



Department
of Energy &
Climate Change



A National Statistics Publication



ENERGY TRENDS

G9DH9A69F 2013

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

Designation can be broadly interpreted to mean that the statistics:

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

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

Explanatory notes are to be found inside the back cover

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

Introduction

Energy Trends and Quarterly Energy Prices are produced by the Department of Energy and Climate Change (DECC) on a quarterly basis. Both periodicals are published concurrently in June, September, December and March. The September editions cover the second 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/organisations/department-of-energy-climate-change/series/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

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.

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/organisations/department-of-energy-climate-change/series/quarterly-energy-prices

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

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The main points for the second quarter of 2013:

- Total energy production was 9½ per cent lower than in the second quarter of 2012. This decline in output is due to a fall in petroleum production as a result of the general decline and maintenance work on a number of fields. The fall in production led to a rise in net import dependency of total primary energy to 51 per cent.
- Oil production fell by 14 per cent when compared with the second quarter of 2012.
- Natural gas production was 3 per cent lower than the second quarter of 2012. The lower rate of decline compared to previous quarters is due to the partial re-opening of production in the Elgin area. Gas imports rose by 8½ per cent, with shipped imports of LNG falling by 8 per cent, due to the completion of maintenance work on Norwegian pipelines and increased demand for LNG from Asia.
- Coal production in the second quarter of 2013 was 24 per cent lower than the second quarter of 2012. Coal imports were 7½ per cent higher, whilst generator's demand for coal was down by 7½ per cent.
- Total primary energy consumption for energy uses fell by 2½ per cent. However, when adjusted to take account of weather differences between the second quarter of 2012 and the second quarter of 2013, primary energy consumption fell by 3 per cent.
- Final energy consumption was provisionally 1½ per cent higher than in the second quarter of 2012. Transport consumption rose by 2½ per cent, industrial consumption rose by 1 per cent, other final users consumption rose by just under ½ per cent, whilst domestic consumption fell by 1 per cent.
- On a temperature adjusted basis, final consumption (excluding non-energy use) was broadly unchanged, but with domestic consumption down 2.6 per cent.
- Net imports of crude oil, NGLs and feedstocks in the second quarter of 2013 widened to 7.8 million tonnes, the second largest figure since oil production peaked in 1999. This met 45 per cent of the UK's refinery demand.
- Electricity generated in the second quarter of 2013 fell by 2½ per cent, from 85.3 TWh a year earlier to 83.0 TWh, the lowest second quarter level of generation since 1998.
- Of electricity generated in the second quarter of 2013, gas accounted for 28½ per cent due to high gas prices, whilst coal accounted for 35 per cent. Nuclear generation accounted for 18½ per cent of total electricity generated in the second quarter of 2013, a decrease from the 21½ per cent share in the second quarter of 2012.
- Renewables' share of electricity generation increased to 15½ per cent from the 9½ per cent share in the second quarter of 2012, a growth in generation of 56 per cent. Hydro generation was up 29 per cent (+0.2 TWh) due to an increase in rainfall in April and May in the main hydro regions. Over the same period, offshore wind generation increased by 51 per cent, whilst onshore wind generation rose by 70 per cent.
- In the second quarter of 2013, 127 MW of capacity joined the Feed in Tariff scheme, increasing the total confirmed capacity by 7 per cent to 1,918 MW, approximately 10 per cent of all renewable installed capacity. Of this increase, sub-4 kW retrofitted solar PVs contributed 56 MW.

Section 1 - Total Energy

Key results show:

Total energy production was 9.4 per cent lower than in the second quarter of 2012. **(Charts 1.1 & 1.2)**

Total primary energy consumption for energy uses fell by 2.3 per cent. However, when adjusted to take account of weather differences between the second quarter of 2012 and the second quarter of 2013, primary energy consumption fell by 2.8 per cent. **(Chart 1.3)**

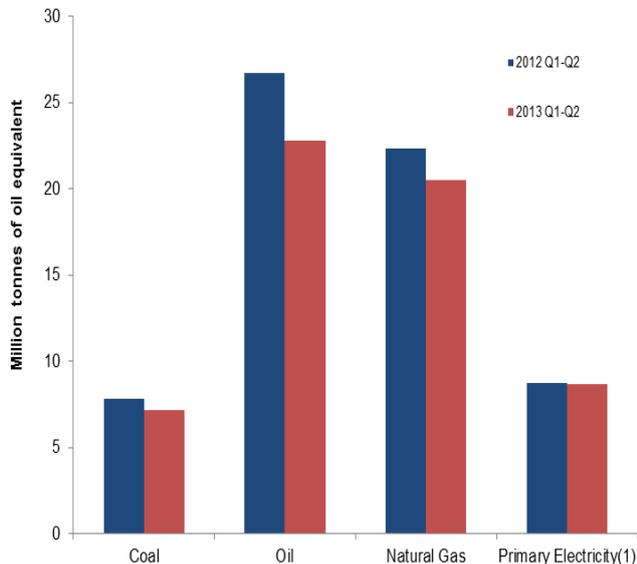
Final energy consumption provisionally rose by 1.5 per cent compared to the second quarter of 2012. Transport consumption rose by 2.6 per cent, industrial consumption rose by 1.1 per cent, other final users' consumption rose by 0.3 per cent, whilst domestic consumption fell by 1.0 per cent. **(Chart 1.4)**

On a temperature adjusted basis, final consumption (excluding non-energy use) was broadly unchanged, but with domestic consumption down 2.6 per cent.

Net import dependency was 51.4 per cent, up 9.6 percentage points from the second quarter of 2012. This rise was due to a rise in imports of gas and petroleum products. **(Chart 1.6)**

Fossil fuel dependency was 85.9 per cent in the second quarter of 2013. **(Chart 1.7)**

Chart 1.1 Production of indigenous primary fuels



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

Total primary energy production in the second quarter of 2013 stood at 28.7 million tonnes of oil equivalent, 9.4 per cent lower than in the second quarter of 2012.

Production of natural and other gases fell by 2.4 per cent, with the Elgin field back in partial operation. Production of oil fell by 13.4 per cent compared to the second quarter of 2012, as a result of the general decline, and maintenance activity on a number of fields.

Primary electricity output in the second quarter of 2013 was 9.8 per cent lower than in the second quarter of 2012, within which nuclear electricity output was 16.5 per cent lower due to a number of outages, whilst output from wind and natural flow hydro was 53.3 per cent higher than the same period in 2012, due to increased capacity and higher wind speeds.

In the second quarter of 2013 production of coal and other solid fuels was 14.5 per cent lower than the corresponding period of 2012. This was due to a decrease in both deep-mined and surface mining production following closures of collieries.

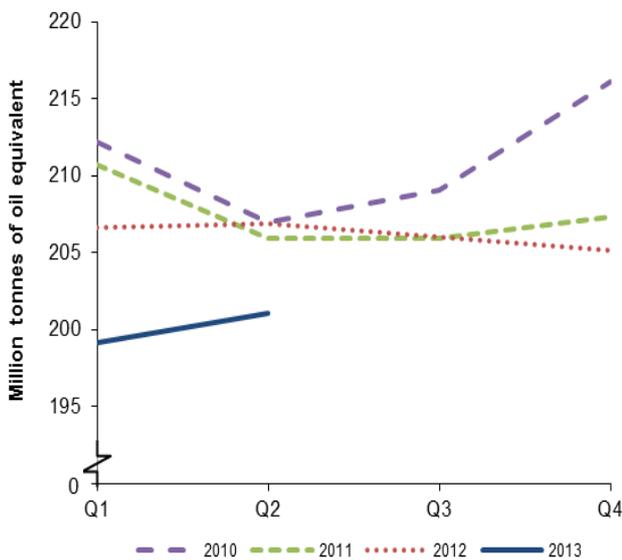
Total Energy

Chart 1.2 UK production (annual growth rate)



In the second quarter of 2013, the annual growth rate of UK production was -9.4 per cent. This was mainly the result of the fall in oil production due to the general decline and maintenance activity. There were also large falls in nuclear production and coal extraction.

Chart 1.3 Total inland consumption (primary fuel input basis)⁽¹⁾



Total inland consumption on a primary fuel input basis (temperature corrected, seasonally adjusted annualised rate), was 201.1 million tonnes of oil equivalent in the second quarter of 2013, 2.8 per cent lower than in the second quarter of 2012. The average temperature in the second quarter of 2013 was 0.2 degree Celsius cooler than the same period a year earlier.

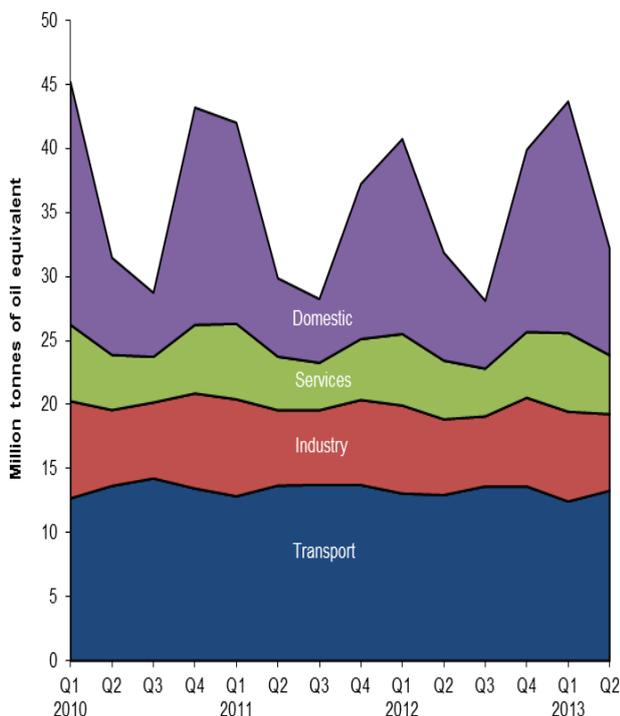
Between the second quarter of 2012 and the second quarter of 2013 (on a seasonally adjusted and temperature corrected basis) coal and other solid fuel consumption fell by 2.6 per cent, driven by decreased coal use in electricity generation.

On the same basis, natural gas consumption fell by 4.1 per cent between the second quarter of 2012 and the second quarter of 2013, as less gas was used in electricity generation.

However on a seasonally adjusted and temperature corrected basis, oil consumption in the second quarter of 2013 was at a similar level to the second quarter of 2012.

(1) Seasonally adjusted and temperature corrected annual rates

Chart 1.4 Final energy consumption by user



Total final energy consumption rose by 1.5 per cent between the second quarter of 2012 and the second quarter of 2013.

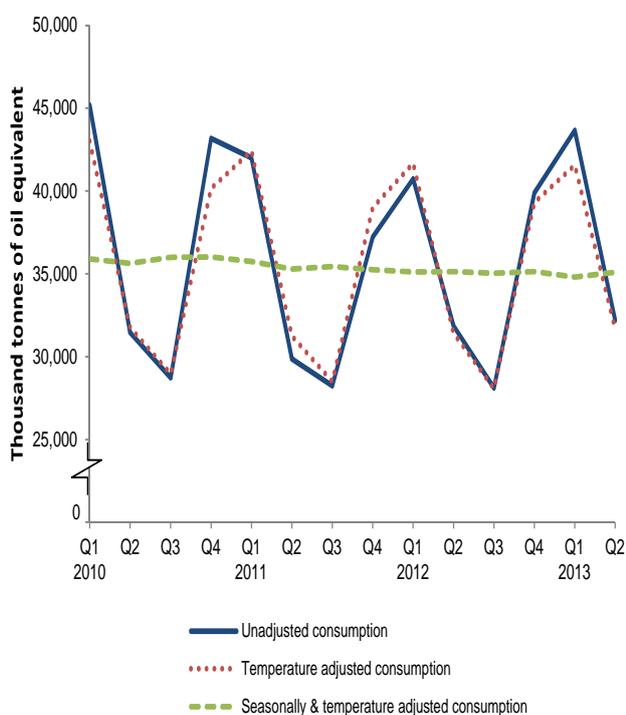
Transport sector energy consumption rose by 2.6 per cent.

Industrial sector energy consumption rose by 1.1 per cent.

Service sector energy consumption rose by 0.3 per cent.

Domestic sector energy consumption fell by 1.0 per cent

Chart 1.5 Seasonally adjusted and temperature corrected final energy consumption



Total unadjusted final energy consumption (excluding non-energy use) rose by 1.0 per cent between the second quarter of 2012 and the second quarter of 2013.

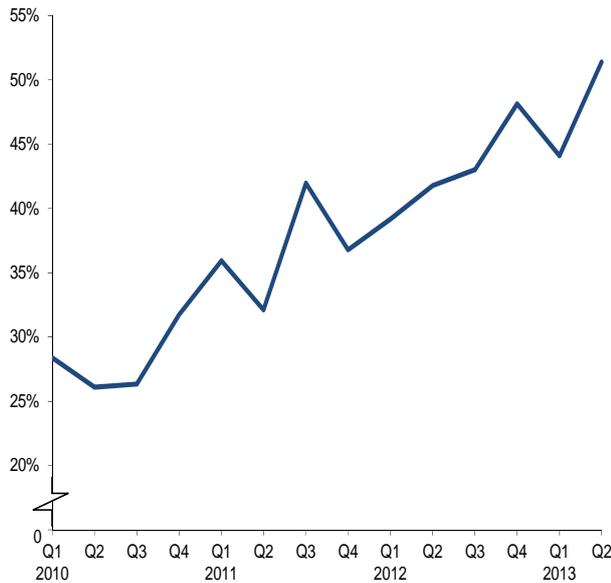
On a seasonally and temperature adjusted basis final energy consumption (excluding non-energy use) fell by 0.1 per cent between the second quarter of 2012 and the second quarter of 2013. Domestic consumption fell by 2.6 per cent.

Consumption data by fuel and sector is available in the table ET 1.3c on the DECC section of the gov.uk website at:

www.gov.uk/government/publications/total-energy-section-1-energy-trends

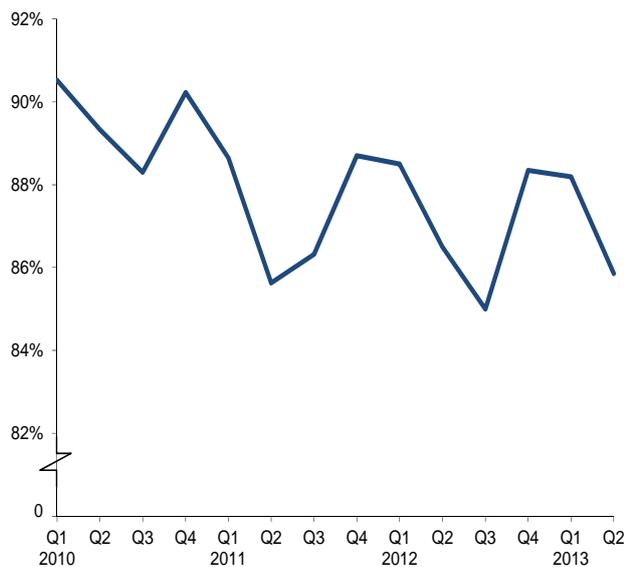
Total Energy

Chart 1.6 Net import dependency



In the second quarter of 2013 net import dependency rose to 51.4 per cent, up 9.6 percentage points from the second quarter of 2012. This rise was due to rise in imports of petroleum products which were up by 16.8 per cent whilst there was a reduction in their exports of 7.8 per cent. Imports of gas were up by 8.7 per cent whilst exports were down 9.8 per cent.

Chart 1.7 Fossil fuel dependency



In the second quarter of 2013 fossil fuel dependency was 85.9 per cent, down 0.6 percentage points from the second quarter of 2012.

Relevant tables

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1 TOTAL ENERGY

TABLE 1.1. Indigenous production of primary fuels

Million tonnes of oil equivalent

		Primary electricity					
		Total	Coal ¹	Petroleum ²	Natural gas ³	Wind and natural flow	
						Nuclear	hydro ⁴
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>		-10.7	-1.1	-14.3	-13.4	-2.7	+21.5
2012	Quarter 2	31.7	3.9	12.9	10.4	4.0	0.43
	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	30.4	3.8	11.6	10.4	3.9	0.73
	Quarter 2 p	28.7	3.4	11.2	10.1	3.3	0.65r
<i>Per cent change⁵</i>		-9.4	-14.5	-13.4	-2.4	-16.5	+53.3

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 second 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 ⁵							Seasonally adjusted and temperature corrected ^{6,7} (annualised rates)						
		Total	Coal ¹	Petroleum ²	Natural gas ³	Primary electricity		Net imports	Total	Coal	Petroleum	Natural gas	Primary electricity		Net imports
						Nuclear	Wind and natural flow hydro ⁴						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>		+2.1	+24.4	-1.8	-5.3	-2.7	+21.5	+93.6	-0.6	+18.3	-1.8	-9.5	-2.7	+21.5	+93.6
2012	Quarter 2	47.8	10.5	16.2	16.4	4.0	0.43	0.27	206.8	46.9	64.8	76.4	15.5	2.17	1.10
	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	61.5	13.5	15.6	27.5	3.9	0.73	0.24	199.1	42.5	62.5	75.9	14.6	2.62r	0.97
	Quarter 2 p	46.7	10.1	16.2	16.1	3.3	0.65r	0.31	201.1r	45.7r	64.8	73.2	12.9	3.23r	1.23
<i>Per cent change⁸</i>		-2.3	-3.1	-	-2.2	-16.5	+53.3	+11.7	-2.8	-2.6	-	-4.1	-16.6	+48.6	+11.7

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

www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-trends

8. Percentage change in the second 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	2011	2011	2012	2012	2012	2012	2013	2013	per cent change ¹
	2011	2012	per cent change	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter p	per cent change ¹
SUPPLY													
Indigenous production	136,827	122,142	-10.7	34,941	29,143	34,425	33,972	31,581	27,146	29,443	30,324r	28,581	-9.5
Imports	162,525	173,797	+6.9	37,416	39,165	43,326	45,183	42,533	39,771	46,310	47,637r	45,769	+7.6
Exports	-84,126	-80,286	-4.6	-21,936	-20,003	-22,413	-21,114	-21,375	-20,196	-17,601	-19,188r	-19,916	-6.8
Marine bunkers	-3,804	-3,317	-12.8	-923	-1,065	-859	-817	-807	-864	-829	-820r	-781	-3.2
Stock change ²	-919	+1,603		-2,223	-2,638	+1,523	+3,410	-2,085	-1,208	+1,486	+5,751r	-4,124	
Primary supply	210,502	213,939	+1.6	47,275	44,603	56,001	60,635	49,847	44,649	58,809	63,704r	49,528	-0.6
Statistical difference ³	-808	-372		-308	-350	-0.4	-163	-71	-199	61	115r	-207	
Primary demand	211,310	214,312	+1.4	47,583	44,953	56,002	60,798	49,918	44,848	58,748	63,589r	49,736	-0.4
Transfers ⁴	-22	-46		-2	-8	-8	-13	-15	-9	-9	0	-1	
TRANSFORMATION													
Electricity generation	-48,139	-49,372	+2.6	-11,039	-10,641	-12,583	-13,352	-11,672	-11,169	-13,179	-13,573r	-11,214	-3.9
Heat generation	-44,665	-46,005	+3.0	-10,184	-9,860	-11,770	-12,619	-10,775	-10,332	-12,279	-12,596r	-10,277	-4.6
Petroleum refineries	-1,155	-1,130	-2.2	-248	-229	-311	-334	-257	-222	-316	-334	-258	-
Coke manufacture	-237	-26	-89.1	-53	-58	-1	36	-25	-12	-25	78r	17	(-)
Blast furnaces	-333	-354	+6.2	-94	-73	-83	-77	-91	-107	-79	-118r	-61	-32.2
Patent fuel manufacture	-1,739	-1,830	+5.2	-461	-429	-404	-337	-519	-489	-485	-600r	-634	+22.2
Energy industry use	13,545	13,065	-3.5	3,444	3,220	3,309	3,542	3,387	3,121	3,016	3,214r	3,189	-5.8
Losses	3,822	3,631	-5.0	910	848	944	1,055	896	746	934	1,072r	864	-3.5
FINAL CONSUMPTION													
Iron & steel	145,781	148,198	+1.7	32,193	30,242	39,156	42,830	33,952	29,811	41,605	45,724r	34,471	+1.5
Other industries	1,256	1,196	-4.8	304	297	303	278	324	291	302	403	348	+7.3
Transport	24,647	23,968	-2.8	5,577	5,526	6,333	6,592	5,589	5,170	6,617	6,602r	5,633	+0.8
Domestic	54,006	53,248	-1.4	13,684	13,746	13,728	13,063	12,945	13,623	13,617	12,442r	13,281	+2.6
Other Final Users	38,893	43,153	+11.0	6,117	4,976	12,108	15,218	8,426	5,290	14,219	18,083r	8,341	-1.0
Non energy use	18,531	19,027	+2.7	4,177	3,696	4,758	5,579	4,581	3,729	5,137	6,138r	4,594	+0.3
Net import dependency	8,447	7,605	-10.0	2,334	2,002	1,926	2,099	2,087	1,707	1,713	2,056r	2,274	+8.9
DEPENDENCY⁵													
Net import dependency	36.6%	43.0%		32.1%	42.0%	36.8%	39.2%	41.8%	43.0%	48.1%	44.1%	51.4%	
Fossil fuel dependency	87.5%	87.3%		85.6%	86.3%	88.7%	88.5%	86.5%	85.0%	88.3%	88.2%	85.9%	
Low carbon share	12.0%	11.9%		13.8%	12.9%	10.8%	10.9%	12.6%	13.8%	10.9%	11.1% r	13.1%	

1. Percentage change in the second 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 2									2013 Quarter 2 p								
	Coal	Manufactured fuels ⁴	Primary oil	Petroleum Products	Natural gas ⁵	Bioenergy & waste ⁶	Primary electricity	Electricity	Heat sold	Coal	Manufactured fuels ⁴	Primary oil	Petroleum Products	Natural gas ⁵	Bioenergy & waste ⁶	Primary electricity	Electricity	Heat sold
SUPPLY																		
Indigenous production	2,940	-	12,927	-	9,914	1,374	4,426	-	-	2,225	-	11,194	-	9,634	1,531	3,997	-	-
Imports	7,639	13	17,737	6,043	10,359	454	-	288	-	8,303	234	17,623	7,056	11,256	924	-	373	-
Exports	-100	-102	-9,567	-8,161	-3,349	-81	-	-14	-	-92	-26	-9,106	-7,528	-3,020	-76	-	-67	-
Marine bunkers	-	-	-	-807	-	-	-	-	-	-	-	-	-781	-	-	-	-	-
Stock change ¹	-1,347	+107	-242	+219	-821	-	-	-	-	-1,745	-74	-188	+50	-2,166	-	-	-	-
Primary supply	9,131	17	20,854	-2,707	16,103	1,748	4,426	274	-	8,691	134	19,522	-1,204	15,703	2,379	3,997	306	-
Statistical difference ²	-67	-8	+98	-25	-40	-	-	-28	-	-15	-	-	+5	-165	-	-	-9	-
Primary demand	9,198	25	20,756	-2,681	16,143	1,747	4,426	303	-	8,706	136	19,543	-1,209	15,868	2,379	3,997	315	-
Transfers ³	-	-	-686	+671	-	-	-425	+425	-	-	+1	-697	+696	-1	-	-656	+656	-
TRANSFORMATION	-8,796	415	-20,070	19,844	-5,034	-1,198	-4,001	6,849	319	-8,253	379	-18,846	18,720	-4,832	-1,782	-3,341	6,420	319
Electricity generation	-7,450	-217	-	-183	-4,598	-1,175	-4,001	6,849	-	-6,877	-200	-	-125	-4,396	-1,758	-3,341	6,420	-
Heat generation	-87	-13	-	-18	-436	-23	-	-	319	-87	-13	-	-18	-436	-23	-	-	319
Petroleum refineries	-	-	-20,070	20,045	-	-	-	-	-	-	-	-18,846	18,863	-	-	-	-	-
Coke manufacture	-1,011	920	-	-	-	-	-	-	-	-972	911	-	-	-	-	-	-	-
Blast furnaces	-192	-326	-	-	-	-	-	-	-	-247	-386	-	-	-	-	-	-	-
Patent fuel manufacture	-56	51	-	-	-	-	-	-	-	-69	68	-	-	-	-	-	-	-
Energy industry use	1	183	-	1,372	1,236	-	-	553	42	1	198	-	1,239	1,183	-	-	527	42
Losses	-	27	-	-	238	-	-	631	-	-	52	-	-	253	-	-	559	-
FINAL CONSUMPTION	402	230	-	16,461	9,636	549	-	6,394	281	453	265	-	16,969	9,600	598	-	6,305	281
Iron & steel	9	133	-	1	110	-	-	72	-	9	154	-	1	107	-	-	78	-
Other industries	255	48	-	1,055	1,942	105	-	1,985	199	286	51	-	1,077	1,962	116	-	1,941	199
Transport	3	-	-	12,601	-	252	-	88	-	3	-	-	12,918	-	271	-	88	-
Domestic	131	50	-	535	5,410	124	-	2,167	10	151	60	-	512	5,303	134	-	2,172	10
Other final users	4	-	-	310	2,046	68	-	2,081	72	4	-	-	315	2,100	76	-	2,026	72
Non energy use	-	-	-	1,959	128	-	-	-	-	-	-	-	2,146	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:

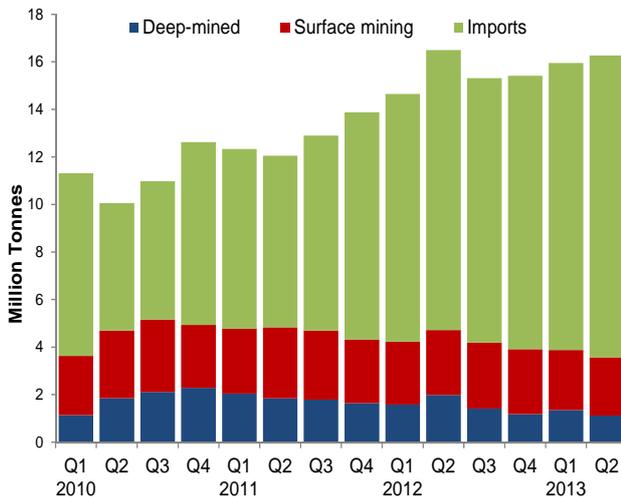
Overall coal production was down 24 per cent (-1.1 million tonnes) compared to quarter 2 2012 with deep-mined output down 43 per cent (-0.9 million tonnes) and surface mining output down by 8.3 per cent (-0.2 million tonnes). **(Chart 2.1)**

Coal imports were up 7.7 per cent (+0.9 million tonnes) on levels shown in quarter 2 2012. **(Charts 2.1 and 2.2)**

The demand for coal by electricity generators in the second quarter of 2013, was 7.7 per cent (-0.9 million tonnes) lower than demand in the second quarter of 2012. **(Chart 2.3)**

Total stock levels were 13.1 million tonnes, down 8.2 per cent (-1.2 million tonnes) compared to quarter 2 2012, but were up by 2.6 million tonnes on quarter 1 2013. **(Chart 2.4)**

Chart 2.1 Coal supply



Provisional figures for the second quarter of 2013 show that coal production (including an estimate for slurry) at 3.6 million tonnes was 24.3 per cent lower than the second quarter of 2012. The decrease was a result of the mothballing of Maltby Colliery in March 2013, the closure of Daw Mill colliery in March 2013 following a fire in February 2013 and Scottish Coal Company going into liquidation in April 2013.

