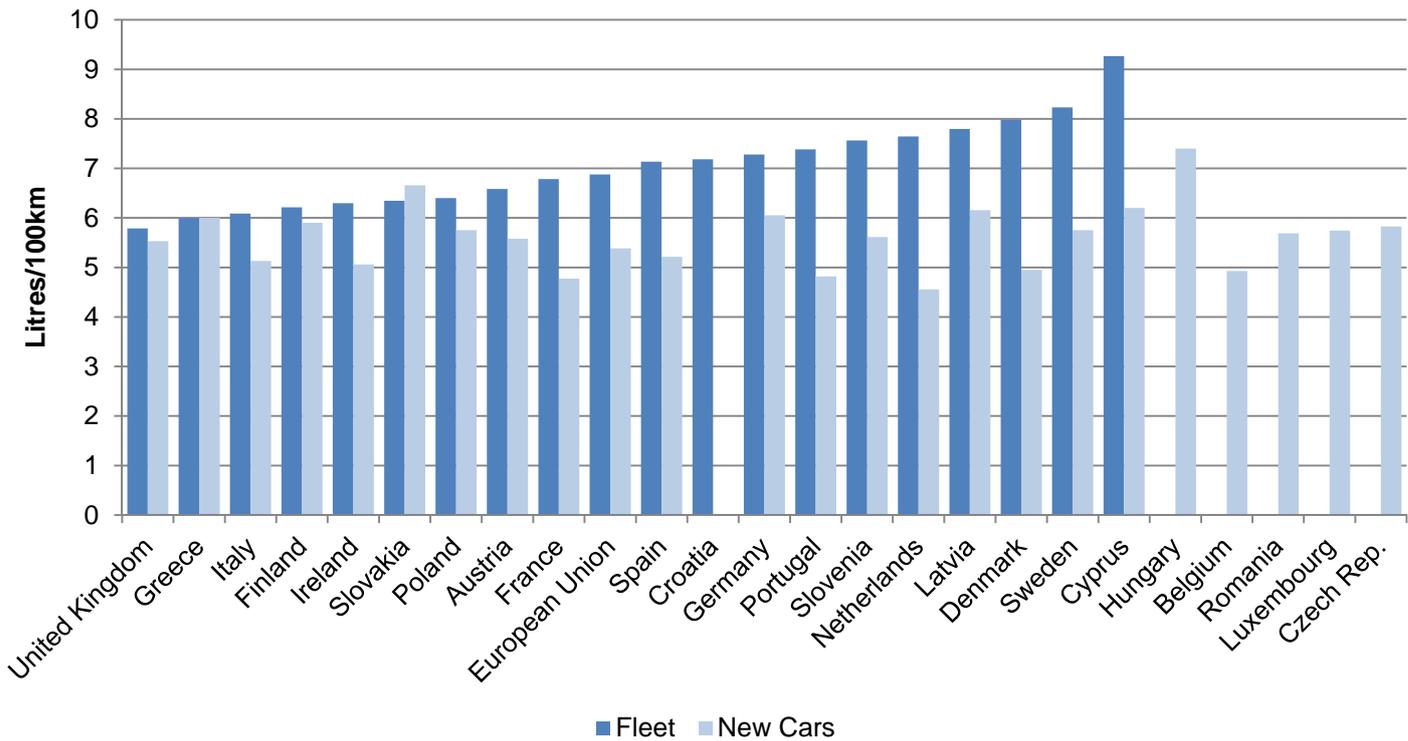
The UK new car consumption per distance travelled is 5.5 litres/100km (equivalent to 51 miles per gallon). This is higher than the EU average of 5.4 litres/100km. This is likely to reflect demand for larger; higher energy consuming vehicles in the UK relative to the rest of Europe.