Imports of coal in the second quarter of 2013 were 7.7 per cent higher than in the second quarter of 2012 at 12.7 million tonnes.

In the second quarter of 2013, net imports (12.6 million tonnes) made up 93.0 per cent of coal supply, 11.3 percentage points higher compared to the second quarter of 2012 (81.7 per cent).

Table 2A Coal imports by origin

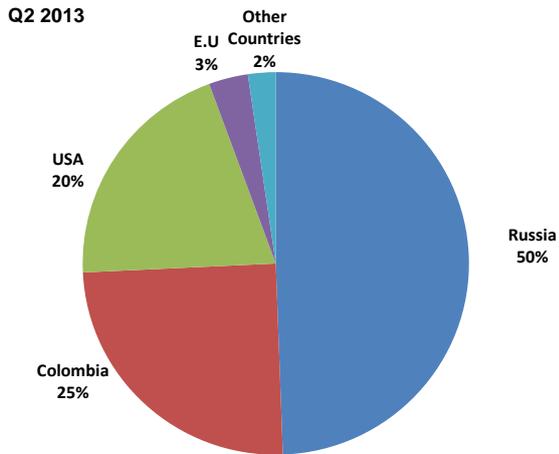
	Thousand Tonnes			
	2011	2012	2012 Q2	2013 Q2 p
European Union	1,155	693	69	330
Russia	12,332	18,053	4,961	5,519
Colombia	8,010	11,749	2,476	2,662
USA	6,334	10,790	3,179	3,146
Australia	3,380	2,360	701	635
Other Countries	1,316	1,170	390	725
Total imports	32,527	44,815	11,775	12,688

Total coal imports increased by 7.7 per cent to 12.7 million tonnes in the second quarter of 2013. 43 per cent of total coal imports came from Russia.

Steam coal imports at 10.6 million tonnes accounted for 84 per cent of total coal imports.

Coking coal imports at 2.0 million tonnes accounted for 16 per cent of total coal imports. Its share rose five percentage points from a year earlier, mainly due to imports from the USA more than doubling.

Chart 2.2 Steam coal imports by origin

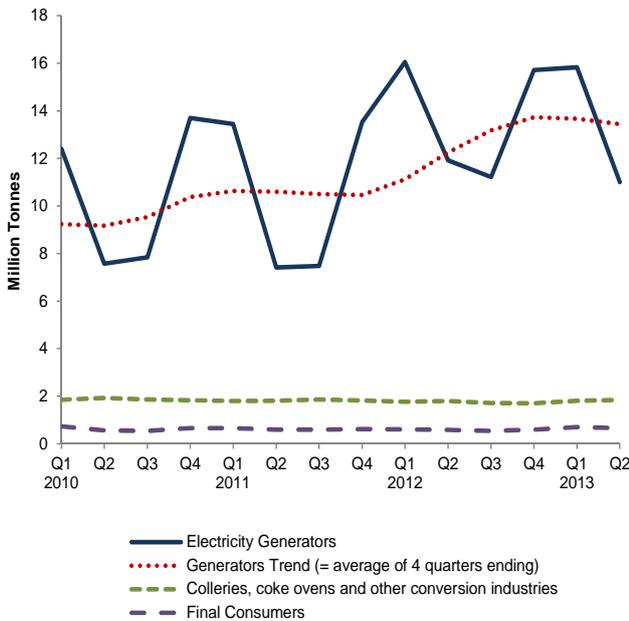


All but 5 per cent of UK steam coal imports came from just three countries: Russia (50 per cent), the USA (20 per cent) and Colombia (25 per cent).

Russian and Colombian steam coal imports increased by 9.5 per cent (+0.5 million tonnes) and 6.5 per cent (+0.2 million tonnes), respectively, from the second quarter of 2012.

Steam coal imports originating from the USA fell by 22.4 per cent (-0.6 million tonnes) compared to the second quarter of 2012.

Chart 2.3 Coal consumption

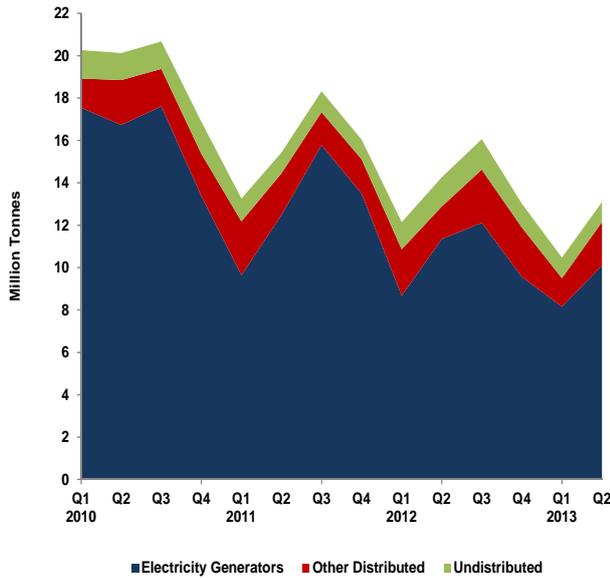


Total demand for coal in the second quarter of 2013, at 13.5 million tonnes, was 5.6 per cent lower than in the second quarter of 2012. Consumption by electricity generators was down by 7.7 per cent to 11.0 million tonnes.

Electricity generators accounted for 81.5 per cent of total coal use in the second quarter of 2013; compared with 83.3 per cent a year earlier.

Sales to industrial users increased by 11.8 per cent in quarter 2 2013 while sales to final consumers (as measured by disposals to final consumers) increased by 17.7 per cent to 0.2 million tonnes during the second quarter of 2013.

Chart 2.4 Coal stocks



Coal stocks showed a seasonal rise of 2.6 million tonnes during the second quarter of 2013 and stood at 13.1 million tonnes, 1.2 million tonnes lower than at the end of June 2012.

The level of coal stocks at power stations at the end of the second quarter of 2013 was 10.1 million tonnes, 1.3 million tonnes lower than at the end of June 2012.

Stocks held by coke ovens were 1.1 million tonnes at the end of quarter 2 2013, this was 0.1 million tonnes higher than stock levels at the end of the second quarter of 2012 (1.0 million tonnes).

Stocks held by producers (undistributed stocks) decreased during the second quarter of 2013 to stand at 0.9 million tonnes, 0.4 million tonnes lower than at the end of June 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

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2 SOLID FUEL AND DERIVED GASES

Table 2.1 Supply and consumption of coal

	Thousand tonnes												
	2011	2012	per cent change	2011 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	per cent change ¹
SUPPLY													
Indigenous production	18,627	17,047	-8.5	4,835	4,699	4,321	4,233	4,717	4,190	3,907	3,881r	3,572	-24.3
Deep mined	7,312	6,153	-15.9	1,838	1,793	1,642	1,585	1,978	1,406	1,184	1,350r	1,124	-43.2
Surface mining ²	10,580	10,134	-4.2	2,805	2,713	2,511	2,458	2,540	2,585	2,550	2,418r	2,330	-8.3
Other sources	735	760	+3.4	192	192	167	190	198	198	173	113	118	-40.8
Imports ³	32,527	44,815	+37.8	7,215	8,199	9,557	10,418	11,775	11,117	11,505	12,068	12,688	+7.7
Exports ⁴	491	488	-0.5	117	107	135	119	133	102	134	142	122	-8.1
Stock change ⁵	+836	+2,953		-2,173	-2,888	+2,279	+3,822	-2,113	-1,799	+3,043	+2,541r	-2,623	
Total supply	51,500	64,327	+24.9	9,760	9,902	16,022	18,354	14,245	13,406	18,322	18,348r	13,514	-5.1
Statistical difference	-91	+120		-46	-32	+64	-71	-58	-60	+309	+7r	+8	
Total demand	51,591	64,206	+24.5	9,806	9,934	15,958	18,425	14,303	13,466	18,013	18,341r	13,507	-5.6
TRANSFORMATION	49,135	61,886	+26.0	9,217	9,342	15,344	17,821	13,719	12,927	17,419	17,645r	12,843	-6.4
Electricity generation	41,850	54,906	+31.2	7,410	7,480	13,523	16,056	11,918	11,217	15,715	15,834	11,002	-7.7
Heat generation ⁶	562	592	+5	127	121	148	165	140	128	159	165	140	-
Coke manufacture	5,398	5,079	-5.9	1,353	1,428	1,338	1,328	1,330	1,244	1,177	1,246	1,279	-3.9
Blast furnaces	995	987	-0.8	246	245	247	199	253	255	279	304	326	+28.7
Patent fuel manufacture	331	322	-2.7	81	69	87	72	79	83	88	95r	97	+23.7
Energy industry use	4	4		1	1	1	1	1	1	1	1	1	
FINAL CONSUMPTION	2,452	2,317	-5.5	588	591	613	603	583	538	593	695r	663	+13.6
Iron & steel	53	51		13	14	13	13	12	12	13	12	12	+2.2
Other industries	1,629	1,552	-4.8	404	400	398	410	387	368	386	450	434	+12.1
Domestic	716	674	-5.8	161	159	188	170	174	146	184	219	206	+18.2
Other final users	54	40	-26.0	11	18	14	10	10	11	10	14	11	+8.1
Stocks at end of period													
Distributed stocks	15,113	11,896	-21.3	14,447	17,332	15,113	10,863	12,887	14,620	11,896	9,504r	12,151	-5.7
Of which:													
Major power producers ⁷	13,496	9,561	-29.2	12,484	15,776	13,496	8,676	11,348	12,118	9,561	8,151	10,093	-11.1
Coke ovens	1,355	846	-37.6	1,112	1,324	1,355	1,127	1,018	941	846	563	1,140	+12.0
Undistributed stocks	926	1,120	+21.0	983	986	926	1,284	1,374	1,439	1,120	970r	946	-31.1
Total stocks⁸	16,039	13,016	-18.9	15,430	18,318	16,039	12,147	14,260	16,059	13,016	10,474r	13,097	-8.2

1. Percentage change in the second 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 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	<i>per cent change³</i>
SUPPLY													
Indigenous production	4,342	4,000	-7.9	1,075	1,174	1,064	1,040	1,056	956	948	1,012r	1,054	-0.2
Coke Oven Coke	4,021	3,712	-7.7	991	1,094	993	993	983	884	853	922	959	-2.4
Coke Breeze	31	31	-2.0	8	8	8	8	8	8	8	8	8	+2.8
Other MSF	289	258	-11.0	76	73	63	40	66	65	87	83r	87	+32.1
Imports	47	207	(+)	2	3	18	11	17	23	156	106	329	(+)
Exports	499	552	+10.7	58	112	195	325	143	43	42	36	35	(-)
Stock change ¹	-541	+93		-131	-235	-112	-68	+150	+52	-41	+99r	-104	
Transfers	-	-		-	-	-	-	-	-	-	-	0	
Total supply	3,349	3,748	+11.9	888r	831	776	658	1,080	988	1,022	1,182r	1,244	+15.1
Statistical difference	-4	-5		-	-2	-2	-1	-	-1	-2	-1	-	
Total demand	3,354	3,753	+11.9	888	833	778	659	1,080	990	1,024	1,183r	1,244	+15.1
TRANSFORMATION	2,645	2,930	+10.8	712	660	601	515	848	786	781	898r	1,015	+19.7
Coke manufacture	-	-		-	-	-	-	-	-	-	-	-	
Blast furnaces	2,645	2,930	+10.8	712	660	601	515	848	786	781	898r	1,015	+19.7
Energy industry use	-	-		-	-	-	-	-	-	-	-	-	
FINAL CONSUMPTION	709	823	+16.2	175	173	177	145	232	203	243	285r	228	-1.6
Iron & steel	395	518	+31.1	107	99	94	86	156	132	144	183r	131	-16.0
Other industries	35	45	+29.8	6	10	11	5	13	12	15	14	20	+58.3
Domestic	278	260	-6.7	63	65	73	53	64	59	84	88r	77	+21.6
Stocks at end of period²	1,214	854	+11.9	817	993	1,214	1,016	845	780	854	493r	692	-18.1

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 second 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	per cent change	2011 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	per cent change ¹
SUPPLY													
Indigenous production	21,007	21,502	+2.4	5,368	5,360	5,096	4,663	5,729	5,458	5,651	5,099r	6,497	+13.4
Coke oven gas	8,847	8,266	-6.6	2,239	2,296	2,209	2,151	2,105	2,021	1,989	1,608r	2,186	+3.8
Blast furnace gas	10,503	11,692	+11.3	2,717	2,645	2,464	2,101	3,224	3,080	3,286	3,146r	3,913	+21.4
Benzole & tars	1,657	1,543	-6.9	412	419	422	411	400	357	375	346r	399	-0.3
Transfers	60	56	-7.2	10	11	7	11	4	14	26	29	12	(+)
Total supply	21,067	21,557	+2.3	5,378	5,371	5,103	4,675	5,733	5,472	5,677	5,129r	6,510	+13.5
Statistical difference	-131	-157		-33	-32	-28	+72	-93	-62	-73	-21r	-16	
Total demand	21,199	21,714	+2.4	5,411	5,403	5,131	4,603	5,827	5,534	5,750	5,150r	6,525	+12.0
TRANSFORMATION	8,481	9,903	+16.8	2,213	2,135	2,016	1,953	2,677	2,604	2,668	1,862r	2,480	-7.4
Electricity generation	7,884	9,305	+18.0	2,064	1,986	1,866	1,804	2,528	2,454	2,519	1,713r	2,330	-7.8
Heat generation ²	598	598	-	149	149	149	149	149	149	149	149	149	-
Energy industry use	7,671	8,145	+6.2	1,927	1,967	1,875	1,774	2,126	2,104	2,141	1,750r	2,305	+8.4
Losses	1,751	1,009	-42.4	477	443	414	178	319	213	300	431r	606	+90.0
FINAL CONSUMPTION	3,296	2,657	-19.4	794	858	826	699	704	613	642	1,107r	1,135	+61.1
Iron & steel	1,439	916	-36.3	328	392	352	236	253	209	219	708r	703	(+)
Other industries	1,857	1,741	-6.2	465	466	474	463	451	404	423	399r	432	-4.3

1. Percentage change in the second 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 NGLs in the second quarter of 2013 was 13.4 per cent lower than a year ago. **(Chart 3.1)**

Refinery production was lower by 5.6 per cent on last year, with notable decreases in gas oil, fuel oil and ATF, partially as a result of the closure of the Coryton oil refinery. **(Chart 3.2)**

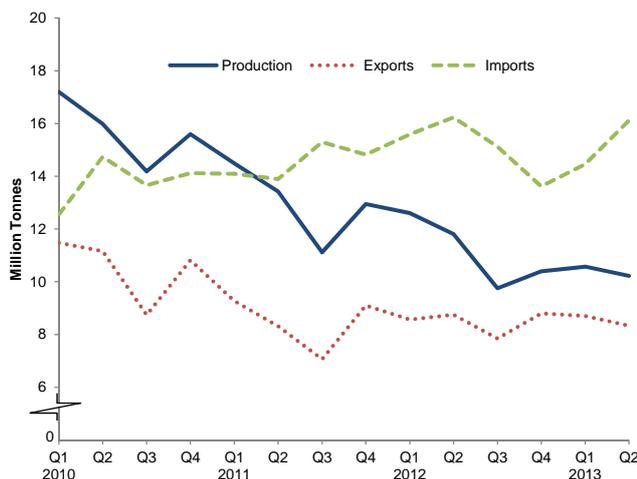
Net imports of crude oil, NGLs and feedstocks in Q2 2013 widened to 7.8 million tonnes, the second largest figure since oil production peaked in 1999. This met 45.1 per cent of the UK's refinery demand. **(Chart 3.3)**

Net exports of petroleum products were 0.4 million tonnes in Q2 2013. In the first half of the year, net exports have been at notably low levels largely as a result of much lower refinery production during this period. **(Chart 3.3)**

For the first time since 2010, final consumption of oil products increased, albeit slightly. Some of this increase can be accounted for by deliveries of transport fuels: these were depressed last April as a result of panic buying at the end of March and have recovered to a normal pattern this year. Deliveries to petrochemical plants also increased. **(Chart 3.5)**

Overall stocks of crude oil and petroleum products were up by 2.4 per cent at end of Q2 2013 compared to a year earlier, with a large decrease in stocks of petroleum products being offset by an increase in crude oil stocks. **(Chart 3.7)**

Chart 3.1 Production and trade of crude oil and NGLs

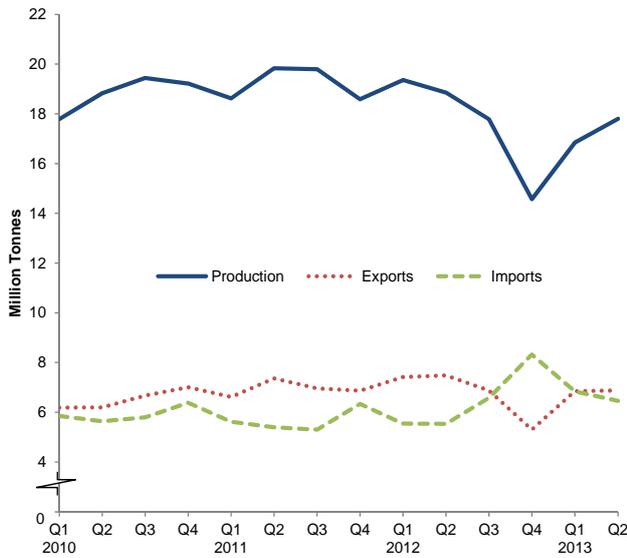


Total Indigenous UK production of crude oil was lower by 14.0 per cent in Q2 2013 compared with the same quarter a year earlier. Production of Natural Gas Liquids (NGLs) also decreased by 4.8 per cent. These were the result of a planned shutdown at the Norpipe terminal in June and the unplanned shutdowns at the Buzzard field in April.

The decrease in indigenous production was accompanied by decreased exports of Crude oil, NGL's and feedstocks. Exports decreased by 4.8 per cent, whilst imports fell by 0.7 per cent compared with the same quarter a year earlier.

As a result net imports of crude oil, NGLs and feedstocks widened to 7.8 million tonnes in Q2 2013, the second largest figure since oil production peaked in 1999.

Chart 3.2 Production and trade of petroleum products

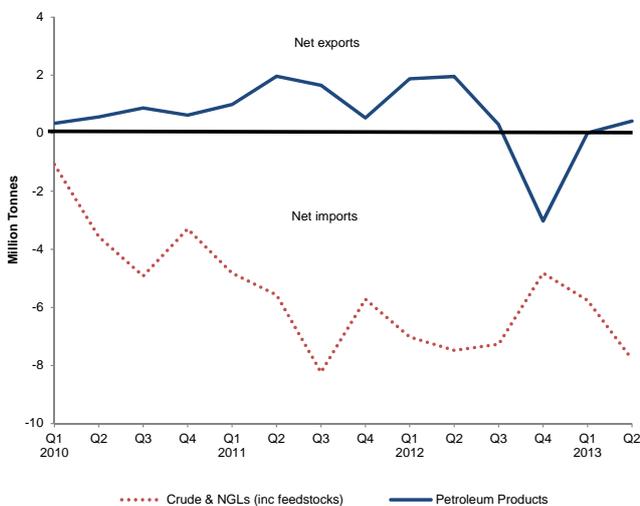


Refinery production in the latest quarter was down 5.6 per cent on the same quarter of last year. A large component of this decrease was the closure of the Coryton refinery in June 2012.

Within the overall decrease, gas oil and aviation fuel showed the largest absolute changes, decreasing by 19.3 and 29.4 per cent respectively.

The decrease in production was accompanied by an increase in imports and a decrease in exports. Imports were up by 16.6 per cent compared with Q2 2012 and exports were down by 8.2 per cent.

Chart 3.3 Overall trade in crude oil and NGLs, and petroleum products



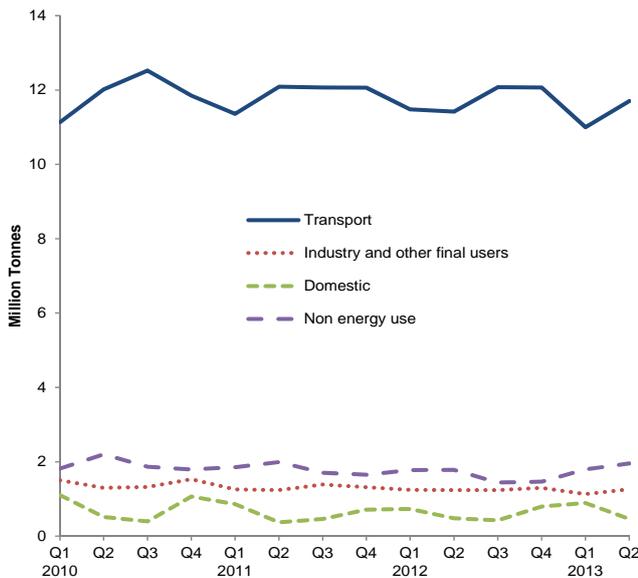
The UK's overall net import dependence for primary oils (crude, NGL's and feedstocks) was 45.1 per cent in Q2 2013, an increase from 40.5 per cent in the same quarter in 2012. The principal source of the UK's crude oil imports is Norway.

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

Petroleum products net import dependence was minus 2.4 per cent (net exporter) in Q2 2013, down from minus 11.4 per cent in the same quarter of 2012.

The UK remains a net exporter of petroleum products but net exports in the year to date are moderate in comparison with recent history. In particular, the UK remains structurally short in diesel road fuel and aviation fuel. The UK's import dependence rate stands now at 25.5 per cent for diesel fuel and 55.8 per cent for aviation fuel, both up on last year.

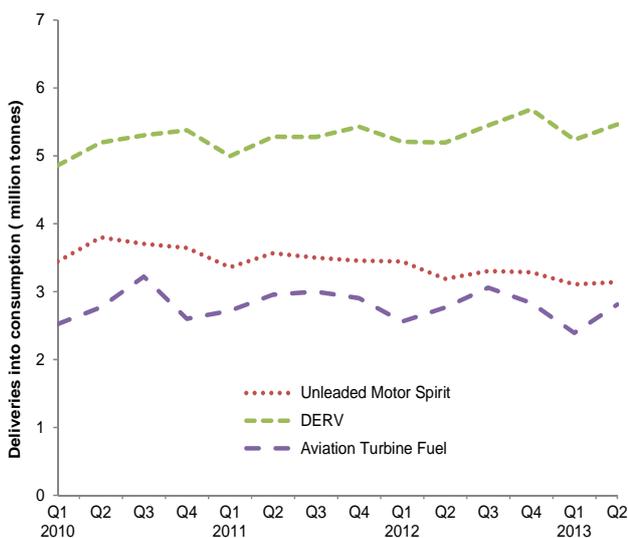
Chart 3.4 Final consumption of oil



To a certain extent, final consumption in the oil sector is 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 3.1 per cent on the same quarter of last year, the first increase since 2010. The increase was due to greater demand for transport fuel use – up 2.6 per cent – an increase which partially results from reduced demand in April 2012 as a result of depressed demand following panic buying in March. Deliveries for non-energy use to petro-chemical plants are also up on last year, by 9.8 per cent.

Chart 3.5 Demand for key transport fuels



As mentioned above, transport fuels increased by 2.6 per cent, slightly higher than the longer term trend.

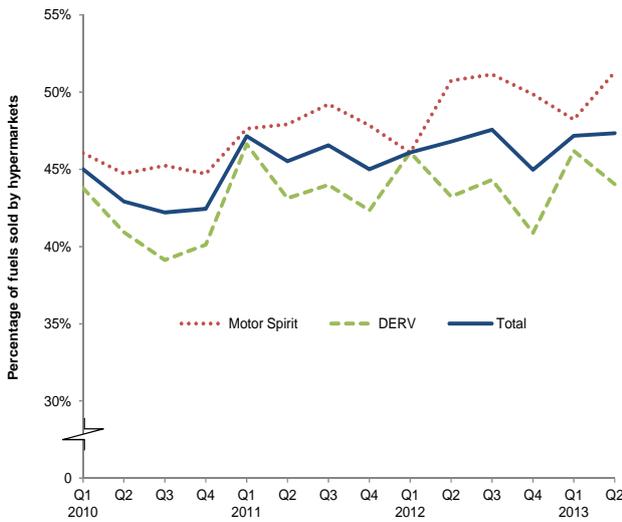
Demand for motor spirit is declining. In the first half of 2013, motor spirit deliveries were 5.8 per cent lower compared with the same period a year earlier. This follows the long term trend with deliveries decreasing by almost 4 per cent year on year since 2000.

DERV deliveries were up by 5.1 per cent in Q2 2013 compared with Q2 2012. Demand for DERV has increased every year since the economic downturn in 2008 but the scale of the increase this quarter is slightly higher than usual due to the depressed demand in April last year.

In the first half of 2013, DERV deliveries were 2.8 per cent higher compared with the same period a year earlier - similar to the yearly increase seen in 2012.

Deliveries of aviation turbine fuel were up 1.6 per cent.

Chart 3.6 Hypermarket share of road fuel sales

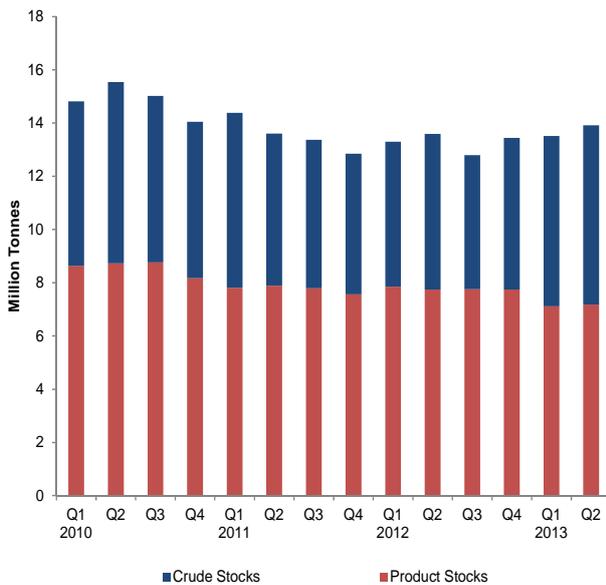


The retail share of motor spirit and diesel sold at hypermarkets stood at 51 per cent, and 44 per cent respectively.

Hypermarket sales of motor spirit were at a similar level to Q2 2012 but DERV sales were 8.6 per cent higher.

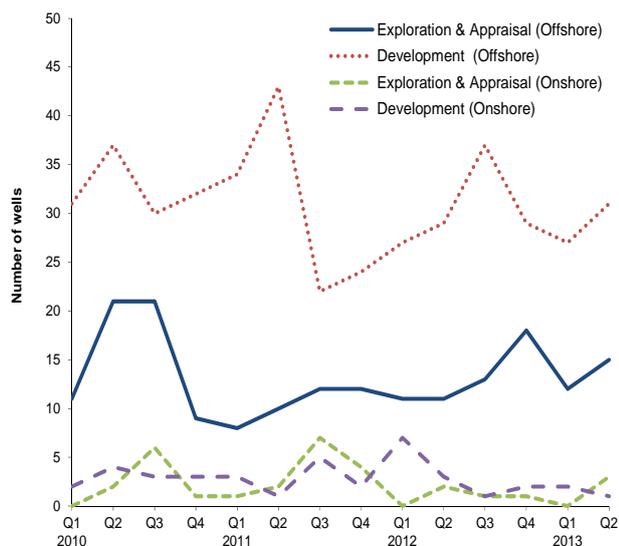
Some data quality issues with this hypermarket sales data have recently been raised. We will be reviewing our process for the collection and production of these statistics in co-operation with industry in October through December of 2013.

Chart 3.7 UK oil stocks



At the end of Q2 2013, total stocks for all oil products were higher by 2.4 per cent (0.3 million tonnes) compared with Q2 2012. Total stocks of crude oil and process oils were 15.3 per cent (0.9 million tonnes) higher at the end of Q2 2013 compared with the same quarter a year earlier. This was the result of a large increase in crude stocks held abroad for the UK (under bilateral agreements). 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.

Stocks of petroleum products at the end of June 2013 were lower by 7.4 per cent (0.6 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 Q2 2013, the UK had stocks equal to around 72 days of consumption, based on EU Directive calculations.

Chart 3.8 Drilling activity on the UKCS

Drilling activity on the UKCS increased during Q2 2013. There were 15 exploration and appraisal wells started offshore in the second quarter of 2013, compared to 11 in the corresponding quarter of 2012.

There were 31 development wells drilled offshore in the second quarter of 2013, compared to 29 in the corresponding quarter of 2012.

There were 3 exploration and appraisal wells started onshore in the second quarter of 2013, compared to 2 in the corresponding quarter of 2012.

There was 1 development well drilled onshore in the second quarter of 2013, compared to 3 in the corresponding quarter of 2012.

Relevant tables

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3 OIL AND OIL PRODUCTS

Table 3.1 Supply and use of crude oil, natural gas liquids and feedstocks¹

Thousand tonnes

			per cent change	2011	2011	2011	2012	2012	2012	2012	2013	2013	per cent change ⁸
	2011	2012		2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter p	
SUPPLY													
Indigenous production ²	51,972	44,561	-14.3	13,423	11,117	12,949	12,604	11,812	9,751	10,394	10,571r	10,224	-13.4
Crude oil	48,571	42,052	-13.4	12,528	10,445	12,095	11,764	11,111	9,361	9,816	9,979r	9,558	-14.0
NGLs ³	3,401	2,508	-26.3	895	672	854	840	701	390	578	592	667	-4.8
Imports ⁴	58,092	60,559	+4.2	13,888	15,296	14,820	15,591	16,229	15,120	13,619	14,463r	16,116	-0.7
Crude oil & NGLs	50,954	55,340	+8.6	12,196	13,298	13,349	14,090	14,629	13,823	12,798	12,874r	14,374	-1.7
Feedstocks	7,139	5,218	-26.9	1,692	1,998	1,470	1,501	1,599	1,297	821	1,589	1,743	+9.0
Exports ⁴	33,745	33,961	+0.6	8,319	7,059	9,101	8,569	8,746	7,848	8,798	8,701r	8,330	-4.8
Crude Oil & NGLs	29,836	29,939	+0.3	7,376	5,988	8,170	7,620	7,782	6,815	7,722	8,111r	7,822	+0.5
Feedstocks	3,908	4,021	+2.9	943	1,071	931	949	964	1,033	1,076	590	507	-47.3
Stock change ⁵	+611	-486		+815	+365	+85	-197	-223	+673	-740	+475r	-171	
Transfers ⁶	-2,122	-1,934		-589	-540	-451	-655	-582	-306	-391	-460r	-587	
Total supply	74,809	68,738	-8.1	19,218	19,178	18,301	18,773	18,490	17,390	14,085	16,349r	17,253	-6.7
Statistical difference ⁷	-271	-124		-84	-219	+125	-11	+102	-114	-101	+13r	-9	
Total demand	75,080	68,862	-8.3	19,302	19,397	18,176	18,784	18,388	17,504	14,186	16,336	17,262	-6.1
TRANSFORMATION													
Petroleum refineries	75,080	68,862	-8.3	19,302	19,397	18,176	18,784	18,388	17,504	14,186	16,336	17,262	-6.1
Petroleum refineries	75,080	68,862	-8.3	19,302	19,397	18,176	18,784	18,388	17,504	14,186	16,336	17,262	-6.1

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 second quarter of 2013 compared with a year earlier.

3 OIL AND OIL PRODUCTS

Table 3.2 Supply and use of petroleum products

<i>Thousand tonnes</i>													
	2011	2012	<i>per cent change</i>	2011 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	<i>per cent change¹</i>
SUPPLY													
Indigenous production ²	76,848	70,572	-8.2	19,832	19,802	18,585	19,358	18,854	17,785	14,575	16,849r	17,805	-5.6
Imports ³	22,656	25,978	+14.7	5,400	5,301	6,334	5,541	5,533	6,579	8,325	6,843r	6,454	+16.6
Exports ³	27,800	27,083	-2.6	7,364	6,957	6,867	7,419	7,486	6,874	5,304	6,854r	6,875	-8.2
Marine bunkers	3,602	3,126	-13.2	874	1,006	817	770	761	814	781	769r	736	-3.2
Stock change ⁴	+188	+128		+183	-21	-199	+25	+209	-102	-5	+30r	+53	
Transfers ⁵	-19	+53		-17	+40	-15	+47	+50	-17	-27	-50	-14	
Total supply	68,270	66,522	-2.6	17,160	17,159	17,023	16,783	16,399	16,557	16,783	16,049r	16,685	+1.7
Statistical difference ⁶	-20	-109		-25	+47	-125	-47	-28	-9	-25	-65r	+5	
Total demand	68,291	66,631	-2.4	17,185	17,112	17,147	16,830	16,427	16,567	16,808	16,114r	16,680	+1.5
TRANSFORMATION													
Electricity generation	722	739	+2.4	151	163	183	214	180	145	200	164	112	-38.2
Heat generation	71	68	-4.3	18	18	18	17	17	17	17	17	17	-
Blast furnaces	-	-		-	-	-	-	-	-	-	-	-	-
Energy industry use	5,119	4,863	-5.0	1,330	1,308	1,204	1,371	1,311	1,221	960	1,115r	1,166	-11.1
Petroleum Refineries	4,586	4,255	-7.2	1,197	1,175	1,071	1,219	1,159	1,069	808	963r	1,014	-12.5
Blast Furnaces	-	-		-	-	-	-	-	-	-	-	-	-
Others	533	608	+14.1	133	133	133	152	152	152	152	152	152	-0.0
FINAL CONSUMPTION													
Iron & steel	4	5	+19.7	0	1	2	1	1	1	1	1	1	-27.7
Other industries	3,943	3,853	-2.3	922	1,087	963	968	955	929	1,001	876r	973	+1.9
Transport	47,573	47,039	-1.1	12,085	12,070	12,062	11,476	11,415	12,078	12,070	10,998r	11,707	+2.6
Domestic	2,401	2,433	+1.3	370	460	712	733	480	425	795	892	460	-4.3
Other final users	1,253	1,165	-7.0	317	299	352	273	284	310	298	256	289	+1.6
Non energy use	7,206	6,465	-10.3	1,992	1,706	1,651	1,777	1,782	1,441	1,465	1,795	1,957	+9.8

1. Percentage change in the second 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 ⁹	Gas oil ¹	Aviation turbine fuel	Fuel oils	Petroleum gases ²	Burning oil	Other products ³	Total Petroleum Products	Motor spirit	DERV ⁹	Gas oil ¹	Aviation turbine fuel	Fuel oils	Petroleum gases ²	Burning oil	Other products ³
SUPPLY																		
Indigenous production ⁴	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 ⁵	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 ⁵	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 ⁶	+188	+39	+83	+43	-28	-15	-11	-2	80	+128	+26	-133	+7	+96	+90	+9	+40	-6
Transfers ⁷	-19	+91	-498	+444	-491	-12	+52	+441	-45	+53	-54	-268	+217	-479	-14	+23	+446	+182
Total supply	68,270	13,881	20,994	4,182	11,562	1,513	6,874	3,260	6,004	66,522	13,222	21,535	4,437	11,199	1,117	5,844	3,343	5,824
Statistical difference ⁸	-20	-13	+3	-1	-11	-5	+10	-28	+26	-109	-8	-3	-61	-22	+8	+4	+14	-42
Total demand	68,291	13,895	20,991	4,183	11,574	1,518	6,865	3,288	5,978	66,631	13,231	21,538	4,498	11,221	1,109	5,840	3,329	5,866
TRANSFORMATION	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
FINAL CONSUMPTION	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	-	-
Non energy use	7,206	-	-	125	-	-	2,699	-	4,383	6,465	-	-	130	-	-	2,203	-	4,132

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 2nd quarter										2013 2nd quarter p										
	Total Petroleum Products	Motor spirit	DERV ⁹	Gas oil ¹	Aviation turbine fuel	Fuel oils	Petroleum gases ²	Burning oil	Other products ³		Total Petroleum Products	Motor spirit	DERV ⁹	Gas oil ¹	Aviation turbine fuel	Fuel oils	Petroleum gases ²	Burning oil	Other products ³		
SUPPLY																					
Indigenous Production ⁴	18,854	4,683	3,988	2,403	1,760	2,055	1,905	448	1,612		17,805	4,823	4,070	1,939	1,243	1,742	1,914	673	1,401		
Imports ⁵	5,533	860	2,140	242	1,389	108	96	93	604		6,454	998	2,141	189	1,902	209	156	52	807		
Exports ⁵	7,486	2,337	765	1,242	371	1,653	367	19	732		6,875	2,798	640	671	157	1,361	343	72	834		
Marine bunkers	761	-	-	395	-	366	-	-	-		736	-	-	382	-	354	-	-	-		
Stock change ⁶	+209	-5	-80	+33	+99	+105	-19	+49	+27		+53	+110	-28	-31	-55	+19	-6	-44	+87		
Transfers ⁷	+50	-9	-86	+66	-107	+26	+8	+98	+55		-14	+11	-80	+75	-116	+1	+8	+106	-18		
Total supply	16,399	3,192	5,196	1,107	2,770	275	1,623	669	1,566		16,685	3,143	5,463	1,119	2,816	256	1,729	715	1,444		
Statistical difference ⁸	-28	+0	-0	-22	+3	+3	-1	+2	-13		+5	-0	+1	+22	+7	+9	-1	-0	-32		
Total demand	16,427	3,191	5,196	1,129	2,766	272	1,625	667	1,580		16,680	3,143	5,463	1,097	2,809	246	1,730	716	1,475		
TRANSFORMATION	197	-	-	12	-	80	62	-	43		128	-	-	13	-	54	62	-	0		
Electricity generation	180	-	-	11	-	67	60	-	43		112	-	-	11	-	41	60	-	0		
Heat generation	17	-	-	1	-	13	2	-	-		17	-	-	1	-	13	2	-	-		
Petroleum refineries	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
Coke manufacture	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
Blast furnaces	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
Patent fuel manufacture	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		
Energy industry use	1,311	-	-	152	-	93	618	-	448		1,166	-	-	152	-	91	580	-	343		
FINAL CONSUMPTION	14,918	3,191	5,196	964	2,766	99	945	667	1,089		15,385	3,143	5,463	933	2,809	102	1,088	716	1,132		
Iron & steel	1	-	-	-	-	1	-	-	-		1	-	-	-	-	1	-	-	-		
Other industries	955	-	-	480	-	40	167	268	-		973	-	-	400	-	43	187	340	-		
Transport	11,415	3,191	5,196	197	2,766	36	23	-	5		11,707	3,143	5,463	230	2,809	35	22	-	4		
Domestic	480	-	-	16	-	-	64	399	-		460	-	-	16	-	-	68	375	-		
Other final users	284	-	-	237	-	22	26	-	-		289	-	-	242	-	22	25	-	-		
Non energy use	1,782	-	-	35	-	-	664	-	1,084		1,957	-	-	45	-	-	786	-	1,125		

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 ¹

Thousand tonnes

			<i>per cent change</i>	2011	2011	2011	2012	2012	2012	2012	2013	2013	<i>per cent change ²</i>
	2011	2012		2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter p	
MOTOR SPIRIT													
Total sales	13,895	13,231	-4.8	3,571	3,502	3,458	3,447	3,191	3,305	3,288	3,108	3,143	-1.5
By seller:													
Retail sales: ³	13,430	12,803	-4.7	3,443	3,379	3,340	3,360	3,077	3,190	3,175	3,028	3,033	-1.4
hypermarkets ⁴	6,468	6,325	-2.2	1,650	1,663	1,598	1,549	1,561	1,631	1,583	1,460	1,556	-0.3
refiners/other traders	6,962	6,478	-7.0	1,793	1,716	1,742	1,812	1,516	1,558	1,592	1,568	1,477	-2.6
Commercial sales ⁵	465	428	-8.0	129	123	119	86	114	115	112	80	110	-3.5
By grade:													
4-Star/Leaded/LRP ⁶	12	10	-13.4	3	3	3	2	3	2	3	2	2	-12.0
Super Premium Unleaded	560	438	-21.8	122	128	196	107	106	117	108	101	110	+4.5
Premium Unleaded/ULSP ⁷	13,324	12,783	-4.1	3,446	3,371	3,260	3,337	3,083	3,186	3,177	3,005	3,031	-1.7
GAS DIESEL OIL													
Total sales	25,174	26,036	+3.4	6,301	6,403	6,502	6,335	6,325	6,638	6,738	6,186r	6,562	+3.7
DERV fuel	20,991	21,538	+2.6	5,282	5,280	5,431	5,209	5,196	5,447	5,685	5,239	5,463	+5.1
Retail sales: ³	13,549	13,965	+3.1	3,459	3,522	3,570	3,225	3,410	3,541	3,789	3,240	3,635	+6.6
hypermarkets ⁴	5,950	6,079	+2.2	1,492	1,549	1,511	1,486	1,475	1,569	1,549	1,497	1,601	+8.6
refiners/other traders	7,598	7,886	+3.8	1,968	1,972	2,058	1,738	1,936	1,971	2,240	1,744	2,034	+5.1
Commercial sales ⁵	7,442	7,573	+1.8	1,822	1,758	1,861	1,984	1,786	1,907	1,896	1,999	1,827	+2.3
Other gas diesel oil ⁸	4,183	4,498	+7.5	1,020	1,123	1,071	1,126	1,129	1,191	1,052	947r	1,100	-2.6
AVIATION FUELS													
Total sales	11,594	11,238	-3.1	2,960	3,005	2,907	2,564	2,771	3,064	2,839	2,395r	2,814	+1.5
Aviation spirit	21	17	-16.0	6	6	4	3	5	5	4	3	4	-10.0
Aviation turbine fuel	11,574	11,221	-3.1	2,954	2,999	2,902	2,560	2,766	3,059	2,835	2,392r	2,809	+1.6
FUEL OIL													
Total Sales	1,042	761	-27.0	268	270	250	193	179	167	222	183r	156	-12.9
Light	501	393	-21.6	144	126	137	59	102	89	143	79r	65	-36.2
Medium	117	118	+1.1	26	34	24	33	21	30	35	32r	45	(+)
Heavy	424	249	-41.2	99	110	89	102	56	48	44	72r	45	-19.5

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

2. Percentage change in the second 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 petroleum¹ at end of period

Thousand tonnes

	Crude oil and refinery process oil					Petroleum products							Total stocks		
	Refineries ²	Terminals ³	Offshore ⁴	Net	Total ⁵	Motor Spirit ⁶	Kerosene ⁷	Gas/Diesel Oil ⁸	Fuel oils	Other products ⁸	Total	Total Net bilaterals ⁵	Total Stocks in UK ¹⁰	Total stocks	
				bilaterals of Crude and Process oil ⁵							Net bilaterals of products ⁵				
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 2nd quarter	3,959	1,093	505	150	5,707	750	1,183	1,769	547	806	2,834	7,888	2,984	10,611	13,596
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	3,500	940	392r	1,565	6,397r	1,073	1,103r	1,771r	477	963	1,727	7,113r	3,291	10,219r	13,510r
2nd quarter p	3,632	996	451	1,661	6,739	987	1,175	1,707	479	871	1,957	7,176	3,617	10,298	13,916
<i>Per cent change¹¹</i>	-5.0	-20.3	-13.6	(+)	+15.3	+31.7	+0.4	-12.8	-19.4	+3.3	-19.5	-7.4	+35.1	-5.6	+2.4

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 activity¹ on the UKCS

		<i>Number of wells started</i>						
		Offshore				Onshore		
		Exploration &		Exploration &		Exploration &		
		Exploration	Appraisal	Appraisal	Development ²	Appraisal	Development ²	
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	2nd quarter	2	8	10	43	2	1	
	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 p	3	12	15	31	3	1	
<i>Per cent change³</i>		-40.0	+100.0	+36.4	+6.9	+50.0	-66.7	

1. Including sidetracked wells

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

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

Section 4 - Gas

Key results show:

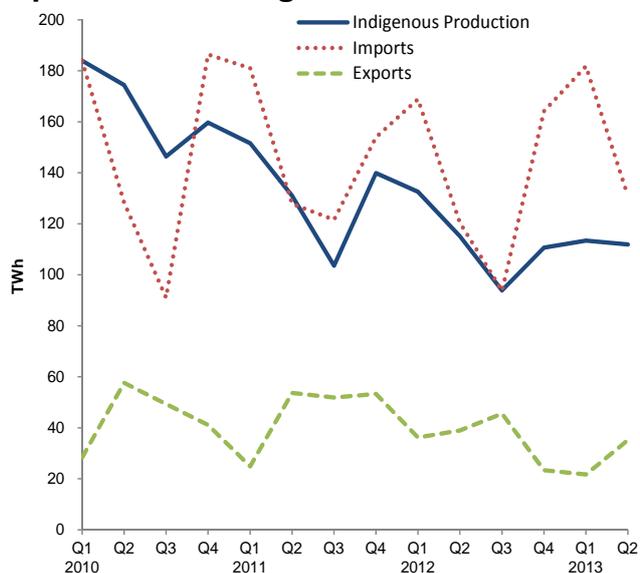
Gross UK production of natural gas in Q2 2013 was 2.8 per cent lower than in Q2 2012 (**Chart 4.1**). Within this, production of associated gas increased by 4.1 per cent, whilst dry gas production decreased by 10.3 per cent. The lower rate of decline compared to previous quarters is due to the partial re-opening of production in the Elgin area. (**Chart 4.2**)

Imports of gas increased by 8.7 per cent in Q2 2013 compared with the same quarter in 2012, although shipped imports of LNG fell by 8.1 per cent, reflecting the completion of maintenance work on Norwegian pipelines and increased demand for LNG from Asia. (**Chart 4.4**).

Pipeline imports increased by 19.5 per cent compared to Q2 2012 and made up 67 per cent of all imports. (**Chart 4.5**)

Overall UK gas demand decreased by 1.7 per cent in Q2 2013 compared to Q2 2012. Gas used for electricity generation was down by 4.4 per cent, whilst industrial and other consumption were up by 0.8 and 2.6 per cent respectively. (**Chart 4.6**)

Chart 4.1 Production and imports and exports of natural gas



Total indigenous UK production of natural gas in Q2 2013 was 2.8 per cent lower than in the same quarter a year earlier.

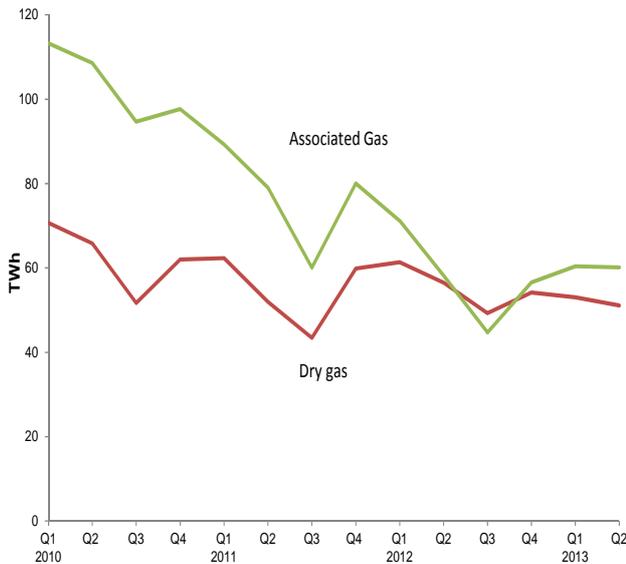
Production levels throughout 2012 were 14.1 per cent lower than in 2011, driven primarily by the Elgin gas leak that occurred in March 2012 and which has constrained production since. As of Q2 2013, Elgin field gas production was still only around 50 per cent of that in Q2 2011.

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 per cent on average per annum.

Imports increased by 8.7 per cent in Q2 2013 compared with the same quarter in 2012, whilst exports decreased by 9.8 per cent. As a result, net imports in Q2 2013 increased to 96 TWh, up 17.5 per cent on the same quarter in 2012.

Gas

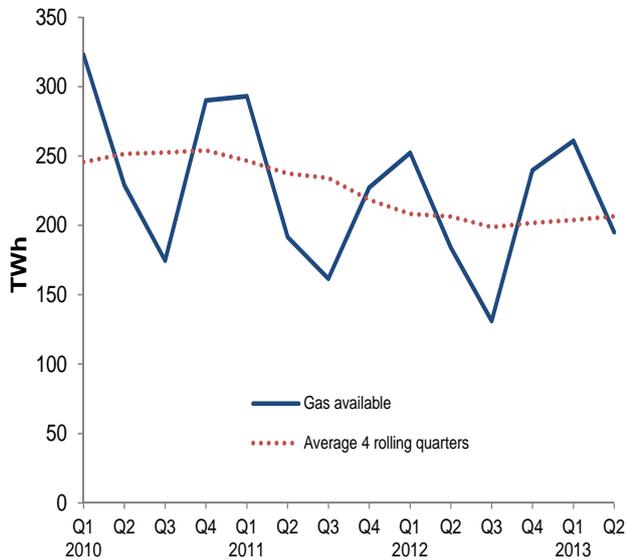
Chart 4.2 Production of dry gas and associated gas



Associated gas production in Q2 2013 increased by 4.1 per cent from 58TWh in Q2 2012 to 61TWh. The main driver behind this was 9.1TWh gas production from the Elgin platform in Q2 2013 versus no gas production in Q2 2012. A like-for-like comparison between Q2 2013 and Q2 2012, with the exclusion of the Elgin platform, shows a 13 per cent decrease in associated gas production in Q2 2013.

Dry gas production decreased by 10.3 per cent from 57 TWh in Q2 2013 to 51 TWh in Q2 2012, reflecting the continuing decrease in UK gas production.

Chart 4.3 Gas availability

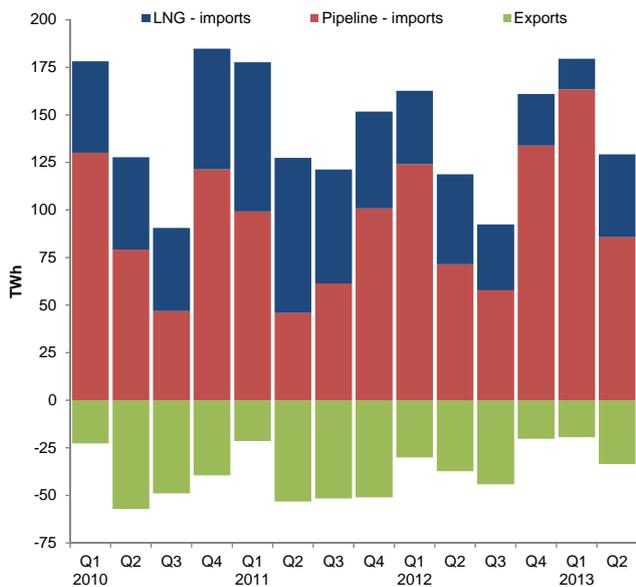


Gas available at terminals is equal to the gross gas production minus producers own use, plus net imports.

Gas availability is seasonal, mirroring gas demand, and peaks during Q1 and Q4 each year. Gas availability in Q2 2013 increase by 6 per cent compared to Q2 2012 to 195 TWh.