For the UK, energy consumption for both new cars and the car fleet as a whole decreased 24 per cent between 2001 and 2011. This is compared to an EU average of 22 per cent for new cars and 12 per cent for all cars. In the UK, for 2012, the average number of years since 1<sup>st</sup> registration for cars was 7.7 years,<sup>7</sup> compared to 8.2 years for the European Economic Area in 2009 (the last data available).<sup>8</sup> Higher replacement of the car stock will lead to more energy efficient cars and this is one of the reasons that the UK average energy consumption for the entire car fleet is the lowest in the EU.

<sup>7</sup> DfT Road Traffic Survey - [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/184161/veh0211.xls](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/184161/veh0211.xls)

<sup>8</sup> [www.eea.europa.eu/data-and-maps/indicators/average-age-of-the-vehicle-fleet/average-age-of-the-vehicle-3](http://www.eea.europa.eu/data-and-maps/indicators/average-age-of-the-vehicle-fleet/average-age-of-the-vehicle-3)

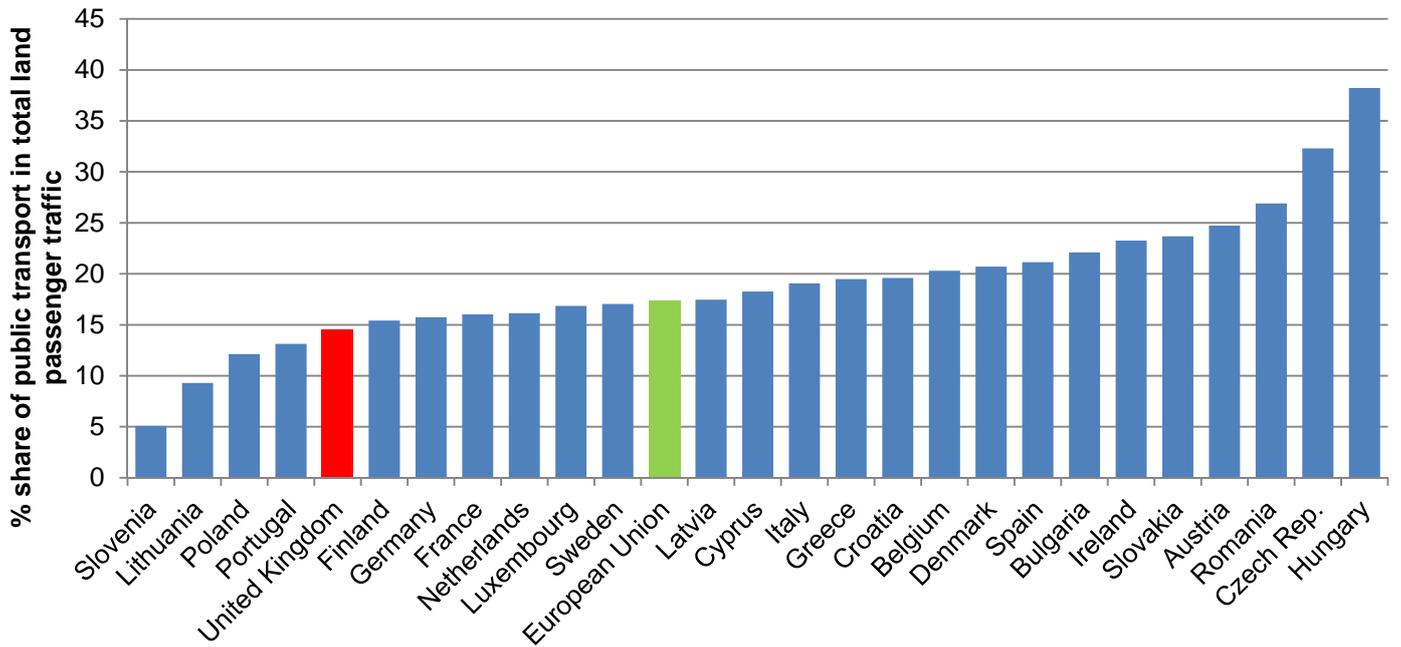
**Chart 7 Specific consumption per 100 km of new cars and total fleet, 2011.**



Source: ODYSSEE

The UK has the fifth lowest percentage share of public transport in total land passenger transport, accounting for just 15 per cent of all traffic. This has increased 2 percentage points from 13 per cent in 2001. The EU average has decreased from 18 per cent of public transport in total land passenger transport to 17 per cent from 2000 to 2011.