The average availability over 4 rolling quarters had remained fairly constant up to 2010. However, in 2011, gas availability was lower than average, reflecting lower gas demand driven by the milder weather in 2011. This trend continued into the first half of 2012 with gas availability being 10 per cent lower compared with the same period last year, reflecting lower demand from electricity generators. This decreasing trend flattened towards the middle of 2012, with the rolling average beginning to increase over the past 3 quarters.

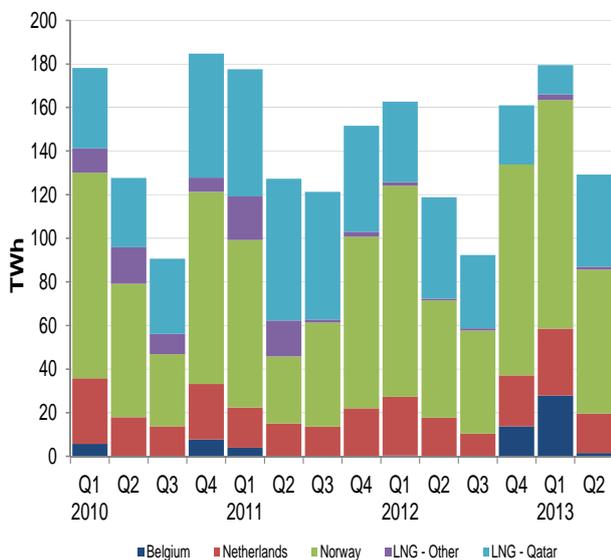
Chart 4.4 Import and exports



Total imports in Q2 2013 increased by 8.7 per cent compared to the same quarter a year ago. Within this, imports of Liquefied Natural Gas (LNG) decreased by 8.1 per cent. LNG imports accounted for 33.3 per cent of total imports compared with 39.3 per cent a year ago. Pipeline imports increased by 19.5 per cent in Q2 2013. This shift is due to a number of factors, including the completion of maintenance work affecting pipeline imports from Norway and the Netherlands and strong competition for LNG on the global market.

Total exports decreased by 9.8 per cent in Q2 2013. This was primarily driven by a decrease in exports to the Netherlands, down 35 per cent (2.3TWh) on quarter 2 2012.

Chart 4.5 Imports by origin



The UK imported 66TWh and 18TWh via pipelines from Norway and the Netherlands, an increase of 17.8 per cent on the levels in Q2 2012. This increase reflects completion of maintenance work being carried out on Norwegian and Dutch pipelines.

Since 2009, LNG imports have been mainly sourced from Qatar. LNG imports from Qatar were 9.2 per cent lower in Q2 2013 compared with the same quarter a year earlier.

Map: UK imports and exports of gas Q2 2013

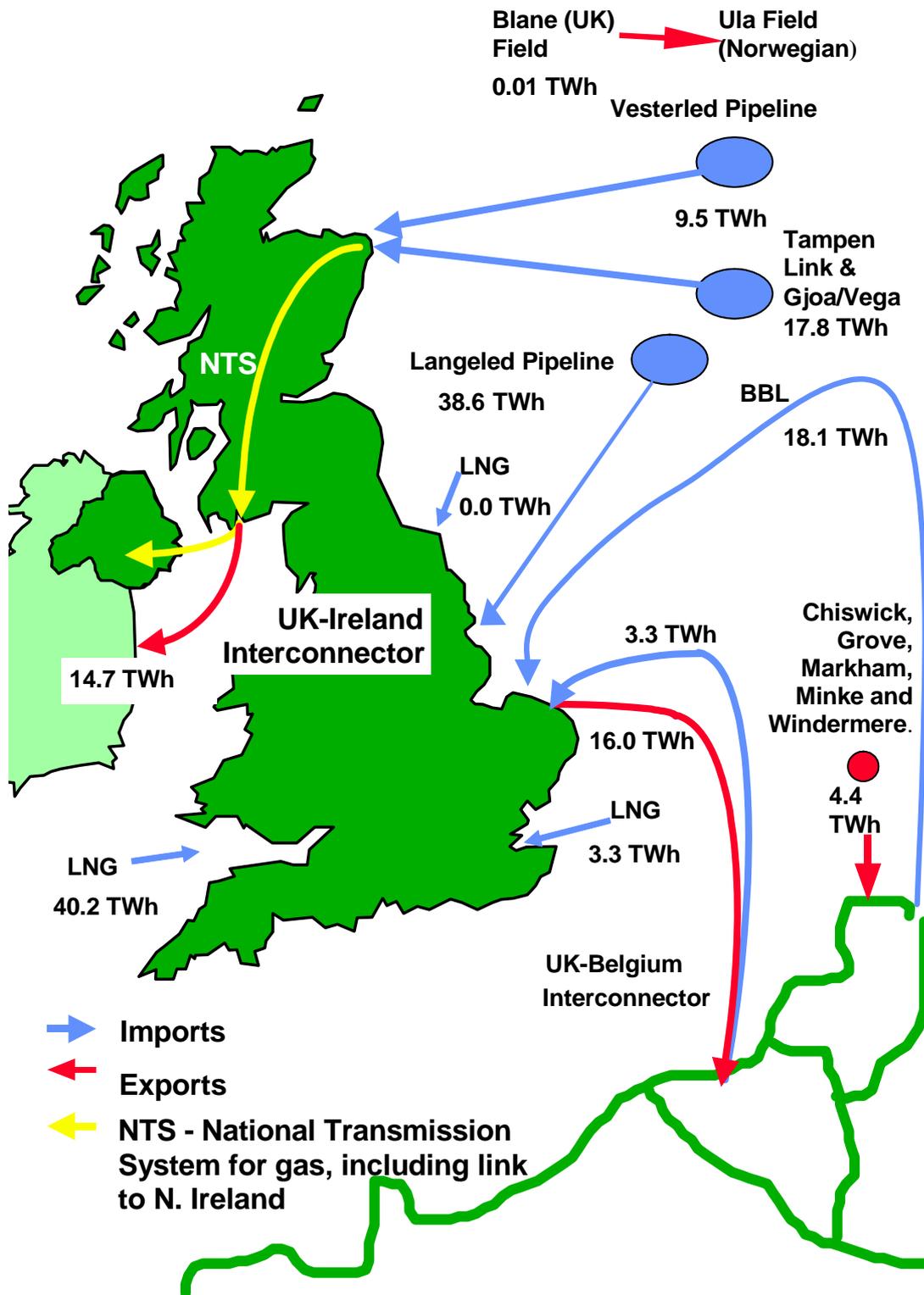
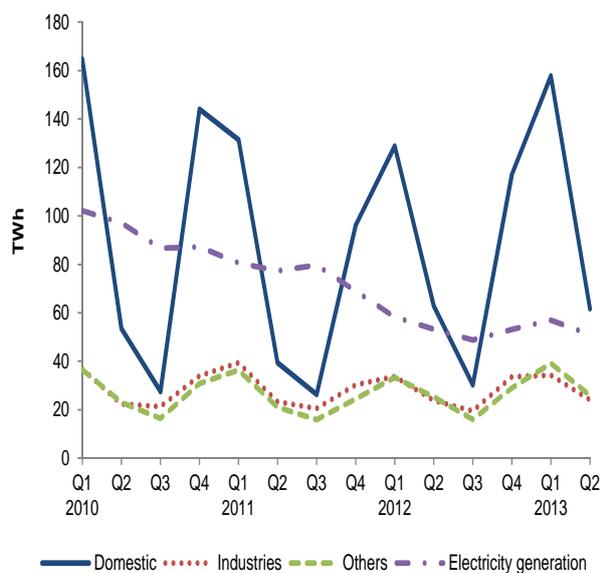


Chart 4.6 UK demand for natural gas



UK overall demand in Q2 2013 decreased slightly by 1.7 per cent compared to Q2 2012.

Within this, domestic demand for gas fell by 2.0 per cent in Q2 2013 compared with Q2 2012.

Gas for electricity generation continued to decline - down by 4.4 per cent on Q2 2012, reflecting the continuing strong demand for coal for electricity generation. There were slight increases in both industry (0.8 per cent) and other (2.6 per cent) sectors, reflecting higher indices of production and services in Q2 2013 versus Q2 2012.

Relevant table

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

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4 GAS

Table 4.1. Natural gas supply and consumption

GWh

	2011	2012	per cent change	2011 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	per cent change ¹
SUPPLY													
Indigenous production	526,030	452,094	-14.1	131,034	103,515	139,874	132,563	115,118	93,807	110,606	113,387r	111,861	-2.8
Imports	584,414	547,300	-6.4	127,837	121,583	153,983	168,873	120,478	93,784	164,165	181,732	130,904	+8.7
<i>of which LNG</i>	270,733	147,879	-45.4	81,514	59,915	50,935	38,645	47,366r	34,703	27,166	15,986	43,543	-8.1
Exports	183,689	144,023	-21.6	53,666	51,883	53,275	36,215	38,953	45,507	23,348	21,694r	35,128	-9.8
Stock change ²	-22,623	-269		-21,374	-11,109	+3,055	+13,504	-9,544	-8,427	+4,198	+40,380	-25,196	
Transfers	-60	-56		-10	-11	-7	-11	-4	-14	-26	-29	-12	
Total supply	904,072	855,047	-5.4	183,822	162,095	243,629	278,713	187,095	133,644	255,594	313,775r	182,430	-2.5
Statistical difference	-3,989	-2,145		-811	-715	-1,075	-699	-469	-336	-641	1,132r	-1,922	
Total demand	908,061	857,191	-5.6	184,633	162,810	244,704	279,412	187,564	133,979	256,235	312,643r	184,352	-1.7
TRANSFORMATION													
Electricity generation	306,545	213,539	-30.3	77,257	79,651	69,029	58,234	53,320	48,816	53,169	56,929r	50,972	-4.4
Heat generation ³	22,936	22,392	-2.4	4,877	4,468	6,211	6,699	5,070	4,311	6,312	6,699	5,070	-
Energy industry use	59,200	55,622	-6.0	15,079	12,993	14,768	14,877	14,351	12,586	13,808	14,291r	13,731	-4.3
Losses	14,559	12,271	-15.7	3,638	2,857	3,671	3,719	2,765	2,502	3,286	3,675r	2,941	+6.4
FINAL CONSUMPTION													
Iron & steel	5,569	4,854	-12.8	1,256	1,149	1,307	1,346	1,275	1,101	1,132	1,447r	1,240	-2.8
Other industries	107,974	105,851	-2.0	22,066	19,364	29,038	32,388	22,585	18,404	32,474	32,836r	22,817	+1.0
Domestic	293,400	339,080	+15.6	39,377	26,380	96,240	128,836	62,915	30,293	117,036	157,695r	61,672	-2.0
Other final users	91,928	97,634	+6.2	19,596	14,462	22,952	31,826	23,796	14,480	27,532	37,584r	24,422	+2.6
Non energy use ³	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 second 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 second quarter of 2013 fell by 2.7 per cent, from 85.3 TWh a year earlier to 83.0 TWh, the lowest second quarter level of generation since 1998. (**Chart 5.1**).

Renewables' share of electricity generation increased from 9.7 per cent in the second quarter of 2012 to 15.5 per cent in the second quarter of 2013. (**Chart 5.2**).

Shares of generation for fossil fuels were broadly unchanged in the second quarter of 2013 compared to a year earlier. Coal's share decreased from 36.6 per cent to 35.0 per cent, whilst gas' share of generation fell from 29.6 per cent in the second quarter of 2012 to 28.5 per cent in the second quarter of 2013, due to high gas prices. (**Chart 5.2**).

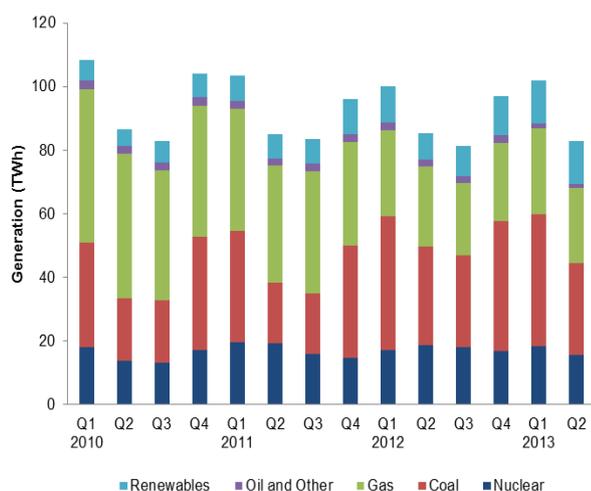
Nuclear's share of generation fell from 21.7 per cent in the second quarter of 2012 to 18.6 per cent in the second quarter of 2013 due to a number of outages. (**Chart 5.2**).

Low carbon electricity's share of generation increased from 31.4 per cent in the second quarter of 2012 to 34.1 per cent in the second quarter of 2013, due to higher renewables generation. (**Chart 5.3**).

The UK remains a net importer with 4.4 per cent of electricity supplied from net imports in the second quarter of 2013 (**Chart 5.4**).

Final consumption of electricity during the first quarter of 2013, at 73.3 TWh, was provisionally 1.4 per cent lower than in the same period last year. Domestic sales rose by 0.2 per cent, to its highest quarter two level for 3 years. (**Chart 5.5**).

Chart 5.1 Electricity generated by fuel type



In 2013 Q2, total electricity generated fell 2.7 per cent from 85.3 TWh in 2012 Q2 to 83.0 TWh.

Coal fired generation fell by 7.0 per cent from 31.2 TWh in 2012 Q2 to 29.1 TWh in 2013 Q2.

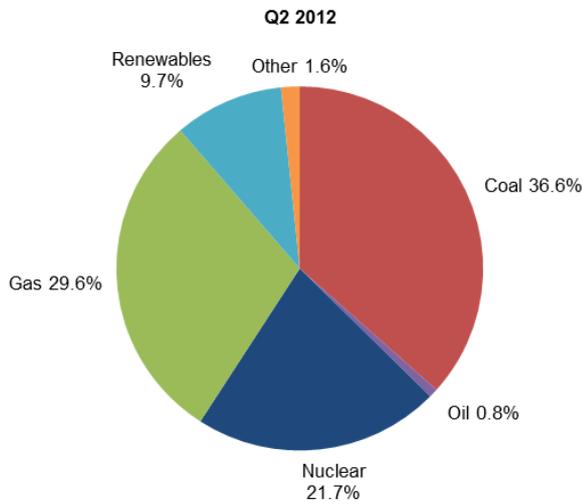
In 2013 Q2, gas fired generation fell 6.3 per cent from 25.2 TWh to 23.6 TWh, its lowest second quarter level for at least fifteen years. This was due to high gas prices, with several gas stations now closed or mothballed and being run at low levels.

Nuclear generation fell 16.5 per cent from 18.5 TWh in 2012 Q2 to 15.5 TWh in 2013 Q2, due to several outages.

In 2013 Q2, wind and PV generation rose 58.6 per cent from 4.2 TWh to 6.7 TWh, due to increased capacity. Hydro generation rose 29.0 per cent from 0.8 TWh to 1.0 TWh, due to an increase in rainfall in April and May in the main hydro regions.

Electricity

Chart 5.2 Shares of electricity generation



The share of generation from coal decreased from 36.6 per cent in 2012 Q2 to 35.0 per cent in 2013 Q2.

Gas's share of generation decreased from 29.6 per cent in 2012 Q2 to 28.5 per cent in 2013 Q2.

Nuclear's share of generation fell from 21.7 per cent in 2012 Q2 to 18.6 per cent in 2013 Q2, due to several outages.

The share of renewables (hydro, wind and other renewables) increased from 9.7 per cent in 2012 Q2 to 15.5 per cent in 2013 Q2. 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.

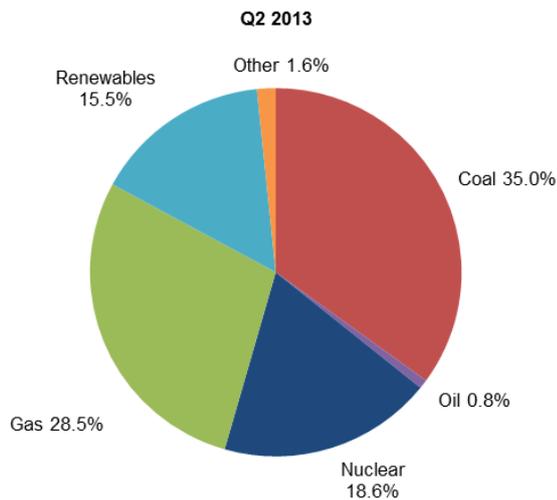
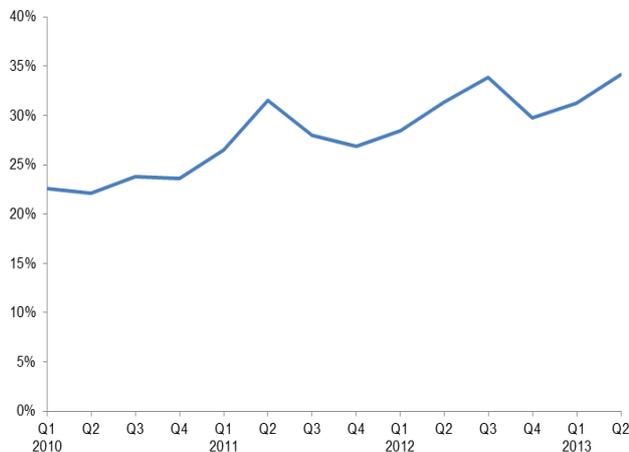
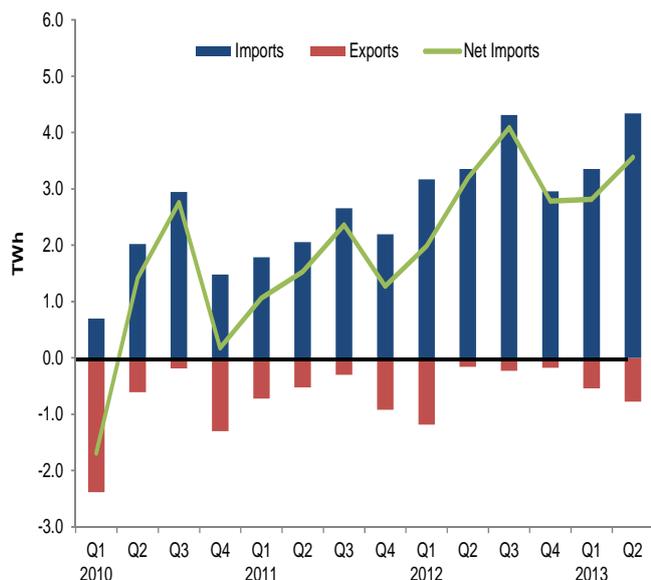


Chart 5.3 Low carbon electricity's share of generation



Low carbon electricity's share of generation increased from 31.4 per cent in 2012 Q2 to 34.1 per cent in 2013 Q2, due to much higher renewables generation.

Chart 5.4 UK trade in electricity

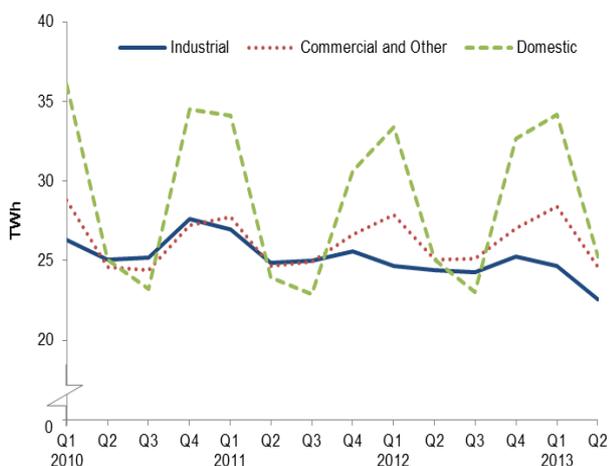


In 2013 Q2, compared with the same period in 2012, imports of electricity rose by 29.5 per cent. Exports were also up by 0.2 TWh from 2013 Q1, and were 0.8 TWh at the end of 2013 Q2. For every quarter from 2010 Q2, the UK has been a net importer after two quarters of being a net exporter (2009 Q4 and 2010 Q1).

Net imports of electricity rose by 11.7 per cent from 3.2 in 2012 Q2 to 3.6 TWh in 2013 Q2, due mainly to increased imports from the Netherlands via the interconnector which came into full operation in April 2011. Net imports represented 4.4 per cent of electricity supplied in 2013 Q2.

In 2013 Q2, the UK was a net importer from France and the Netherlands (whom the UK started trading with in February 2011) with net imports of 1.6 TWh and 1.8 TWh respectively. The UK was however a net exporter to Ireland with exports of 25 GWh, after one quarter of being a net importer.

Chart 5.5 Electricity Final Consumption



Final consumption of electricity fell by 1.4 per cent in 2013 Q2, from 74.4 TWh in 2012 Q2, to 73.3 TWh.

Domestic use rose by 0.2 per cent, from 25.2 TWh to 25.3 TWh, the highest level for the second quarter for three years.

Industrial use of electricity fell 1.8 per cent, from 23.9 TWh to 23.5 TWh, while consumption by commercial and other users¹ fell by 2.5 per cent, from 25.2 TWh to 24.6 TWh.

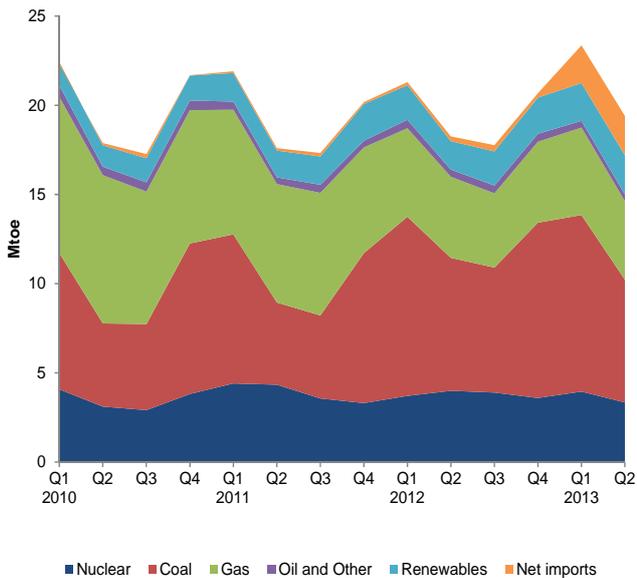
In 2013 Q2, temperatures were on average 0.2 degrees lower than in 2012 Q2.²

¹ Includes commercial, transport and other final users.

² Temperature data comes from ET 7.1, at: 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 in 2013 Q2 fell 4.4 per cent, from 18.3 mtoe in 2012 Q2 to 17.5 mtoe in 2013 Q2³.

In 2013 Q2, gas use was 4.2 per cent lower than in 2012 Q2. Coal use during the quarter was 7.6 per cent lower than a year earlier, while nuclear sources were 16.5 per cent lower.

³ 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.

Relevant tables

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

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5 ELECTRICITY

Table 5.1. Fuel used in electricity generation and electricity supplied

	2011	2012	per cent change	2011 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	per cent change ¹
FUEL USED IN GENERATION													
All generating companies													
	Million tonnes of oil equivalent												
Coal	26.03	34.33	+31.9	4.61	4.65	8.41	10.04	7.45	7.01	9.83	9.90	6.88	-7.6
Oil	0.78	0.78	-0.3	0.17	0.20	0.20	0.24	0.19	0.16	0.19	0.16	0.15	-20.5
Gas	26.41	18.41	-30.3	6.67	6.86	5.91	5.02	4.59	4.21	4.59	4.91	4.40	-4.2
Nuclear	15.63	15.21	-2.7	4.34	3.57	3.31	3.71	4.00	3.89	3.60	3.95	3.34	-16.5
Hydro	0.49	0.45	-7.1	0.10	0.11	0.17	0.16	0.06	0.09	0.14	0.11	0.08	+29.0
Wind and Solar ²	1.35	1.79	+31.9	0.31	0.26	0.49	0.46	0.36	0.42	0.55	0.63r	0.57	+58.6
Bioenergy ³	4.66	5.29	+13.3	1.07	1.14	1.33	1.30	1.14	1.46	1.38	1.38r	1.55	+35.3
Other fuels	1.02	1.11	+8.5	0.25	0.28	0.23	0.24	0.25	0.32	0.30	0.22	0.23	-7.7
Net imports	0.53	1.04	+93.6	0.13	0.20	0.11	0.17	0.27	0.35	0.24	0.24r	0.31	+11.7
Total all generating companies	76.91	78.40	+1.9	17.64	17.27	20.16	21.34	18.33	17.91	20.82	21.49r	17.51	-4.4
ELECTRICITY GENERATED													
All generating companies													
	TWh												
Coal	108.57	143.18	+31.9	19.05	19.12	35.27	42.15	31.23	28.79	41.02	41.60r	29.05	-7.0
Oil	3.12	3.07	-1.6	0.56	0.77	0.88	0.85	0.67	0.69	0.87	0.78	0.65	-1.8
Gas	146.52	100.07	-31.7	37.00	38.58	32.57	27.20	25.22	22.94	24.72	27.04r	23.63	-6.3
Nuclear	68.98	70.41	+2.1	19.15	15.76	14.62	17.20	18.53	18.03	16.65	18.28	15.47	-16.5
Hydro (natural flow)	5.69	5.28	-7.1	1.14	1.23	2.01	1.89	0.75	1.02	1.63	1.27r	0.97	+29.0
Wind and Solar ²	15.75	20.78	+31.9	3.60	3.07	5.72	5.31	4.19	4.87	6.39	7.31r	6.65	+58.6
- of which, Offshore	5.13	7.46	+45.6	1.12	1.10	1.92	1.49	1.64	1.69	2.64	2.85	2.47	+50.7
Bioenergy ³	13.20	15.20	+15.1	3.02	3.28	3.59	4.07	3.29	3.67	4.17	4.30r	5.20	+58.3
Pumped Storage	2.91	2.97	+2.1	0.65	0.70	0.78	0.79	0.67	0.71	0.79	0.74	0.69	+2.5
Other fuels	2.71	2.89	+6.3	0.67	0.70	0.68	0.65	0.72	0.76	0.76	0.66	0.66	-9.4
Total all generating companies	367.45	363.84	-1.0	84.85	83.22	96.11	100.11	85.27	81.47	96.98	101.99r	82.98	-2.7
ELECTRICITY SUPPLIED⁴													
All generating companies													
	TWh												
Coal	103.12	135.89	+31.8	18.10	18.17	33.49	40.01	29.64	27.33	38.91	39.46r	27.56	-7.0
Oil	2.81	2.74	-2.5	0.51	0.70	0.79	0.76	0.60	0.61	0.76	0.71r	0.60	-0.1
Gas	143.83	98.17	-31.7	36.32	37.88	31.97	26.67	24.76	22.50	24.24	26.52r	23.20	-6.3
Nuclear	62.66	63.95	+2.1	17.40	14.31	13.28	15.62	16.83	16.38	15.12	16.61r	14.05	-16.5
Hydro	5.65	5.25	-7.1	1.13	1.22	1.99	1.87	0.75	1.01	1.62	1.26r	0.97	+29.0
Wind and Solar ²	15.75	20.78	+31.9	3.60	3.07	5.72	5.31	4.19	4.87	6.39	7.31r	6.65	+58.6
- of which, Offshore	5.13	7.46	+45.6	1.12	1.10	1.92	1.49	1.64	1.69	2.64	2.85r	2.47	+50.7
Bioenergy ³	11.75	13.40	+14.0	2.69	2.92	3.20	3.60	2.89	3.23	3.68	3.80r	4.61	+59.5
Pumped Storage (net supply) ⁵	-0.95	-1.02		-0.22	-0.23	-0.24	-0.26	-0.24	-0.25	-0.27	-0.27r	-0.26	
Other fuels	2.56	2.71	+5.8	0.63	0.66	0.64	0.61	0.68	0.71	0.71	0.62	0.62	-9.4
Net imports	6.22	12.04	+93.6	1.53	2.36	1.27	1.99	3.19	4.08	2.78	2.82r	3.56	+11.7
Total all generating companies	353.40	353.90	+0.1	81.68	81.06	92.10	96.19	83.28	80.48	93.94	98.85r	81.56	-2.1

1. Percentage change in the second 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

GWh

	2011	2012	Per cent change	2011 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	Per cent change ¹
SUPPLY													
Indigenous production	367,454	363,836	-1.0	84,846	83,216	96,107	100,110	85,275	81,466	96,985	101,994r	82,983	-2.7
Major power producers ^{2,3}	329,406	325,139	-1.3	75,619	74,088	86,191	89,980	75,893	72,123	87,144	92,377r	74,351	-2.0
Auto producers	35,142	35,730	+1.7	8,573	8,426	9,136	9,337	8,707	8,638	9,048	8,877r	7,940	-8.8
Other sources ⁴	2,906	2,966	+2.1	654	702	780	794	675	705	793	741	692	+2.5
Imports	8,689	13,791	+58.7	2,054	2,656	2,192	3,169	3,352	4,311	2,958	3,354	4,340	+29.5
Exports	2,467	1,746	-29.2	525	297	922	1,182	162	227	176	538	777	(+)
Transfers	-	-	-	-	-	-	-	-	-	-	-	-	-
Total supply	373,676	375,880	+0.6	86,375	85,575	97,376	102,098	88,465	85,550	99,767	104,811r	86,547	-2.2
Statistical difference	-658	-361		-230	-96	83	-460	-330	380	49	479r	-100	
Total demand	374,334	376,241	+0.5	86,605	85,672	97,293	102,557	88,795	85,171	99,718	104,332r	86,647	-2.4
TRANSFORMATION													
Energy industry use ⁵	28,317	29,720	+5.0	6,725	6,544	7,258	7,843	7,105	7,030	7,742	7,788r	6,817	-4.1
Losses	28,143	28,946	+2.9	6,464	6,557	6,889	8,367	7,333	5,963	7,282	8,356r	6,500	-11.4
FINAL CONSUMPTION	317,874	317,575	-0.1	73,416	72,571	83,147	86,346	74,357	72,178	84,694	88,188r	73,329	-1.4
Iron & steel	3,842	3,366	-12.4	964	962	949	820	840	857	848	909r	909	+8.3
Other industries	98,507	94,454	-4.1	23,877	23,967	24,856	24,193	23,087	23,109	24,066	24,683r	22,576	-2.2
Transport	4,083	4,089	+0.1	1,021	1,021	1,021	1,022	1,022	1,022	1,022	1,022	1,022	-
Domestic	111,603	114,698	+2.8	23,967	22,900	30,644	33,518	25,206	23,169	32,805	34,186r	25,262	+0.2
Other final users	99,839	100,968	+1.1	23,588	23,721	25,677	26,793	24,202	24,021	25,952	27,389r	23,560	-2.7
Non energy use	-	-	-	-	-	-	-	-	-	-	-	-	-

1. Percentage change in the second 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., plc., 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 a record high of 15.5 per cent in 2013 Q2, up 5.8 percentage points on the share in 2012 Q2, reflecting increased capacity levels, as well as lower overall generation. **(Chart 6.1)**

Renewable electricity generation was 12.8 TWh in 2013 Q2, an increase of 56 per cent on the 8.2 TWh in 2012 Q2, and slightly lower than the peak quarterly generation of 2013 Q1 (12.9 TWh). **(Chart 6.2)**

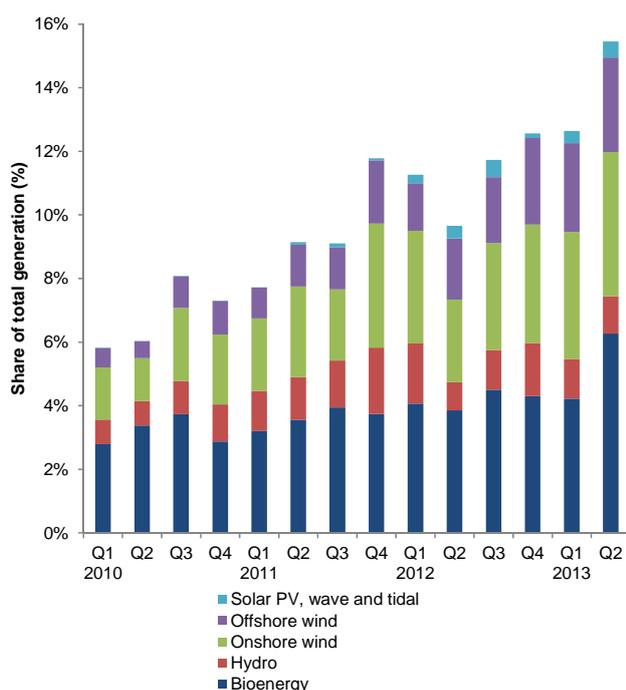
Bioenergy showed a 58 per cent increase in generation in 2013 Q2, from 3.3 TWh in 2012 Q2 to a record 5.2 TWh, as a result of Tilbury power station's return to operations, as well as generation from the more recently converted Ironbridge and Drax (Unit 1) stations. Due to increased capacity and high wind speeds, generation from onshore wind was up 70 per cent and offshore wind by 51 per cent. **(Chart 6.2)**

Renewable electricity capacity was 19.5 GW at the end of 2013 Q2, a 38 per cent increase (5.3 GW) on a year earlier, and 8.2 per cent (1.5 GW) increase on the previous quarter, with the Drax conversion contributing almost half of the capacity installed during the quarter. **(Chart 6.3)**

In 2013 Q2, 127 MW of capacity joined the Feed in Tariff scheme, increasing the total confirmed by 7.1 per cent, to 1,918 MW, approximately 9.8 per cent of all renewable installed capacity. Of this increase, sub-4 kW retrofitted solar PVs contributed 56 MW. **(Chart 6.5)**

Liquid biofuels consumption rose by 7.1 per cent, from 368 million litres in 2012 Q2 to 394 million litres in 2013 Q2, but was 13 per cent less than the record 454 million litres in 2011 Q4. In 2013 Q2, liquid biofuels represented 3.4 per cent of petrol and diesel consumed in road transport. **(Chart 6.6)**

Chart 6.1 Renewables' share of electricity generation



Renewables' share of electricity generation increased from 9.7 per cent in 2012 Q2 to a record high 15.5 per cent in 2013 Q2, a 2.8 percentage point increase on the 2013 Q1's previous record share.¹

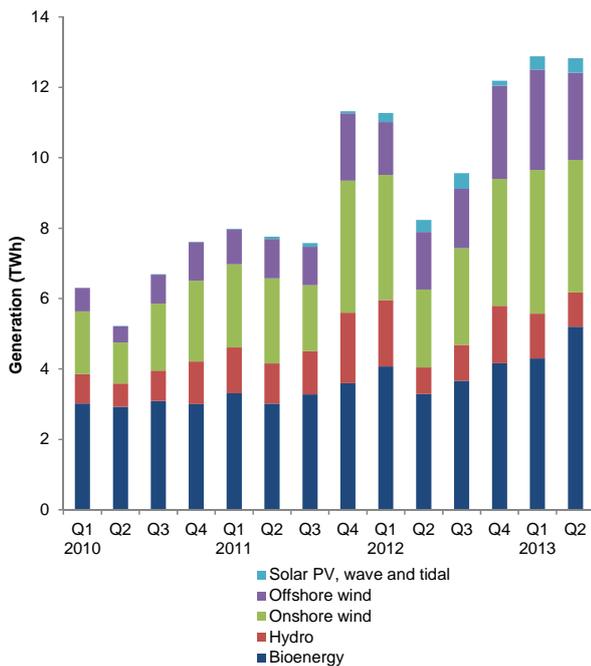
The increase on a year earlier reflects increased capacity, particularly in biomass conversions, onshore and offshore wind, as well as the return to full operations of Tilbury biomass station.

Overall electricity generation (83.0 TWh) in 2013 Q2 was down 2.7 per cent on a year earlier (85.3 TWh). This fall in overall generation contributed 0.4 percentage points of the 5.8 percentage point increase in renewables' share. Despite renewable generation being slightly lower, overall generation was 19 per cent lower than in 2013 Q1 (102.0 TWh), meaning renewables' share was higher in 2013 Q2.

Total electricity generated from renewables in 2013 Q2 was up by 56 per cent on 2012 Q2, from 8.2 TWh to 12.8 TWh. This was, however, slightly (0.1 TWh) lower than the record 12.9 TWh in 2013 Q1.

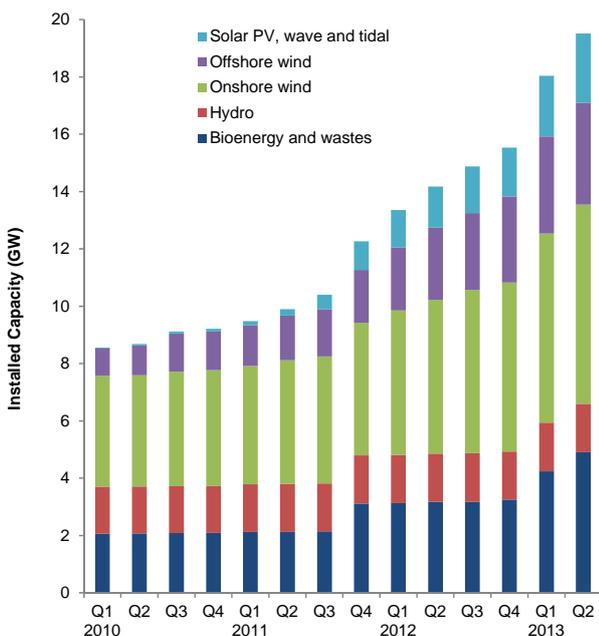
¹ Total electricity generation figures (all generating companies) can be found in table ET 5.1, at: www.gov.uk/government/organisations/department-of-energy-climate-change/series/electricity-statistics

Chart 6.2 Renewable electricity generation



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

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



In 2013 Q2, hydro generation rose by 29 per cent on a year earlier, from 0.8 TWh to 1.0 TWh. Reservoirs were well stocked from the wettest April for eight years (55 per cent higher than a year earlier) while May rainfall was also up on a year earlier, by 33 per cent.

Electricity generated from onshore wind rose by 70 per cent between 2012 Q2 and 2013 Q2, from 2.2 TWh to 3.8 TWh, while generation from offshore wind increased by 51 per cent on a year earlier, from 1.6 TWh to 2.5 TWh, due to much increased capacity, as well as high wind speeds.

Average wind speeds in 2013 Q2, at 8.9 knots, were the second highest for that quarter in the last ten years, 1.0 knots higher than a year earlier. With wind speeds of 9.8 knots (1.7 knots higher than a year earlier), April 2013 was the windiest April in the last 13 years, and the windiest month since January 2012. Wind speeds in May 2013 were also up, by 1.7 knots, on a year earlier.²

Generation from bioenergy³ in 2013 Q2 increased by 58 per cent on a year earlier, from 3.3 TWh to a record, 5.2 TWh. Generation from plant biomass increased four-fold, from 0.5 TWh to 2.8 TWh, due to Tilbury biomass station being fully operational in the latest quarter, as well as generation from the Ironbridge and Drax (Unit 1) conversions to biomass. However, as a result of these conversions, generation from co-firing fell by 94 per cent, from 0.5 TWh to less than 0.1 TWh.

In 2013 Q2, bioenergy had a 41 per cent share of generation, with 29 per cent from onshore wind, 19 per cent from offshore wind, and 8 per cent from hydro.

At the end of 2013 Q2, the UK's renewable electricity capacity totalled 19.5 GW, an increase of 8.2 per cent (1.5 GW) on that installed at the end of 2013 Q1, and 38 per cent (5.3 GW) on that installed a year earlier.

Of the 1.5 GW increase during 2013 Q2, almost half (645 MW) came from the conversion of Drax Unit 1 to dedicated biomass, with 343 MW due to the opening, and expansion, of several new onshore wind farms, while 162 MW came from three offshore wind farms, including the new Teesside site and the continued expansion of Lincs.

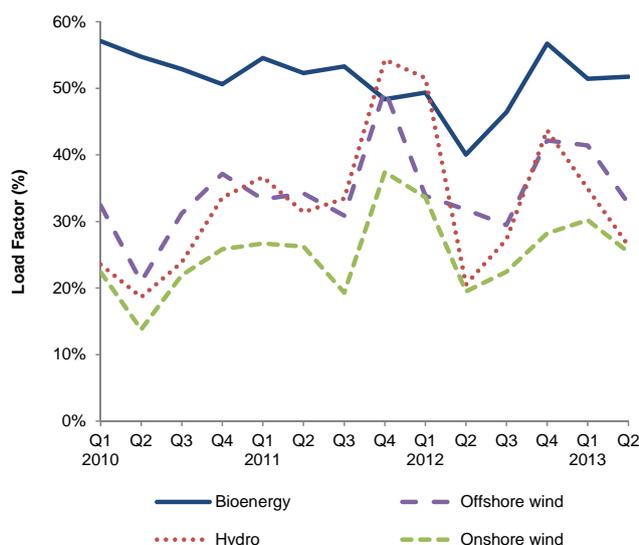
Solar photovoltaics (PV) capacity increased by 294 MW in 2013 Q2, with around 162 MW of this from as-yet-unaccredited large-scale schemes, 98 MW due to unaccredited small-scale (sub 50 kW) schemes, and around 34 MW due to new capacity accredited on the GB Feed in Tariff. At the end of 2013 Q2, solar PV, at 2.4 GW, was 12 per cent of all renewable capacity.

At the end of 2013 Q2, onshore wind had the largest share of capacity (36 per cent), followed by bioenergy (25 per cent) and offshore wind (18 per cent).

² 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/organisations/departments-of-energy-climate-change/series/weather-statistics

³ 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



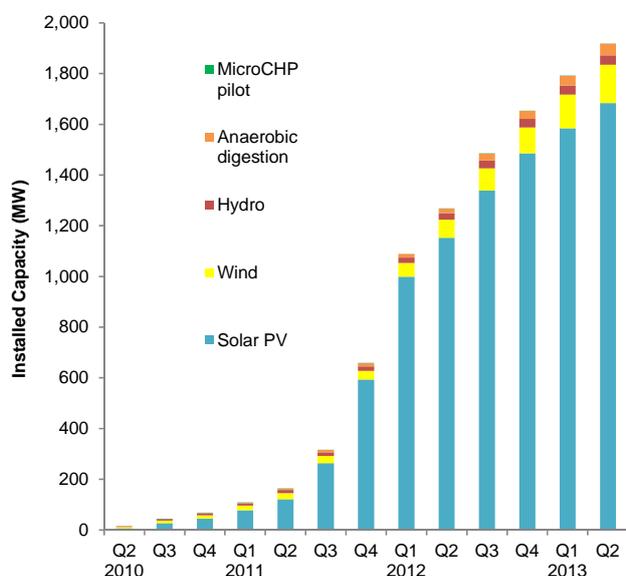
In 2013 Q2, onshore wind's load factor increased by 5.9 percentage points, from 19.5 per cent in 2012 Q2 to 25.4 per cent, reflecting much higher wind speeds in the quarter. Compared with 2013 Q1, onshore wind's load factor was down by around 4.8 percentage points, despite wind speeds being 0.4 knots higher.

In 2013 Q2, offshore wind's load factor increased by 0.9 percentage points, from 31.8 per cent in 2012 Q2 to 32.7 per cent. Compared with 2013 Q1, however, this was down by 8.7 percentage points.⁴

Hydro's load factor in 2013 Q2 increased by 5.8 percentage points, from 20.5 per cent in 2012 Q2 to 26.3 per cent, due to higher rainfall in April and May, and also the return to operations of Glendoe (the newest and second largest UK hydro station) in August 2012. Compared with 2013 Q1, hydro's load factor in 2013 Q2 was 8.6 percentage points less, falling from 34.9 per cent, with rainfall 4.5 per cent lower.

For bioenergy, the load factor in 2013 Q2 was up 12 percentage points on a year earlier, with Tilbury biomass station fully operational, and up 0.3 percentage points on 2013 Q1.

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



At the end of 2013 Q2, 1,918 MW of capacity was confirmed on the GB Feed in Tariff (FiTs) scheme. This was a 7.1 per cent increase on the 1,791 MW confirmed on the scheme at the end of 2013 Q1, and a 51 per cent increase on the amount confirmed at the end of 2012 Q2.⁵

In terms of number of installations, at the end of 2013 Q2, there were 398,182 confirmed on the FiT scheme, a 5.0 per cent increase on the 379,191 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 88 per cent of the total. The majority of PV installations are sub-4 kW retrofitted schemes, which increased by 17,318 (56 MW) in 2013 Q2.⁶

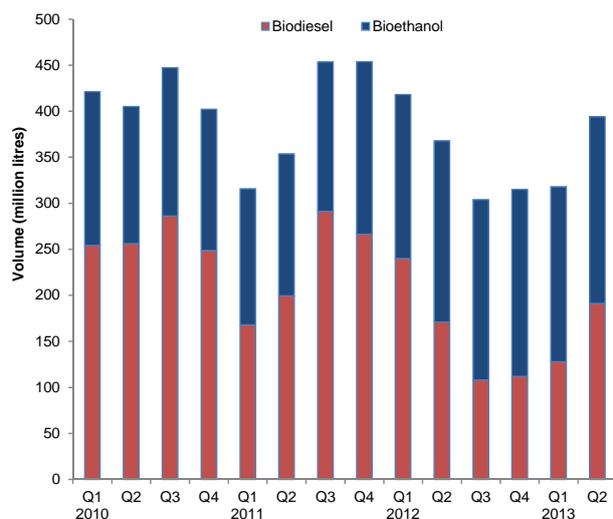
Renewable installations confirmed on FiTs (all except MicroCHP) represented 9.8 per cent of all renewable installed capacity.

⁴ 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.

⁵ Statistics on Feed in Tariff uptake can be found in the monthly central Feed-in-Tariff register table, at: www.gov.uk/government/organisations/departments-of-energy-climate-change/series/feed-in-tariff-statistics

⁶ 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 Q2, 394 million litres of liquid biofuels were consumed in transport, a rise of 7.1 per cent on the total in 2012 Q2 (368 million litres), but a 13 per cent fall on 2011 Q4's record high of 454 million litres.

In 2013 Q2, biodiesel accounted for 2.8 per cent of diesel, and bioethanol 4.3 per cent of motor spirit. The combined contribution of the two fuels was 3.4 per cent, 0.2 percentage points higher than 2012 Q2's share.

Bioethanol consumption rose by 3.0 per cent, from 197 million litres to 203 million litres, equalling 2012 Q4's record high. Biodiesel consumption rose by 12 per cent, from 171 million litres in 2012 Q2 to 191 million litres in 2013 Q2.

After six years of biodiesel contributing the largest share of biofuels consumption, for the fifth successive quarter, in 2013 Q2 bioethanol had the highest share of total biofuels consumption, with 52 per cent, compared with 48 per cent from biodiesel.

Relevant tables

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 6.2: Liquid biofuels for transport consumption.....Page 48

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6 RENEWABLES

Table 6.1. Renewable electricity capacity and generation

	2011	2012	per cent change	2011 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	per cent change
Cumulative Installed Capacity¹													MW
Onshore Wind	4,638	5,893	+27.1	4,317r	4,432r	4,638	5,040r	5,371r	5,697r	5,893	6,609r	6,960	+29.6
Offshore Wind	1,838	2,995	+63.0	1,564	1,650	1,838	2,200	2,516	2,682	2,995	3,381	3,544	+40.8
Shoreline wave / tidal	3	7	(+)	3	3	3	5	7	7	7	7	7	-
Solar photovoltaics	993	1,706	+71.8	212r	499r	993	1,305r	1,422r	1,620r	1,706	2,118r	2,413	+69.7
Small scale Hydro	204	215	+5.3	197r	201r	204	206r	215r	216r	215	219r	220	+2.3
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	1,050	1,034	1,034	1,035	1,036	1,037	1,036	+0.1
Sewage sludge digestion	198	199	+0.6	195	198	198	198	198	199	199	199	199	+0.6
Energy from waste	544	593	+9.0	414	414	544	588	588	588	593	593	599	+1.9
Animal Biomass (non-AD) ²	111	111	-	111	111	111	111	111	111	111	111	111	-
Anaerobic Digestion	66	110	+66.2	42r	52r	66	71r	84r	91r	110	144r	155	+94.8
Plant Biomass ³	1,149	1,203	+4.7	318	320	1,149	1,136	1,159	1,161	1,203	2,162r	2,809	(+)
Total	12,264	15,538	+26.7	9,893r	10,400r	12,264	13,363r	14,175r	14,877r	15,538	18,051r	19,523	+37.7
Co-firing ⁴	338	204	-39.8	338	338	338	204	204	204	204	38r	38	-81.2
Generation⁵													GWh
Onshore Wind ⁶	10,384	12,121	+16.7	2,418	1,863	3,747	3,555	2,215	2,743	3,608	4,077r	3,763	+69.9
Offshore Wind ^{6,7}	5,126	7,463	+45.6	1,117	1,096	1,916	1,493	1,637	1,691	2,642	2,852r	2,471	+50.9
Shoreline wave / tidal ⁶	1	4	(+)	0	0	0	1	1	1	1	2r	2	(+)
Solar photovoltaics ⁶	244	1,188	(+)	66	106	57	265	341	440	141	380r	417	+22.1
Hydro ⁶	5,690	5,284	-7.1	1,143	1,233	2,005	1,886	754	1,017	1,627	1,273r	972	+29.0
Landfill gas ⁶	5,092	5,154	+1.2	1,238	1,296	1,247	1,299	1,278	1,280	1,297	1,302r	1,313	+2.8
Sewage sludge digestion ⁶	764	720	-5.8	191	191	191	188	181	173	178	186r	205	+13.3
Energy from waste ⁸	1,739	2,279	+31.0	344	355	686	536	560	599	584	534	525	-6.3
Co-firing with fossil fuels	2,964	1,783	-39.8	586	768	787	703	530	410	140	136r	31	-94.1
Animal Biomass (non-AD) ^{2,6}	615	643	+4.6	154	155	148	177	141	144	180	178	179	+26.5
Anaerobic Digestion	278	523	+88.1	54	73	101	105	124	140	153	161r	168	+35.9
Plant Biomass ^{3,6}	1,749	4,098	(+)	449	445	435	1,065	475	922	1,635	1,803	2,784	(+)
Total	34,645	41,258	+19.1	7,761	7,580	11,321	11,274	8,236	9,560	12,188	12,885r	12,829	+55.8
Non-biodegradable wastes ⁹	1,000	1,311	+31.0	198	204	394	308	322	344	336	307r	302	-6.2
Load Factors¹⁰													
Onshore Wind	27.3%	26.2%		26.2%	19.3%	37.4%	33.6%	19.5%	22.4%	28.2%	30.2%	25.4%	
Offshore Wind	36.8%	35.2%		34.2%	30.9%	49.8%	33.9%	31.8%	29.5%	42.2%	41.4%	32.7%	
Hydro	39.2%	35.8%		31.4%	33.4%	54.3%	51.5%	20.5%	27.3%	43.7%	34.9%	26.3%	
Landfill gas	56.5%	56.2%		54.0%	55.9%	53.7%	57.1%	56.6%	56.0%	56.7%	58.2%	58.0%	
Sewage sludge digestion	44.7%	41.3%		44.7%	44.2%	43.9%	43.5%	42.0%	39.5%	40.6%	43.2%	47.3%	
Energy from waste	40.9%	45.6%		38.0%	38.8%	64.8%	43.4%	43.6%	46.1%	44.8%	41.7%	40.3%	
Animal Biomass (non-AD)	63.5%	66.2%		63.9%	63.3%	60.7%	73.3%	58.5%	59.1%	74.0%	74.7%	74.0%	
Anaerobic Digestion	60.9%	67.6%		61.5%	70.5%	77.5%	70.4%	73.1%	72.4%	69.0%	58.6%	51.3%	
Plant Biomass	27.3%	39.7%		64.8%	63.2%	26.8%	42.7%	19.0%	36.0%	62.6%	49.6%	51.3%	
Total (excluding co-firing and non-biodegradable wastes)	33.7%	32.3%		33.9%	30.4%	42.1%	37.8%	25.6%	28.5%	35.9%	35.1%	31.2%	

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	per cent change	2011 2nd quarter	2011 3rd quarter	2011 4th quarter	2012 1st quarter	2012 2nd quarter	2012 3rd quarter	2012 4th quarter	2013 1st quarter	2013 2nd quarter p	per cent change
Volume													
	Million litres												
Bioethanol	652	774	+18.8	154	162	188	178	197r	196	203	190	203	+3.0
Biodiesel	925	631	-31.8	200	291	266	240	171r	108	112	128	191	+11.7
Total biofuels for transport	1,577	1,405	-10.9	354	453	454	418	368r	304	315	318	394	+7.1
Energy													
	Thousand tonnes of oil equivalent												
Bioethanol	367	436	+18.8	87	91	106	100	111	110	114	107	114	+3.0
Biodiesel	760	518	-31.8	164	239	219	197	141	89	92	105	157	+11.7
Total biofuels for transport	1,128	955	-15.3	251	331	325	298	252	199	206	212	271	+7.9
Shares of road fuels													
Bioethanol as per cent of Motor Spirit	3.3%	4.1%		3.1%	3.3%	3.8%	3.9%	4.1%	4.2%	4.3%	4.4%	4.3%	
Biodiesel as per cent of DERV	3.6%	2.4%		3.1%	4.4%	4.0%	3.8%	2.6%	1.6%	1.6%	2.1%	2.8%	
Total biofuels as per cent of road fuels	3.5%	3.1%		3.1%	3.9%	3.9%	3.9%	3.2%	2.7%	2.7%	3.0%	3.4%	

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

Renewable electricity in Scotland, Wales, Northern Ireland and the regions of England in 2012

Background

This article updates the one published in the September 2012 edition of *Energy Trends* on the amount of electricity from renewable sources disaggregated below UK level. As before, it has been necessary to combine some renewable sources into categories so that information about individual sites provided to Ricardo-AEA and the Department of Energy and Climate Change (DECC) in confidence is not disclosed.