**Chart 8 Percentage share of public transport in total land passenger transport: 2011.**



Source: ODYSSEE

For further information on International Energy Efficiency Statistics, please contact:

**Kieran Elliott**  
 DECC  
 Tel: 0300 068 5260  
 E-mail: [Kieran.Elliott@decc.gsi.gov.uk](mailto:Kieran.Elliott@decc.gsi.gov.uk)

**Stephen Oxley**  
 DECC  
 Tel: 0300 068 5025  
 E-mail: [Stephen.Oxley@decc.gsi.gov.uk](mailto:Stephen.Oxley@decc.gsi.gov.uk)

## **Recent and forthcoming publications of interest to users of energy statistics**

### **National Energy Efficiency Data-Framework**

This publication presents estimates of the impact of installing energy efficiency measures in homes on annual gas consumption. Latest results are for measures installed in 2010; covering cavity wall insulation, loft insulation, new boilers and preliminary results for solid wall insulation. Results were published on 21 November 2013 and are available at:

[www.gov.uk/government/publications/national-energy-efficiency-data-framework-need-report-summary-of-analysis-2013-part-2](http://www.gov.uk/government/publications/national-energy-efficiency-data-framework-need-report-summary-of-analysis-2013-part-2).

On the same day, DECC also published a consultation inviting views on proposals to publish anonymised datasets containing record level data from NEED. The datasets would cover domestic properties in England and Wales. The consultation, which closes on the 21 January 2014, is available at: [www.gov.uk/government/consultations/national-energy-efficiency-data-framework-making-data-available](http://www.gov.uk/government/consultations/national-energy-efficiency-data-framework-making-data-available).

### **Smart Meters quarterly statistics**

This quarterly publication provides estimates of the number of Smart Meters installed and operating in homes and businesses in Great Britain. This release, covering estimates of the number of Smart Meters deployed up to the end of September 2013, was published on 12 December 2013 at: [www.gov.uk/government/collections/smart-meters-statistics](http://www.gov.uk/government/collections/smart-meters-statistics)

### **Electricity consumption at local authority level**

This factsheet looks at electricity consumption by consuming sector for Great Britain, and Regional/devolved administration areas, together with some commentary relating to local authority trends. The data analysed in this factsheet are based on the aggregation of Meter Point Administration Number (MPAN) readings throughout Great Britain as part of DECC's annual meter point electricity data exercise. The data cover the electricity year between 27 January 2012 and 26 January 2013. These data follow on from the results produced from similar exercises carried out for 2005 to 2011. The latest release, published on 19 December 2013, can be found at:

[www.gov.uk/government/collections/sub-national-electricity-consumption-data](http://www.gov.uk/government/collections/sub-national-electricity-consumption-data).

### **Gas consumption at local authority level**

This factsheet looks at gas consumption by consuming sector for Great Britain, and Regional/devolved administration areas, together with some commentary relating to local authority trends. The data analysed in this factsheet are based on the aggregation of Meter Point Reference Number (MPRN) readings throughout Great Britain as part of DECC's annual meter point gas data exercise. The data cover the gas year between 1 October 2011 and 30 September 2012 and are subject to a weather correction factor. In the domestic sector, gas consumption is predominately used for heating purposes and as a result usage is driven by external temperatures and weather conditions. The weather correction factor enables comparisons of gas use over time, controlling for weather changes. These data follow on from the results produced from similar exercises carried out for 2005 to 2011. The latest release, published on 19 December 2013, can be found at:

[www.gov.uk/government/collections/sub-national-gas-consumption-data](http://www.gov.uk/government/collections/sub-national-gas-consumption-data).