A regional breakdown of non-Feed in Tariff micro-wind schemes has been included in the tables for the first time this year as part of the Wind and Wave data, with such schemes apportioned according to the regional breakdown of FIT schemes. Figures in Tables 2 and 3 correspond to the totals shown in Table 6.4 of the Digest of United Kingdom Energy Statistics 2013 (DUKES). Thus the data in this article cover all renewables, including renewables that are not eligible for the Renewables Obligation (RO) or Feed in Tariff (FIT), such as large-scale hydro commissioned before 1 April 2002. Offshore wind has been allocated to the region to which its output is connected¹.

What the figures show

Table 1 and Chart 1 show that there were 3,752 non-PV sites in England generating electricity from renewable sources, with 2,648 non-PV sites in Scotland, 493 in Wales and 203 in Northern Ireland. In addition there were 311,192 PV sites reported for England with 27,173 for Wales and 24,360 for Scotland. PV uptake for Northern Ireland (531) was based on data from the Micro-generation Certification Scheme and the Renewables Obligation. No geographical information was available for a further 38,084 PV schemes.

In capacity terms, including PV, England had 29 per cent more renewable electricity capacity than Scotland (Table 2 and Chart 3). This is because of England's considerable bioenergy resource (88 per cent of the UK's total bioenergy capacity), resulting from the conversion of Tilbury B power station to dedicated biomass during 2011. Hydro accounted for 33 per cent of generation from renewables in Scotland (Table 3 and Chart 7). However, because bioenergy based capacity was used more intensively than hydro (which is subject to seasonal precipitation variation in the catchment areas) generation from renewable sources in England during 2012 was 56 per cent higher than generation in Scotland.

¹ With the exception of Robin Rigg which comes ashore at Seaton, Cumbria but whose generation is associated with Scotland

Special feature – Sub-national renewable electricity

Table 1: Number of sites generating electricity from renewable sources, 2012¹

	Hydro	Wind and wave ²	Landfill gas	Sewage gas	Other bioenergy ³	Total excluding PV	Solar PV	Total
England	206	2,816	358	162	210	3,752	311,192	314,944
East Midlands	22	267	39	15	22	365	35,258	35,623
East	5	682	69	14	28	798	39,788	40,586
North East	8	196	19	8	6	237	14,490	14,727
North West	41	332	53	25	37	488	31,940	32,428
London	-	30	1	4	9	44	10,332	10,376
South East	12	104	68	32	28	244	55,074	55,318
South West	77	539	39	19	26	700	63,874	64,574
West Midlands	16	128	30	21	30	225	27,465	27,690
Yorkshire and the Humber	25	538	40	24	24	651	32,971	33,622
Wales	103	341	23	16	10	493	27,173	27,666
Scotland	305	2,265	45	8	25	2,648	24,360	27,008
Northern Ireland	55	123	6	3	16	203	531	734
Other Sites							38,084	38,084
UK Total	669	5,545	432	189	261	7,096	401,340	408,436

Components may not add exactly to totals because of rounding.

For notes to Table 1 see below Table 3.

Table 2: Installed capacity of sites generating electricity from renewable sources, 2012¹

	Hydro	Wind and wave ²	Landfill gas	Sewage gas	Other bioenergy	Solar PV	MW Total
England	32.1	3,899.5	864.9	177.2	1,825.2	1,369.6	8,168.6
East Midlands	4.8	355.6	65.4	17.6	50.2	159.4	653.1
East	0.1	1,233.2	203.6	26.3	936.8	170.1	2,570.0
North East	7.6	232.9	41.2	15.6	93.9	47.2	438.4
North West	7.1	919.6	147.4	23.7	111.4	111.4	1,320.4
London	-	4.4	0.3	20.6	167.0	39.7	232.1
South East	0.3	782.8	169.3	27.4	267.5	250.6	1,497.8
South West	8.9	161.8	96.1	13.7	19.8	355.5	655.8
West Midlands	0.9	3.1	61.3	23.4	107.7	110.7	307.2
Yorkshire and the Humber	2.4	206.1	80.3	9.1	70.9	125.1	493.9
Wales	149.9	605.6	45.2	13.1	18.5	97.2	929.4
Scotland	1,495.8	3,933.5	115.2	8.2	161.1	87.2	5,801.0
Northern Ireland	8.4	456.7	10.7	0.2	11.3	5.5	492.9
Other Sites						146.1	146.1
Total	1,686.2	8,895.3	1,036.0	198.7	2,016.1	1,705.5	15,537.9
UK Total	1,686.2	8,895.3	1,036.0	198.7	2,016.1	1,705.5	15,537.9
Co-firing ⁴					203.5		203.5

Table 3: Generation of electricity from renewable sources, 2012¹

	Hydro	Wind and wave ²	Landfill gas	Sewage gas	Other bioenergy ⁵	Solar PV	GWh Total
England	83.3	8,894.7	4,330.7	645.1	8,038.2	983.1	22,975.2
East Midlands	12.9	853.8	331.5	77.8	388.7	111.5	1,776.2
East	0.2	2,887.2	996.9	59.5	2,945.7	122.4	7,011.9
North East	23.3	421.3	174.7	54.8	366.1	31.6	1,071.7
North West	16.5	2,728.9	690.5	93.5	266.3	75.9	3,871.5
London	-	10.8	1.3	46.0	679.7	29.2	767.0
South East	0.8	1,300.3	958.5	102.4	1,075.5	183.4	3,620.8
South West	21.9	313.0	457.2	57.6	107.5	266.4	1,223.7
West Midlands	2.4	5.1	320.7	120.5	482.3	76.1	1,007.1
Yorkshire and the Humber	5.2	374.4	399.4	33.2	1,726.5	86.6	2,625.2
Wales	336.8	1,443.3	214.3	38.3	173.3	70.8	2,276.8
Scotland	4,843.6	8,205.3	548.6	35.4	1,064.8	58.3	14,756.1
Northern Ireland	20.8	1,043.7	60.2	0.7	48.5	3.5	1,177.4
Other Sites						72.2	72.2
Total	5,284.4	19,587.1	5,153.8	719.6	9,324.8	1,187.9	41,257.7
UK Total	5,284.4	19,587.1	5,153.8	719.6	9,324.8	1,187.9	41,257.7

Notes to Tables 1 to 3

- Nil or less than half the final digit shown.

1 At the 31 December 2012.

2 Wind Offshore is allocated to regions/countries according to where the cabling comes ashore. Non-FiTs micro-wind has been included in the tables this year as part of the Wind and Wave data, apportioned according to the regional breakdown of FIT schemes

3 12 of these sites are sites that co-fire renewables with fossil fuels (see also note 4, below).

4 This is the proportion of non-fossil fuelled capacity used for co-firing of renewables based on the proportion of generation accounted for by the renewable source. This estimate has not been disaggregated into region values because to do so could disclose data that relate to individual companies.

5 Includes bioenergy sources co-fired with fossil fuels.

In England the number of sites (excluding PV) in each region varies from 44 in London to 798 in the East of England (Table 1 and Chart 2). The highest capacity in England (including PV) is in the East of England, followed by the South East and the North West (Table 2 and Chart 4). In the East of England, 48 per cent of capacity is from wind (most from offshore wind farms) and 36 per cent is from other bioenergy; in the South East, 52 per cent of capacity is from wind and 18 per cent from other biomass. In the North West, 70 per cent of capacity is from wind and 11 per cent from landfill gas. The East of England has 20 per cent of the UK's landfill gas capacity, 13 per cent of the UK's sewage gas capacity and 46 per cent from other bioenergy. The South East (with 16 per cent of the UK's landfill gas capacity), and the North West (with 14 per cent of the UK's landfill gas capacity), are the other English regions with notably large shares. The East of England, North West and the South East regions together accounted for 51 per cent of UK generation from landfill gas.

Special feature – Sub-national renewable electricity

Chart 1: Number of sites by country¹

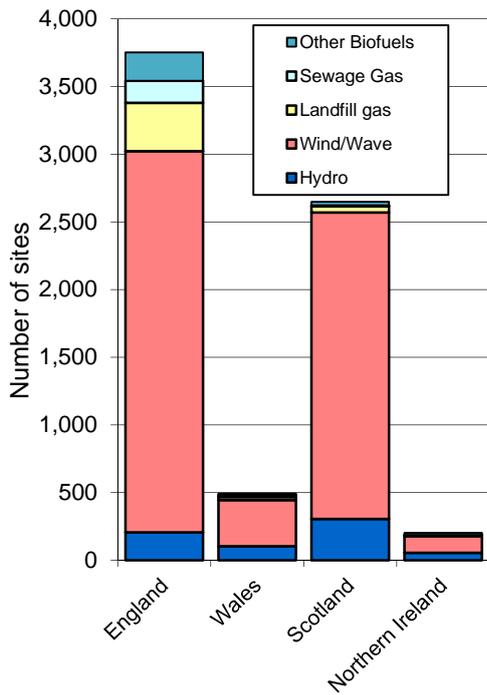
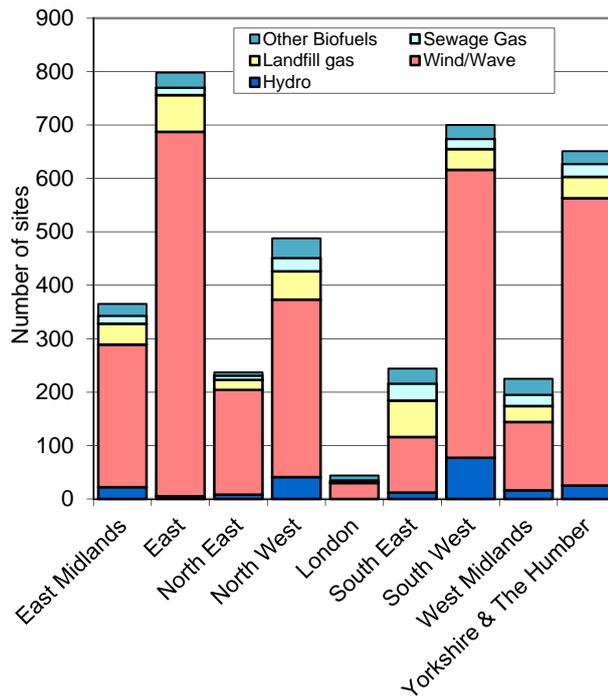


Chart 2: Number of sites by English region¹



¹ Excludes the large numbers of small Solar PV schemes as the inclusion of these would swamp all other technologies and misrepresent its overall contribution to UK renewables

In 2012, Scotland had 44 per cent of the UK’s wind capacity and produced 42 per cent of the output (Tables 2 and 3; Charts 5 and 9). The East has the next largest wind share (14 per cent of capacity and 15 per cent of generation) followed by the North West (10 per cent of the capacity and 14 per cent of the output), the South East (9 per cent of capacity and 7 per cent of generation) and Wales (7 per cent of capacity and 7 per cent of generation (Tables 2 and 3; Charts 3 to 10)². England as a whole accounts for 44 per cent of wind capacity and 45 per cent of generation.

² A map of wind farm installed capacities in the UK at the end of 2012 was published in the renewables chapter of the 2013 edition of the Digest of UK Energy Statistics, and is also available on the RESTATS web site (<https://restats.decc.gov.uk/>).
September 2013

Chart 3: Renewable capacity by country

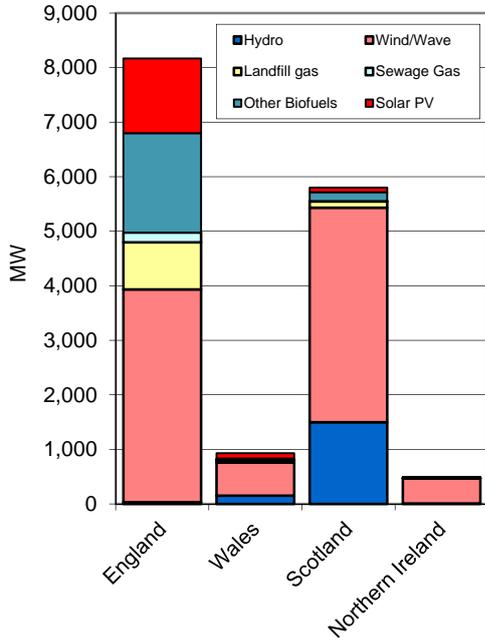


Chart 4: Renewable capacity by English region

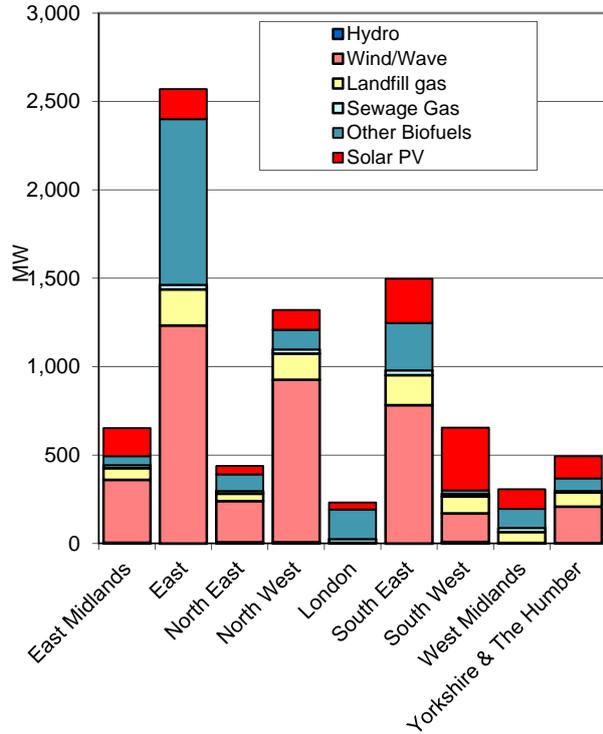


Chart 5: Wind capacity by country

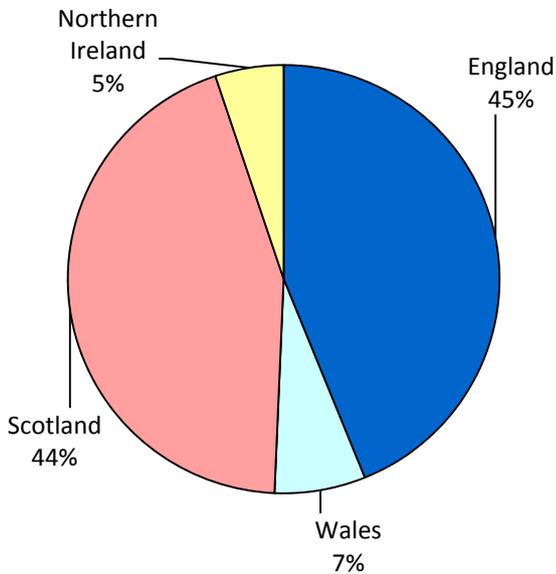


Chart 6: Wind capacity by English region

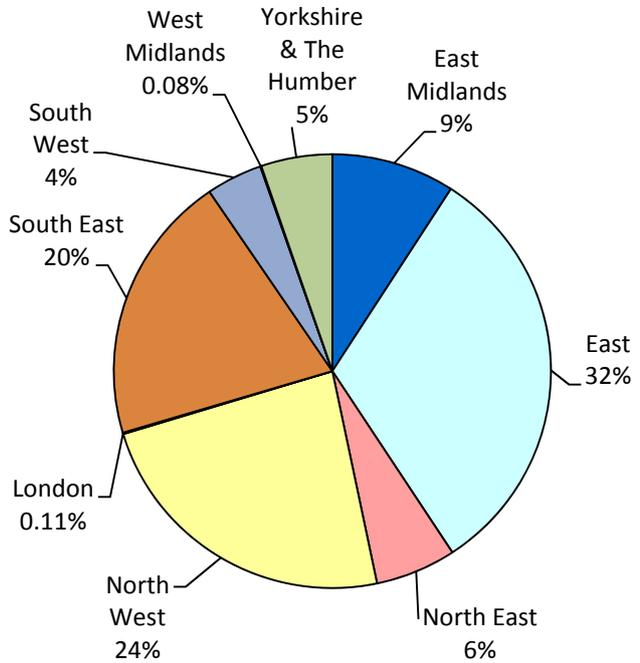


Chart 7: Renewable generation by country

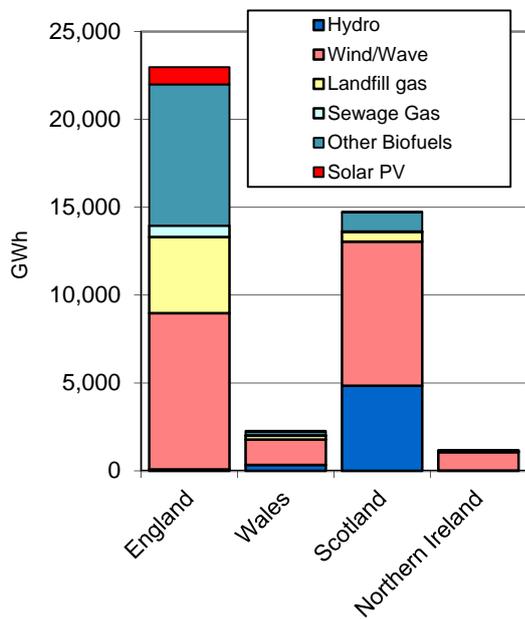


Chart 8: Renewable generation by English region

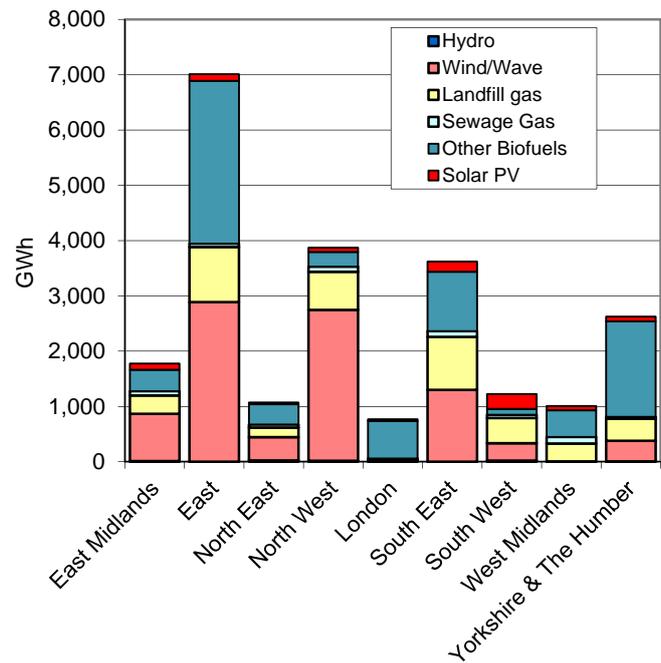


Chart 9: Wind generation by country

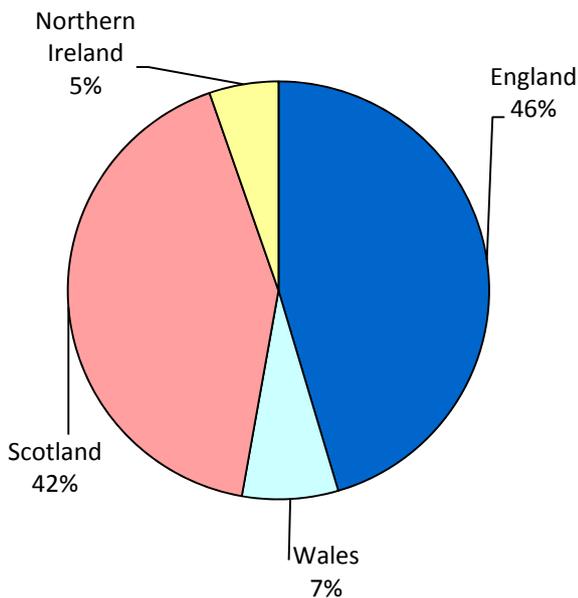
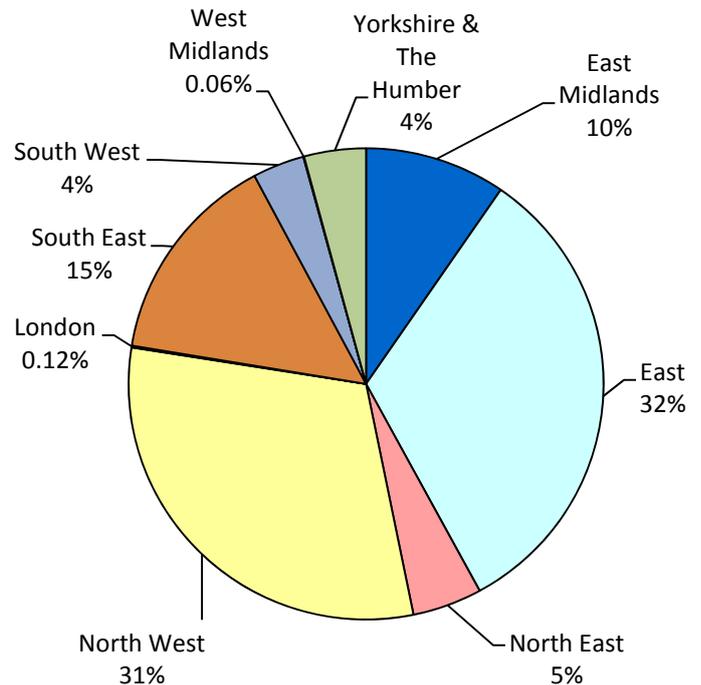


Chart 10: Wind generation by English region



Ninety per cent of the generation from sewage and 86 per cent of the generation from other bioenergy (including that used for co-firing) took place in England. The West Midlands (17 per cent), South East (14 per cent) and North West (13 per cent each) and East Midlands (11 per cent) were the major sewage gas areas, whilst in the other bioenergy category, East of England (32 per cent) was the largest, followed by Yorkshire and the Humber (19 per cent), the South East (12 per cent) followed by Scotland (11 per cent). Excluding bioenergy sources used for co-firing (which cannot be allocated to regions – see note 4 to Table 2), the East of England has the largest capacity to generate from bioenergy (46 per cent of the UK total) followed by the South East (13 per cent) and jointly London (8 per cent) and Scotland (8 per cent).

Special feature – Sub-national renewable electricity

In terms of change to total renewables generating capacity, Scotland (+1,003 MW) the East of England (+760 MW), the South East (+423 MW), the North West (+296 MW), Yorkshire and the Humber (+141 MW) and the South West (+135 MW) have all shown considerable growth this year. This growth has primarily come from wind in Scotland (+932 MW), wind and solar in the East of England (+678 MW and +75 MW, respectively), the South East (+314 MW and +89 MW, respectively), the North West (+215 MW and +52 MW, respectively) and Yorkshire and the Humber (+87 MW and +53 MW, respectively) and solar in the South West (+115 MW).

Comparison with economic activity

Economic activity in each country or region can be measured in terms of Gross Value Added (GVA). Table 4 shows that Scotland continues to show the largest generating capacity from renewables in terms of capacity per unit of GVA and generation per unit of GVA. Looking at these two measures, on aggregate England was below the UK average, whilst Wales, Scotland and Northern Ireland were above. Among the English regions the East of England is highest in generating capacity per unit of GVA terms followed by the North West then very closely by the North East. In terms of Generation/GVA, East of England is the highest followed by the, North West, Yorkshire and the Humber and the North East.

Table 4: Density of renewables generation in different areas

	Electrical generating capacity from renewable sources kW/GVA (£million) ^{1,2}	Electricity generated from renewable sources kWh/GVA (£million) ¹
England	7.26	20,425
East Midlands	8.01	21,773
East	22.52	61,445
North East	10.54	25,764
North West	10.66	31,244
London	0.82	2,711
South East	7.79	18,824
South West	6.46	12,060
West Midlands	3.20	10,508
Yorkshire and the Humber	5.38	28,584
Wales	19.63	48,095
Scotland	53.66	136,506
Northern Ireland	16.50	39,418
UK average	11.48	30,721

1. GVA is Gross Value Added as published as Total GVA in Regional Gross Value Added (Income Approach), December 2012 at: www.ons.gov.uk/ons/dcp171778_291684.pdf

2. Excludes capacity attributable to co-firing of bioenergy which has not been allocated to regions (see footnote 4 to Table 2).

Special feature – Sub-national renewable electricity

Comparison with earlier years

DECC and Ricardo-AEA have compiled, for each year from 2003, data on the number, installed capacity and generation comparable to that shown in Tables 1 to 3. These data are available for download as Excel spreadsheets from the following location:

<https://restats.decc.gov.uk/cms/historic-regional-statistics/>. The *Energy Trends* articles in previous editions were snapshots of the position as seen at the time and so the headline data in those articles do not constitute a time series. This is because in each year there have been revisions due to an improved statistical base as well as later information on generation and capacity.

Between 2003 and 2012 there was a 290 per cent increase in generation from renewables in the UK, but faster rates of growth were recorded in Northern Ireland (1,029 per cent), Eastern (360 per cent), South East (357 per cent), North West (351 per cent), North East (316 per cent), East Midlands (311 per cent), Yorkshire and The Humber (303 per cent) and Scotland (296 per cent) (see charts 11 and 12). For the individual technology groups some of the very large percentage increases are because in 2003 there was very little use of some of the technologies in various regions.

Chart 11: Trends in generation from renewables by country

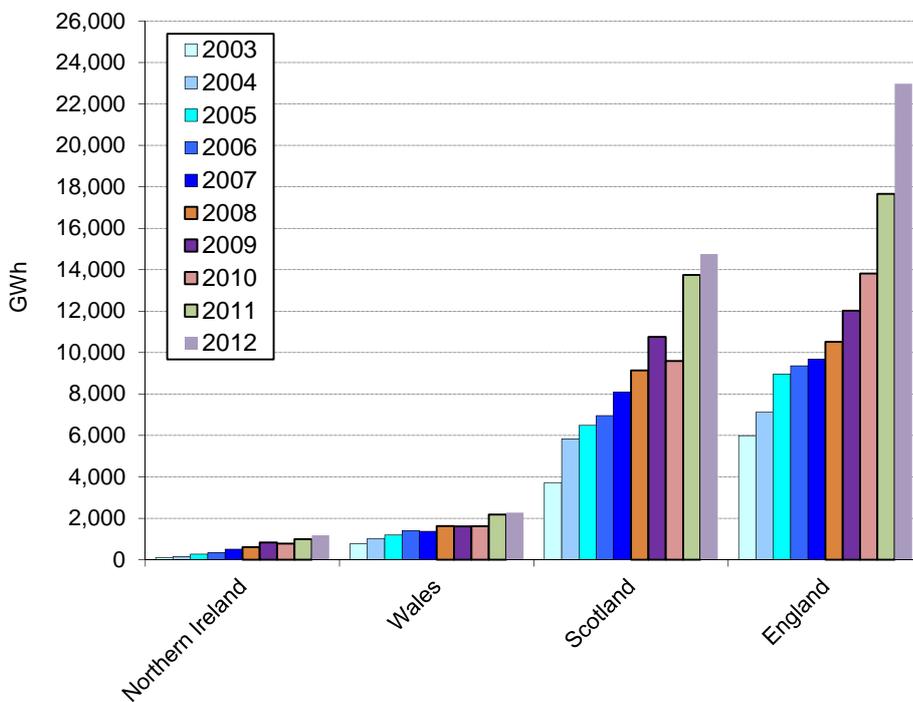
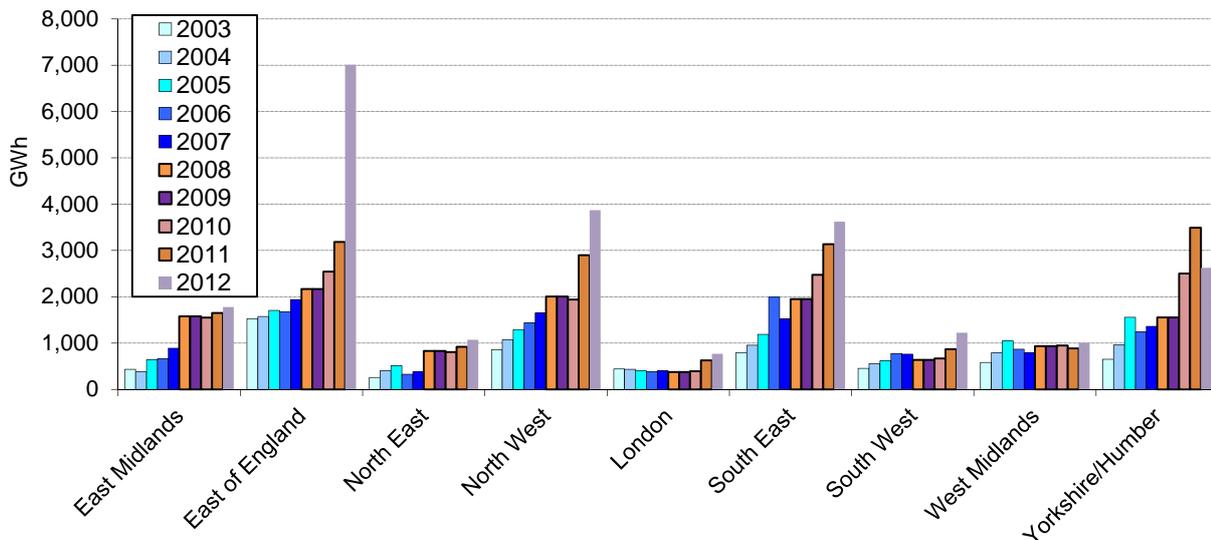


Chart 12: Trends in generation from renewables by English region



Load factors

Load factors for the various technologies are shown in Table 5 from data provided in Tables 2 and 3 of this article.

Table 5: Load factors, 2012

	Wind Offshore	Wind Onshore	Landfill gas	Sewage Gas	Other bioenergy (ex-cofiring & sewage)	Hydro (large-scale)	Hydro (small-scale)	Hydro
England	35.4%	25.0%	56.5%	41.4%	40.9%		28.8%	30.1%
East Midlands	32.1%	24.2%	56.5%	50.4%	54.0%		30.4%	30.4%
East of England	39.3%	24.6%	55.5%	25.8%	36.0%		34.7%	34.7%
North East	18.7%	24.8%	47.6%	40.0%	50.5%	35.6%	32.5%	35.0%
North West	43.0%	25.5%	51.6%	45.0%	30.2%		27.3%	27.3%
London		30.4%	44.9%	25.5%	48.5%			
South East	23.1%	27.7%	64.6%	42.6%	44.7%		29.9%	29.9%
South West		23.0%	54.3%	48.0%	73.5%		28.0%	28.0%
West Midlands		27.5%	59.8%	58.5%	52.1%		34.9%	34.9%
Yorkshire and the Humber		26.2%	55.9%	41.4%	46.0%		27.6%	27.6%
Wales	36.0%	25.0%	54.0%	34.8%	59.8%	24.9%	29.0%	25.6%
Scotland	32.0%	26.7%	54.7%	49.4%	78.6%	36.9%	37.9%	37.0%
Northern Ireland		27.7%	63.7%	36.5%	68.1%		28.5%	28.5%
UK AVERAGE	35.2%	26.2%	56.2%	41.3%	44.2%	35.8%	35.4%	35.8%
MEDIAN	32.1%	25.8%	55.1%	42.0%	51.3%	35.6%	29.9%	29.9%

The load factors for hydro range from 37.0 per cent in Scotland to 25.6 per cent in Wales, with UK average (mean) and median values for the UK overall of 35.8 and 29.9 per cent, respectively. For landfill, the load factors vary from 64.6 per cent for the South East to 44.9 per cent in London, with UK mean and median values of 56.2 and 55.1 per cent, respectively.

For offshore wind, load factors varied from 18.7 per cent in the North East to 43.0 per cent in the North West. For onshore wind, load factors varied from 23.0 per cent in the South West to 30.4 per cent in London. This load factor measure does not take into account the impact of new

Special feature – Sub-national renewable electricity

schemes being constructed but not operating fully in the year. A better measurement of load factors is discussed below.

The term “load factor on an unchanged configuration basis” describes the amount of electricity generated from schemes that have been operating throughout the whole of the calendar year with the same installed capacity configuration. The formula for calculating this is:

$$\frac{\text{Electricity generated during the year (MWh)}}{\text{Installed capacity of schemes operating throughout the year with an unchanged capacity configuration (MW) x hours in year}}$$

In view of the interest shown nationally in this measure, this is now calculated for several renewable technologies. These data are only reported where the region contains three or more operational schemes. The England figure includes data from all English schemes regardless of how many were operational within each region of England.

Table 6: Regional load factors on an unchanged configuration basis, 2012

	Wind Offshore	Wind Onshore	Landfill gas	Sewage gas	Other bioenergy (ex cofiring & sewage)	Hydro (large scale)	Hydro (small scale)	Hydro
England	33.7%	24.2%	58.2%	47.8%	65.3%	35.6%	32.0%	32.9%
East Midlands	32.2%	23.3%	56.7%	51.2%	61.1%		31.7%	31.7%
East of England	33.8%	23.0%	55.6%	29.6%	66.8%			
North East	18.7%	23.6%	52.0%	44.1%	54.1%	35.6%	78.0%	41.8%
North West	36.2%	25.5%	55.5%	54.9%	49.1%		26.6%	26.6%
London		32.0%	44.9%	27.3%	72.9%			
South East	31.3%	27.1%	65.1%	47.1%	66.7%		7.5%	7.5%
South West		24.0%	53.7%	54.9%	61.5%		28.7%	28.7%
West Midlands			59.7%	60.2%	74.5%		42.5%	42.5%
Yorkshire and the Humber		23.2%	63.6%	46.6%	54.8%		22.8%	22.8%
Wales	36.0%	25.1%	56.5%	30.4%	57.9%	24.9%	24.1%	24.8%
Scotland	32.0%	26.1%	60.6%	47.1%	77.9%	36.3%	38.1%	36.4%
Northern Ireland		27.5%	61.5%	36.5%	61.9%		41.4%	41.4%
UK AVERAGE	33.7%	25.6%	58.6%	48.0%	67.1%	35.3%	36.0%	35.3%
MEDIAN	32.2%	25.1%	56.6%	46.8%	61.7%	35.6%	30.2%	30.2%

These data show that for onshore wind, the unchanged configuration load factors range from 23.0 per cent in the East of England to 32.0 per cent in London with Wales occupying the median position at 25.1 per cent³.

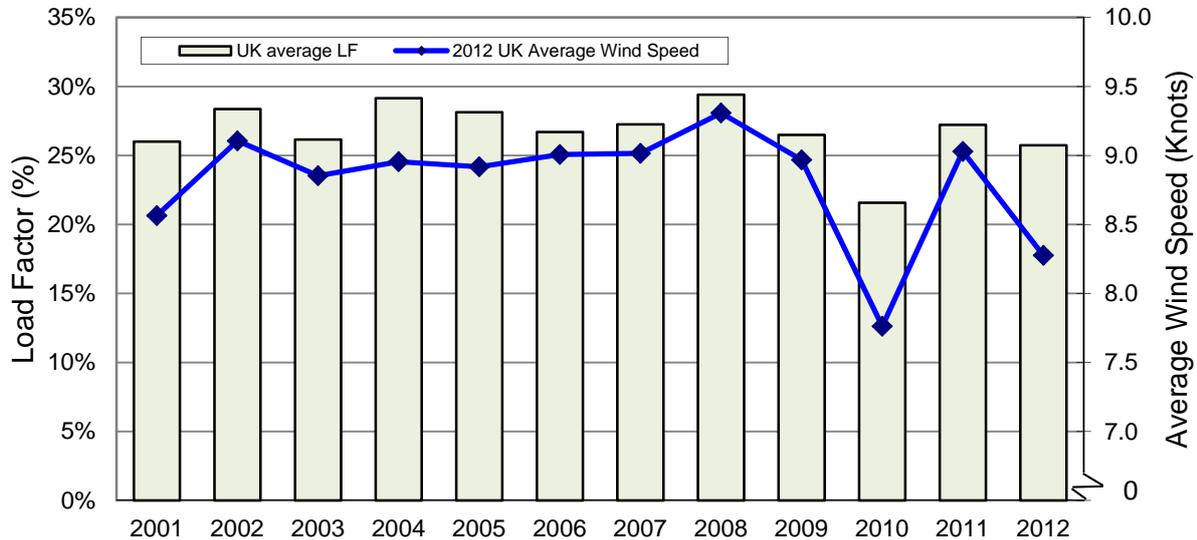
Chart 13 also shows the annual variation in load factor and wind speed. This uses a wind speed index⁴ that provides an indication of the mean wind speed relative to that of the long-term average across the UK.

³ Regional wind speed data are aggregated according to wind electricity generating capacity. It is recognised that one of the shortcomings of the differences in the reporting periods for the data contained in the Digest of UK Energy Statistics and in this article (end of calendar year) and Ofgem’s finalised ROCs data (end of financial year), is that the finalised Ofgem figures are not available for use during the compilation process for the former analysis. The Digest and this article utilise ROCs data as reported in April 2013, when 2012 data were still provisional. In particular this can have an impact on the schemes included in the unchanged configuration definition as new data could include or remove particular schemes. This should be kept in mind if users wish to reanalyse these results.

⁴ Based on data provided by the Meteorological Office. Regional wind speed data are aggregated according to wind electricity generating capacity. Further information on the methodology used is given in Energy Trends, September 2008, page 44: www.gov.uk/government/statistical-data-sets/december-2012-energy-trends-weather-data

Over the 12-year period from 2001 to 2012, 2008 was the windiest year with 2010 being the least windy year. Average wind speeds dropped in 2012 making it the second least windy year after 2010.

Chart 13: Annual variation in load factor on an unchanged configuration basis and wind speed



Further information

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

Background

Combined Heat and Power (CHP) is the simultaneous generation of usable heat and power (usually electricity) in a single process. CHP data for the UK as a whole are updated annually and published in the Digest of United Kingdom Energy Statistics (DUKES), the latest edition of which was published in July 2013. This article updates statistics published in the September 2012 edition of Energy Trends and provides a breakdown of CHP in the Devolved Administrations and English regions¹ in 2012.

The data presented originates from a CHP database maintained by Ricardo-AEA on behalf of DECC. Data relating to the overwhelming majority of CHP electrical capacity (about 99 per cent of total capacity) is received annually from the reliable sources of the Combined Heat and Power Quality Assurance (CHPQA) programme, the Iron and Steel Statistics Bureau (ISSB) and from Ofgem's Renewable Obligations Certificates (ROCs) returns. Other sources of data used include the sales databases of the Combined Heat and Power association (CHPA) and a survey of anaerobic digestion sites. Data from CHP schemes not covered by the above are extrapolated from historic data. There is an ongoing data proving exercise in respect of these schemes.

In the 2013 edition of DUKES, 'mothballed' schemes were removed from the statistics for the first time. Schemes are mothballed when operators decide to discontinue operation. In previous editions, the capacity of these schemes was retained in the statistics on the basis that these schemes are still able to operate. The removal of these mothballed schemes resulted in the removal of 117 schemes with a capacity of 101 MWe. These removals have been applied to all previous years where the schemes were marked as mothballed.

After allowing for the removal of mothballed schemes, between 2011 and 2012 there was a net increase of 135 in the number of CHP schemes in the database (154 new schemes and the removal of 19 schemes) and a net increase of 166 MWe in capacity. Good Quality CHP² capacity in the UK increased from 5,970 MWe (revised 2011 figure) to 6,136 MWe in 2012.

Regional Trends³

Table 1 shows an overview of CHP plant data broken down between the English regions and Devolved Administrations. CHP capacity utilisation can be expressed by the Load Factor (L.F). The L.F is the actual generation as a proportion of the theoretical maximum power that can be generated for a given total installed capacity (TPC). The power output that is actually generated is the total power output (TPO). For 2012, the TPC was 9,355 MWe and the TPO was 43,714 GWh, giving a L.F. of 53.3 per cent, compared to 57.8 per cent in 2011.

Higher L.F. values tend to be found in industrial uses where the demand for heat extends over a greater proportion of the year than for space heating applications (where the heat demanded from the CHP is mostly confined to the heating season).

-
1. Similar articles on CHP have appeared in previous Energy Trends publications from 2001 to 2012. The figures within any one article are a snapshot of the position as seen at the time and therefore figures between articles do not constitute a time series.
 2. Good Quality CHP denotes schemes that have been certified as being highly efficient through the UK's CHP Quality Assurance (CHPQA) programme.
 3. Note: The figures for previous years are revised on an annual basis to account for late information submitted after the publication date of the article. This is to ensure that the true trends are captured in the data. The figures herein therefore supersede the previous articles published.

Table 1: Overview of CHP schemes in 2012

	Number of schemes	Electrical capacity (QPC)* MWe	Electrical Capacity (TPC) MWe	Heat capacity MWth	Fuel used* GWh	Electricity generated (QPO)* GWh	Total Electricity Generated (TPO) GWh	Heat generated GWh	Load Factor ** (%)
England	1,640	5,367	8,159	18,858	84,406	19,780	38,392	39,328	53.7%
East Midlands	97	228	415	734	4,465	1,008	1,144	1,949	31.5%
Eastern	133	290	290	824	5,292	1,218	1,248	1,906	49.1%
London	255	153	245	835	2,792	448	991	1,527	46.1%
North East	104	834	928	2,206	13,592	2,406	3,511	7,173	43.2%
North West	259	745	848	3,924	16,409	3,220	3,882	9,423	52.2%
South East	329	1,006	2,292	5,401	18,387	4,470	9,927	8,407	49.4%
South West	128	81	81	218	1,424	346	357	612	50.6%
West Midlands	163	104	171	565	1,904	438	601	762	40.1%
Yorkshire/Humberside	172	1,925	2,889	4,151	20,141	6,224	16,732	7,569	66.1%
Scotland	118	500	628	2,714	12,551	2,439	3,332	6,569	60.5%
Wales	111	214	512	1,118	5,229	926	1,767	2,751	39.4%
Northern Ireland	60	55	55	148	995	215	223	487	46.4%
UK Total	1,929	6,136	9,355	22,837	103,181	23,360	43,714	49,134	53.3%

*This represents Good Quality CHP capacity, Good Quality CHP power output and the fuel associated with the Good Quality CHP outputs.

** These load factors are based on the total power output (TPO) and total power capacity (TPC) of the CHP (for partially and fully qualified schemes). This gives the true utilisation of the power generating plant.

Tables 2 and 2B show a comparison of the number of schemes, electrical capacity, electricity generated and heat generated in the regions for the period 2010 to 2012. During this time, the total number of schemes increased from 1,460 to 1,929, while capacity increased from 5,970 MWe to 6,136 MWe. The number of schemes increased in all regions over the period 2010 to 2012. Over this period, the electrical capacity increased in all regions except in the North East and North West regions.

Table 2: Number and electrical capacity of CHP schemes, 2010 to 2012

	Number of schemes			Electrical capacity (MWe)		
	2010	2011	2012	2010	2011	2012
England	1,240	1,518	1,640	5,213	5,210	5,367
East Midlands	72	93	97	222	229	228
Eastern	115	131	133	272	289	290
London	147	198	255	124	141	153
North East	67	96	104	899	828	834
North West	204	251	259	783	743	745
South East	276	313	329	880	885	1,006
South West	99	116	128	66	73	81
West Midlands	126	155	163	101	103	104
Yorkshire/Humberside	134	165	172	1,864	1,920	1,925
Scotland	87	114	118	491	495	500
Wales	82	104	111	199	212	214
Northern Ireland	51	58	60	47	53	55
UK Total	1,460	1,794	1,929	5,950	5,970	6,136

Table 2B: Electricity and heat generated, 2010 to 2012

	Electricity Generated (GWh)			Heat Generated (GWh)		
	2010	2011	2012	2010	2011	2012
England	22,937	19,000	19,780	38,600	38,208	39,328
East Midlands	1,227	1,040	1,008	1,812	2,081	1,949
Eastern	1,232	1,230	1,218	1,788	1,824	1,906
London	453	411	448	1,562	1,493	1,527
North East	3,257	2,208	2,406	6,566	6,268	7,173
North West	3,593	3,150	3,220	9,419	9,583	9,423
South East	4,206	3,903	4,470	8,425	8,327	8,407
South West	248	312	346	526	597	612
West Midlands	433	416	438	708	734	762
Yorkshire/Humberside	8,289	6,331	6,224	7,794	7,302	7,569
Scotland	2,809	2,661	2,439	6,796	6,658	6,569
Wales	882	931	926	2,433	2,863	2,751
Northern Ireland	140	174	215	438	454	487
UK Total	26,768	22,766	23,360	48,267	48,183	49,134

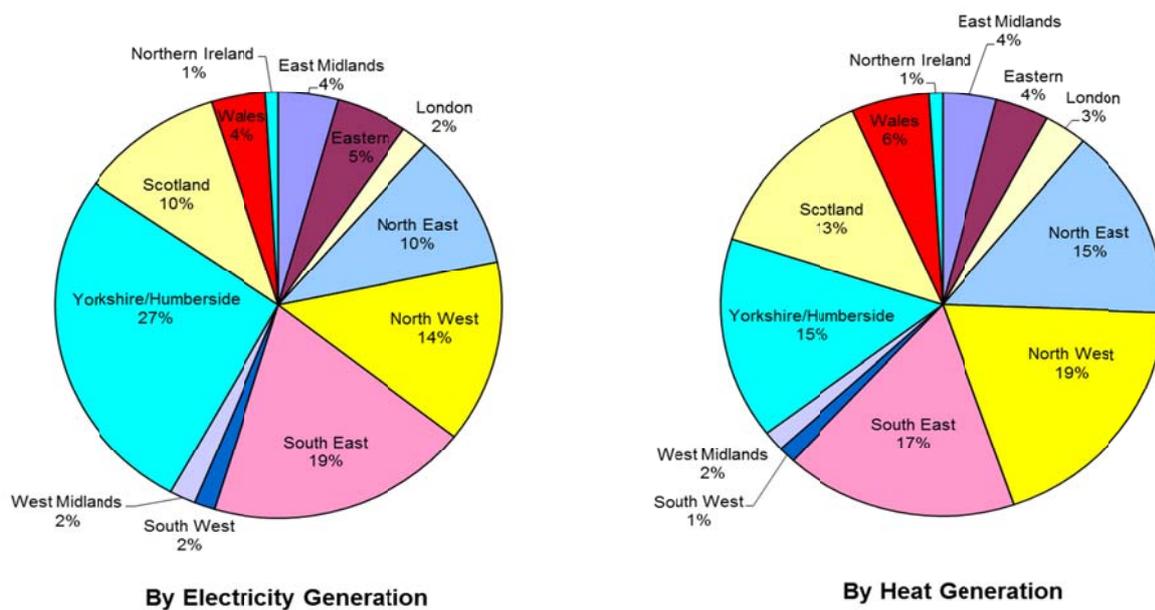
The region with the highest proportion of the UK's capacity was the Yorkshire and Humberside region with a 31 per cent share, but only 8.9 per cent of the total number of schemes, indicating the large capacities of schemes in this region.

Chart 1 shows the distribution of electricity and heat generation from CHP in 2012 across the English regions and the Devolved Administrations. The largest contribution to electricity generation remains that of the Yorkshire and the Humber region (27 per cent), followed by the South East (19

per cent), the North West (14 per cent) and the North East and Scotland (10 per cent). Although this ranking is the same as in 2011, there has been an appreciable decrease in the total share of electricity generation falling within the Yorkshire and the Humber region and an increase for the South East region. This is a reflection of the relatively larger increase in electrical capacity in the South East region (14 per cent) compared to little change in the Yorkshire and Humber region.

The region with the greatest share of heat generation in 2012 was the North West (19 per cent), followed by the South East (17 per cent) and then Yorkshire and Humberside and the North East (15 per cent).

Chart 1: CHP generation by area in 2012



Importance of CHP in the Regional Economies

Chart 1 portrays only a limited picture as it does not account for the varying size of each region. To allow for this, CHP heat capacity and electrical capacity have been compared with the level of economic activity in each region as measured by Gross Value Added (in £ million) in Table 3. Chart 2 maps the heat capacity per unit of GVA for the different regions.

When comparing the heat capacities presented in Table 3 with earlier versions of this table, it should be noted that these figures are based on a revision to the way in which heat capacities are worked out for each CHP scheme⁴. This has produced a reordering of the regions in terms of Heat Capacity per unit of GVA. CHP continues to be a very important part of the economies of the North East, Yorkshire/Humber and North West regions, as evidenced by the large heat capacities per unit of GVA in these regions. This is due to the prominence of the chemicals and oil refining sectors in these regions.