### **Green Deal and ECO monthly and quarterly statistics**

These publications provide estimates of various elements of the rollout of the Green Deal and ECO policy, including number of assessments, plans, and measures installed. The latest releases were published on 19 December 2013 at:

[www.gov.uk/government/collections/green-deal-and-energy-company-obligation-eco-statistics](http://www.gov.uk/government/collections/green-deal-and-energy-company-obligation-eco-statistics)

In December 2013, DECC's publication setting out estimates of home insulation levels in Great Britain was merged with the Green Deal and ECO quarterly release. This quarterly publication now also provides estimates of the number of homes in Great Britain with cavity wall insulation, loft insulation and solid wall insulation.

*Special feature – Recent and forthcoming publications*

**Manual for Energy Statistics in Households (MESH)**

DECC's statisticians have been partners in a Eurostat supported project to improve the comprehensiveness and consistency of data on household energy use, through the development of a manual covering theory, practical guidance and country examples. The manual can be accessed at:

[http://epp.eurostat.ec.europa.eu/portal/page/portal/product\\_details/publication?p\\_product\\_code=KS-GQ-13-003](http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-GQ-13-003)

## List of special feature articles published in Energy Trends between December 2012 and September 2013

### Energy

- March 2013 Long term mean temperatures 1981-2010  
DECC and the new Government website
- September 2013 Running hours during winter 2012/13 for plants opted-out of the Large  
Combustion Plant Directive (LCPD)  
Estimates of heat use in the United Kingdom in 2012  
DECC report on surveys of businesses and local authorities - 2012/13

### Coal

- March 2013 Coal in 2012

### Combined Heat and Power (CHP)

- September 2013 Combined Heat and Power in Scotland, Wales, Northern Ireland and the  
regions of England in 2012

### Electricity

- December 2012 Electricity generation and supply figures for Scotland, Wales, Northern Ireland  
and England, 2008 to 2011

### Energy efficiency

- December 2012 National Energy Efficiency Data-Framework
- June 2013 National Energy Efficiency Data-Framework analysis

### Energy prices

- December 2012 Tariff type variation in the domestic energy market
- March 2013 Domestic energy bills in 2012: The impact of variable consumption  
Petrol and diesel prices
- June 2013 Electricity bill variations by tariff type  
The effect of the cold 2012/13 winter on energy bills

### Fuel Poverty

- September 2013 Fuel Poverty levels in England, 2011

### Gas

- June 2013 Physical gas flows across Europe and security and diversity of gas supply in  
2011

### Petroleum (oil and oil products)

- September 2013 Diversity of supply for oil and oil products in OECD countries

### Renewables

- June 2013 Renewable energy in 2012
- September 2013 Renewable electricity in Scotland, Wales, Northern Ireland and the regions of  
England in 2012

## **Sub-national energy consumption**

December 2012      Sub-national energy consumption statistics updates

## **UK Continental Shelf (UKCS)**

March 2013      UKCS capital expenditure survey 2012

PDF versions of the special feature articles appearing in Energy Trends since 2012 can be accessed on the DECC section of the gov.uk website at:

[www.gov.uk/government/collections/energy-trends-articles](http://www.gov.uk/government/collections/energy-trends-articles)

Articles published before 2012 can be accessed on the National Archives version of the DECC website at:

<http://webarchive.nationalarchives.gov.uk/20130109092117/http://www.decc.gov.uk/en/content/cms/statistics/statistics.aspx>

# Explanatory notes

## General

More detailed notes on the methodology used to compile the figures and data sources are available on the DECC section of the gov.uk website.

## 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 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 not separately available
- 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

# ENERGY TRENDS

Energy is a major natural resource and a key factor in the economy and environment of the United Kingdom. Data on energy supply and demand, energy prices and values and trade in energy are vital components of this country's main economic and environmental indicators.

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