4. See Chapter 7 para 7.44, Digest of United Kingdom Energy Statistics, 2013.

Table 3: Density of CHP in different areas, ordered by heat capacity

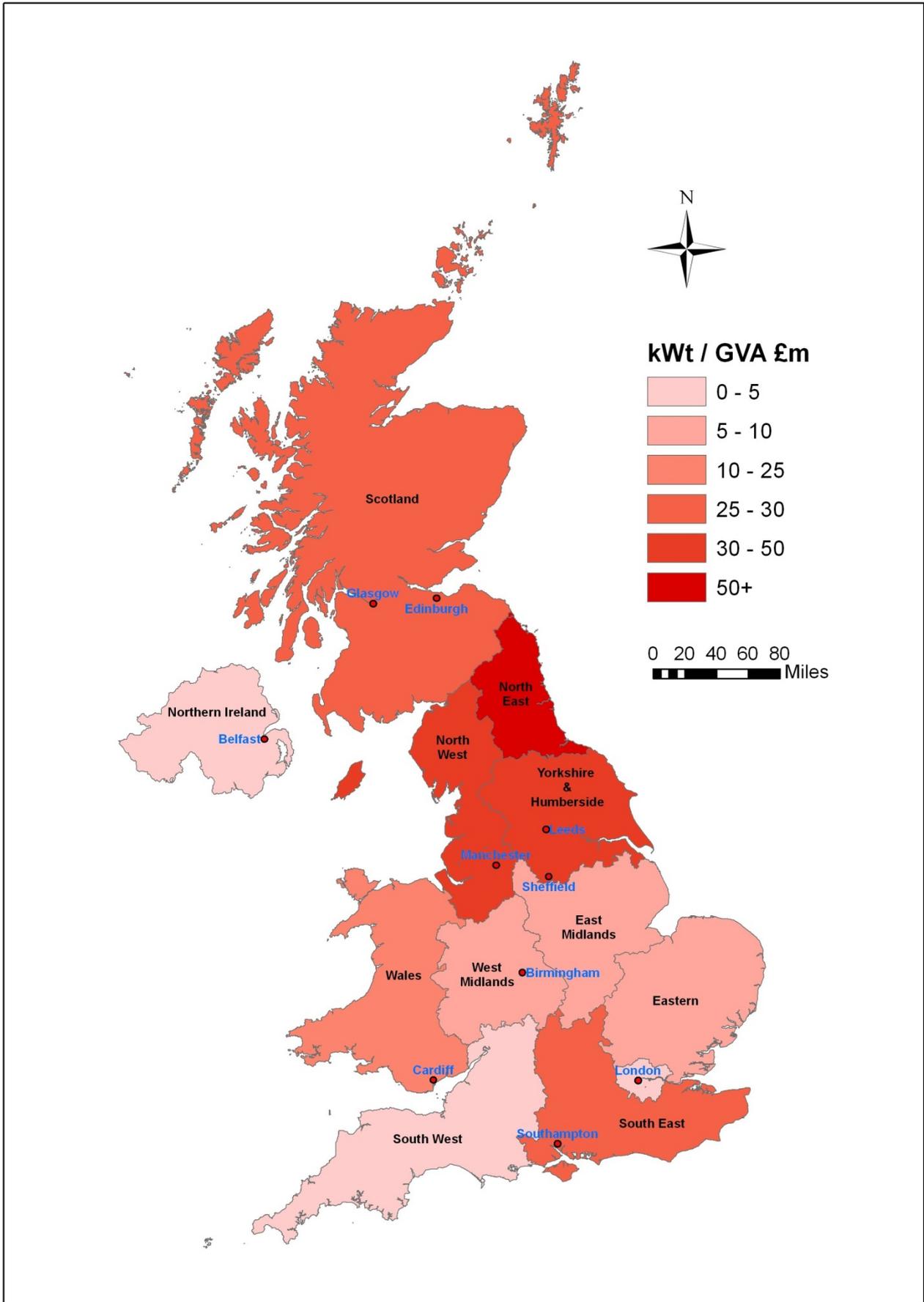
	Heat capacity kWt/GVA (£million)*	Electrical capacity kWe/GVA (£million)*
North East	53.04	20.06
Yorkshire/Humber	45.59	21.14
North West	31.67	6.01
South East	28.08	5.23
Scotland	25.10	4.63
Wales	23.61	4.52
England	16.76	4.77
East Midlands	9.00	2.80
Eastern	7.22	2.54
West Midlands	5.89	1.09
Northern Ireland	4.94	1.84
London	2.95	0.54
South West	2.15	0.80
UK total	17.03	4.58

*GVA is provisional gross value added in 2011 (workplace based)⁵

The distribution of CHP capacity across the regions and economic sectors is summarised in Table 4, which shows the proportion of total CHP capacity in a particular economic sector in each region. More than half of all CHP capacity in the oil refineries and oil and gas terminals sector can be found in the Yorkshire and Humber region and over 80 per cent of capacity in the chemicals sector is to be found in three regions: North East, Yorkshire/Humber and the North West. More than half of the capacity in the Paper, Publishing and Printing sector is located in the South East region.

5. www.ons.gov.uk/ons/dcp171778_291684.pdf (Regional Gross Value Added (Income Approach), December 2012).

Chart 2: Map of CHP density in terms of heat capacity and gross value added



Technology type and size

Tables 5 and 6 show the regional split of installed electrical capacity (that qualifies as Good Quality CHP capacity) by prime mover type and by size range, respectively. In a number of regions, disaggregation of the data by prime mover type or size category could result in the disclosure of confidential information and so, for these areas, only totals are shown. The following conclusions can be drawn from the tables:

- Gas turbines, whether on their own or as part of Combined Cycle Gas Turbines (CCGT), continue to dominate the CHP market. In 2012, CCGT accounted for over 70 per cent of total CHP capacity but less than 3 per cent of the total number of CHP schemes.
- The North East and North West regions continue to be the regions with the most significant presence of steam turbine-based CHP plant. These regions have correspondingly high heat to power ratios (H:P > 2.9).
- As CCGT CHP plant has the lowest heat to power ratios of all the CHP technologies, the large proportion of total CCGT capacity in the Yorkshire/Humber region (40 per cent of the total) explains why that region has the lowest heat to power ratio of all regions (H:P = 1.21). Yorkshire/Humber region generated over 26 per cent of all CHP power but only about 15 per cent of all of the heat.

Table 5: CHP electrical capacity (MWe) by area and prime mover in 2012

	Gas Turbines*	Steam Turbines	Reciprocating Engines	Total
England	4,280	291	796	5,367
East Midlands	146	46	35	228
Eastern		209	82	290
London		56	97	153
North East		763	72	834
North West	511	130	104	745
South East		819	187	1,006
South West		23	57	81
West Midlands		27	77	104
Yorkshire/Humberside	1814	26	84	1,925
Scotland	406	45	49	500
Wales		177	37	214
Northern Ireland		14	40	55
UK Total	4,827	387	922	6,136

*Includes combined cycle gas turbines

Special feature - CHP

The CHP market is dominated by large-scale (>10MWe) plant, with almost 82 per cent of all installed capacity in this size range. The regional distribution of CHP by capacity tranche is given in Table 6.

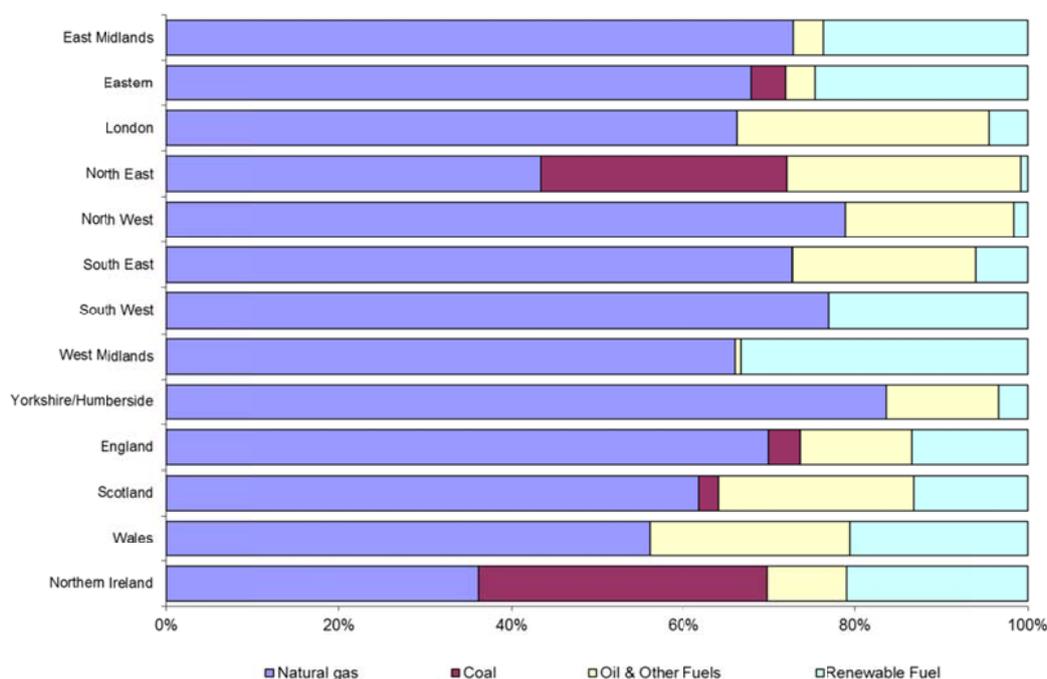
Table 6: CHP electrical capacity (MWe) by area and size in 2012

	Less than 100 kWe	100 kWe but less than 1 MWe	1 MWe but less than 10 MWe	10 MWe and greater	Total
England	28	219	710	4,410	5,367
East Midlands	2	14	24	189	228
Eastern	2	21	70	198	290
London	5	34	115		153
North East	2	8	54	770	834
North West	4	34	109	598	745
South East	5	48	953		1,006
South West	2	19	59	0	81
West Midlands	3	21	80	0	104
Yorkshire/Humberside	4	20	81	1,820	1,925
Scotland	1	15	61	423	500
Wales	2	14	198		214
Northern Ireland	1	8	46		55
UK Total	32	256	836	5,012	6,136

The fuel mix

The proportion of coal, gas, renewable fuels and 'oil and other fuels' (comprising oil products, refinery gases, blast furnace gas and other industrial wastes) in the fuel mix for each region is shown in Chart 3.

Chart 3: Proportion of different fuels in the fuel mix for CHP in 2012 for each region



Natural gas represented about 69 per cent of all fuel burned in CHP in 2012, and was more than half of all fuel burned in CHP in every region except Northern Ireland and the North East. Natural gas consumption in Northern Ireland has been historically low, due to the relatively limited extent of the gas grid in that region. However, the share of natural gas consumption has increased over the years in Northern Ireland, from 18.1 per cent in 2010 (revised) to 36.2 per cent in 2012.

Coal continues to play a minor role overall, with about 5 per cent of fuel burned in CHP being coal. Coal is a very minor part of the fuel mix in all regions except Northern Ireland (33 per cent) and the North East (28 per cent). The proportion of coal consumption in the North East was higher in 2012 than in 2011. This was due to an increase in the share of coal consumption at one large scheme.

The share of total renewable fuel use in CHP plant rose from 7.0 per cent in 2011 (revised) to 8.3 per cent in 2012. In 2012 the largest share of renewable fuel input was in the West Midlands region, where renewables accounted for 33 per cent of total fuel used in the region, followed by the Eastern region (25 per cent), East Midlands (24 per cent), South West (23 per cent) and Northern Ireland (21 per cent). Since 2010 all regions have shown an increase in renewable CHP capacity. In 2012 the region with the largest renewable capacity was Scotland, followed by the East Midlands and then the South East⁶.

Summary

The Yorkshire and the Humber region continues to be the region of the UK with the greatest level of installed capacity and electricity generation, accounting for 31 per cent of all capacity and 27 per cent of all electricity generated. Other regions with high levels of CHP capacity are the South East, North East and the North West regions where there is a significant presence of heat intensive industry, such as oil refining, chemicals production and paper and printing. About 88 per cent of all refinery CHP capacity is located in the regions of Yorkshire and the Humber, the South East and Scotland, while about 81 per cent of CHP capacity at chemical works is located in the three regions of the North East, the North West and Yorkshire and Humber. About 58% of the paper and printing CHP capacity, on the other hand, is located in the South East.

CHP plays a very noticeable role in the economies of the North East and Yorkshire and Humber regions, as evidenced by heat and electrical capacities per unit of GVA that are very much higher than in any other region. This is a result of the high concentration of oil refining and chemical industries in these regions which are large users of CHP heat.

The region with the highest proportion of renewable fuel use is the West Midlands, followed by the Eastern region, East Midlands and the South West.

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6. Capacity is calculated according to the proportion of fuel inputs to the CHP that are renewable. Many renewable CHP schemes use a mixture of renewable and non-renewable fuels. Therefore, a scheme of 5 MWe capacity using a 50:50 mixture of natural gas and biogas is deemed to have a renewable capacity of 2.5 MWe.

Running hours during winter 2012/13 for plants opted-out of the Large Combustion Plant Directive (LCPD)

The Large Combustion Plant Directive (LCPD) is a European directive aimed at controlling emissions of sulphur dioxide, nitrogen oxides and dust from large combustion plants. The directive imposes emissions limits on new plants (those licensed after 1st July 1987). Plants licensed before this date have three options.

- 1) Meet new emission limits which will require retrofitting of flue gas treatment equipment (i.e. opt-in).
- 2) Opt out limited life derogation – 20,000 hours of operation between 1st Jan 2008 and 31st Dec 2015.
- 3) Close before 1st Jan 2008.

Data on the running hours of plants opted-out of the LCPD can be downloaded from the following website www.bmreports.com/bsp/bes.php?prefix=LCPD.

Of the 17 coal fired power stations operating in Great Britain at the beginning of 2012, six have opted out, along with the three oil fired stations. A list of these plants is given in table 1. The total capacity of the coal plants opted-out totals 8 GW and comprised just over one-quarter of the coal capacity in Great Britain at that time. Two of the coal plants that opted-out (Tilbury and Ironbridge) have since converted to run on biomass but must still close once their hours have been run.

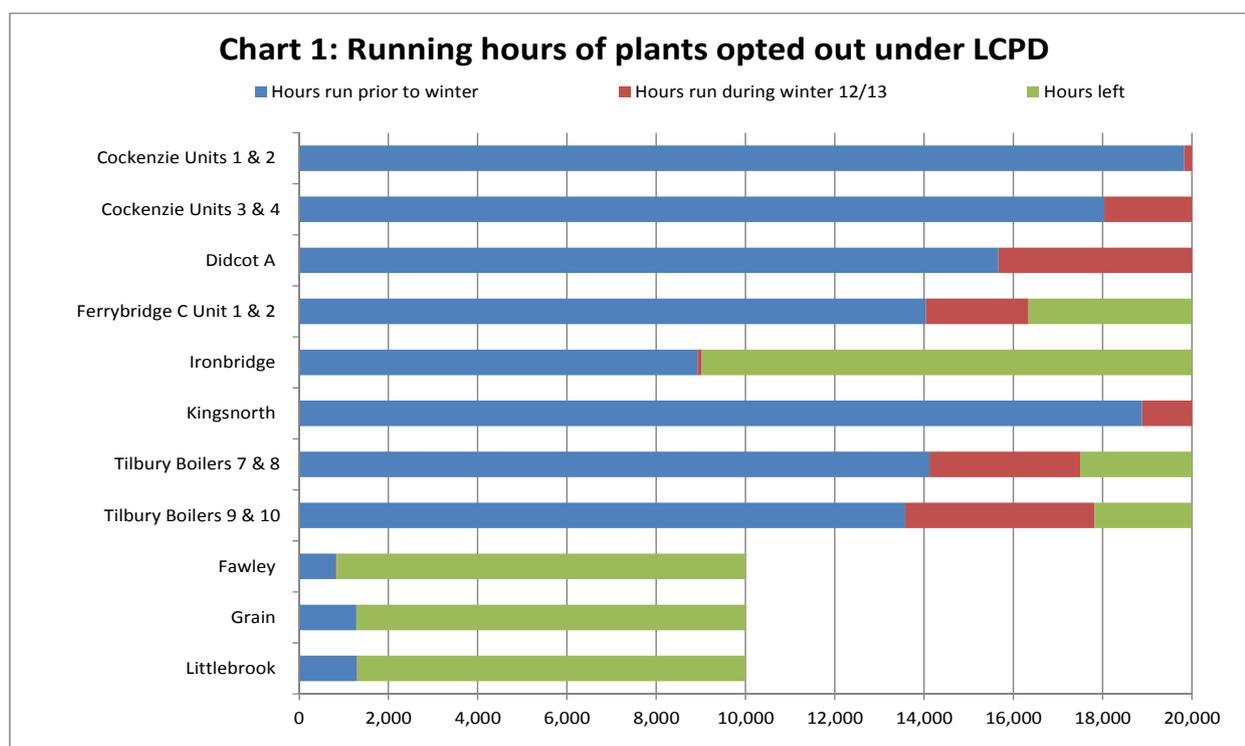
Table 1 shows the hours run during winter 2012/13 by plants which chose to opt-out of the directive (winter is defined as beginning October 2012 – end March 2013). The data are shown in chart form in chart 1.

Table 1: Hours run during winter 2012/13 by plants opted-out of LCPD

Plant	Hours run during winter 11/12	Hours run during winter 12/13	Hours remaining	Hours remaining (%)
Cockenzie units 1 & 2	3,080	172	0	0%
Cockenzie units 3 & 4	2,859	1,961	0	0%
Didcot A	3,439	4,331	0	0%
Ferrybridge (1&2)	3,186	2,292	3,663	18%
Ironbridge	803	104	10,977	55%
Kingsnorth	3,021	1,121	0	0%
Tilbury (7 & 8)	1,056	3,378	2,501	13%
Tilbury (9 &10)	955	4,238	2,183	11%
Total (coal)¹	18,399	17,597	19,324	27%
Fawley*	16	19	9,163	92%
Grain*	4	0	8,721	87%
Littlebrook*	22	13	8,695	87%
Total (oil)	42	32	26,579	89%

* These plants are oil fired and have taken the option of limiting running hours to 10,000. Under this option plants only need to provide sample measurements of SO₂ rather than continuous measurements.

¹ Coal total includes Tilbury and Ironbridge, which converted from coal to biomass during 2011 and 2013 respectively and continue to be opted-out. Although biomass produces almost no CO₂ emissions, the plant will not be exempt from closure at the end of 2015 as the LCPD relates to particulate matter and sulphur dioxide/nitrogen oxide emissions.



In total the plants opted-out of the LCPD ran for 17,628 hours during winter 2012/13, of which 28 per cent occurred in January (5,000 hours). This compares to 18,441 hours during the winter of 2011/12.

Didcot A and Tilbury ran the most hours during winter 2012/13. Didcot A used up its allowance of 20,000 hours and closed on 22 March 2013. Kingsnorth and Cockenzie also used up their remaining hours during winter 2012/13. Tilbury has used up nearly 90 per cent of its allowance. Of the plants that were coal fired at the beginning of the derogation period, Ironbridge has the most hours remaining with over half of its allowance left to use (55 per cent), and did not run from February 2012 to January 2013, while it was being converted to run on biomass instead of coal. Table 2 summarises the operational status of the plants opted-out of the LCPD.

Table 2: Capacity and current operating status of plants opted-out of LCPD

Plant	Capacity ² (MW)	Current Status
Cockenzie units 1 & 2	1,152	Closed March 2013
Cockenzie units 3 & 4		
Didcot A	1,958	Closed March 2013
Ferrybridge (1&2)	980 ³	Open (expected to close during 2013/14)
Ironbridge	940	Open
Kingsnorth	1,940	Closed December 2012
Tilbury (7 & 8)	750	Open (expected to close in 2013)
Tilbury (9 &10)		
Total (coal)	7,720	
Fawley*	968	Closed March 2013
Grain*	1,300	Closed December 2012
Littlebrook*	1,370	Open
Total (oil)	3,638	

² Source: DUKES 2013, table 5.11, at: www.gov.uk/government/publications/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes

³ Ferrybridge units 3 and 4 (which also have a combined capacity of 980 MW) are opted in to the LCPD and will continue to run after 2015.

Special feature – Large Combustion Plant Directive

As oil fired power stations tend to be used infrequently they still have a high proportion of their hours remaining despite only having an allowance of 10,000 hours. However, for economic reasons Fawley and Grain closed during the winter 2012/13 period.

DECC energy statistics show that during the winter of 2012/13 coal generation increased by 8 per cent compared to the same period one year earlier (from 71.8 TWh to 77.5 TWh⁴). Looking at the running hours for the coal plants that have opted out of the LCPD (excluding Tilbury and Ironbridge that have converted to biomass), the running hours for these plants were lower during the 2012/13 winter, 9,877 hours compared to 15,584 hours in 2011/12, as several of these exhausted their allowance during the time. As such, the increase in coal generation during the winter of 2012/13 was due to plants that had opted-in to the LCPD.

From 1st January 2016 the remaining large combustion plants will be subject to more stringent emissions controls outlined in the Industrial Emissions Directive (IED). Plants that chose to opt-out of this directive will be limited to 17,500 hours between 2016 and 2023.

User feedback

We welcome all feedback from users; therefore, if you have any comments or queries regarding this analysis, please contact either Chris Michaels or Alison Judd using the contact details below.

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⁴ Source: Energy Trends, table 5.4, at: www.gov.uk/government/publications/electricity-section-5-energy-trends

Estimates of heat use in the United Kingdom in 2012

Introduction

This article presents a summary of the latest information on heat use in the United Kingdom. Data from the three non-transport sectors (domestic, services and industrial) are analysed and interpretations on differences between the sectors and general trends in heat energy use are highlighted.

The analysis relates to 2012 provisional figures, and is based upon data published in Energy Consumption in the UK, which was updated in July 2013:

www.gov.uk/government/publications/energy-consumption-in-the-uk

Background

For both the services and industrial sectors, the information regarding the end-use of energy consumption was derived from historic data supplied to DECC by the Building Research Establishment (BRE). For the domestic sector, Cambridge Architectural Research has provided data for 2008 onwards. This has resulted in a discontinuity in all domestic end-use tables between 2007 and 2008. The article is centred on direct use of fuels and does not include the indirect consumption of fuels as an input to electricity generation. Heat sold and bio-energy & waste are included within overall energy consumption, together with a variety of fossil fuels.

Heating purposes vary depending on the consuming sector.

For both the domestic and service sectors heat purposes include:

- *space heating;*
- *water heating;*
- *cooking/ catering.*

In the industrial sector heating purposes cover:

- *space heating;*
- *high temperature processes* – including coke ovens, blast furnaces and other furnaces, kilns and glass tanks;
- *low temperature processes* – including process heating and distillation in the chemicals sector; baking and separation processes in food and drink; pressing and drying processes in paper manufacture; and washing, scouring, dyeing and drying in the textiles industry;
- *drying and separation* - which is particularly important in paper-making.

While the data in this article provide a good estimate and overall picture of underlying trends, the data are modelled and therefore it is not possible to confidently report slight movements in year-on-year heat use. As such, the heat estimates provided should only be viewed as indicative.

Special feature – Estimates of heat use in the UK

Almost half of final energy consumption in the UK is for heating uses, and over three quarters of non-transport energy use

In 2012, total final energy consumption in the UK was 136,019 thousand tonnes of oil equivalent¹. Consumption for heating purposes accounted for almost half of total final energy consumption (47 per cent, 64,122 thousand tonnes of oil equivalent). Transport uses accounted for 39 per cent, and other uses for 14 per cent. When transport energy use is excluded, the heat proportion of energy use increases to over three quarters (77 per cent). Over two fifths of non-transport energy use is used for domestic heating purposes (44 per cent), just under one fifth (19 per cent) for industrial heat uses and 15 per cent by the service sector. The following analysis explores how consumption is split by sector, end use and fuel type.

Households are the greatest consumer of energy for heating purposes

Of the energy used for heating purposes in the UK in 2012 (64,122 thousand tonnes of oil equivalent) the domestic sector accounted for 57 per cent, followed by the industrial sector (24 per cent) and the services sectors (19 per cent). Space and water heating were the largest contributing uses of heat in both the domestic (97 per cent of heat demand) and the services sector (85 per cent). In the industrial sector, processing (high and low temperature process combined) was the principal purpose of heat use, contributing 65 per cent of sector's heat energy consumption.

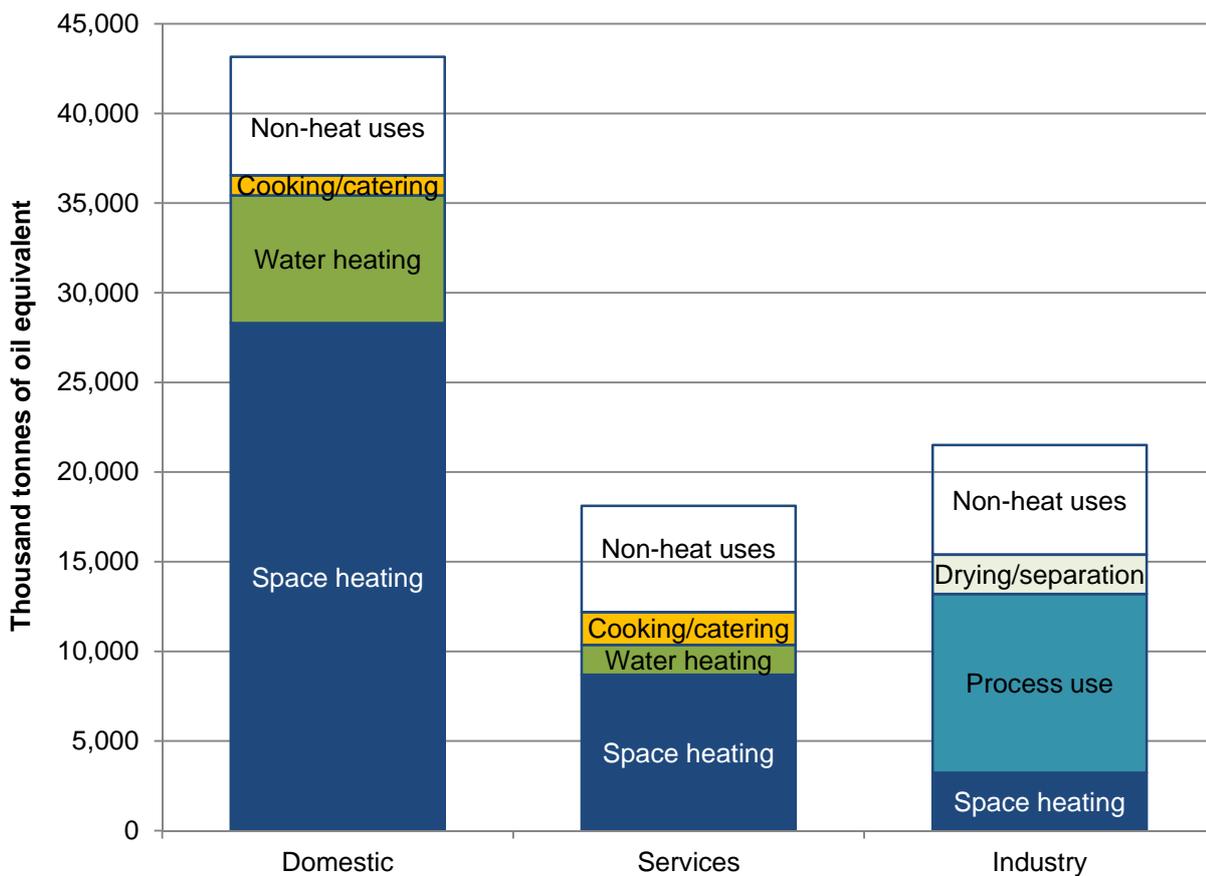
Table 1 and Chart 1 show the consumption split by sector and end-use for 2012.

Table 1: Final energy consumption by sector and end use, 2012

End use	Thousand tonnes of oil equivalent					Total excluding transport
	Domestic	Services	Industry	Transport	Total	
Space heating	28,306	8,702	3,229	-	40,237	40,237
Water heating	7,120	1,659	-	-	8,780	8,780
Process use	-	-	9,974	-	9,974	9,974
Cooking/catering	1,116	1,831	-	-	2,946	2,946
Drying/separation	-	-	2,186	-	2,186	2,186
Heat total	36,542	12,192	15,388	-	64,122	64,122
Other uses	6,611	5,921	6,116	53,248	71,897	18,648
Total	43,153	18,113	21,505	53,248	136,019	82,771
Percentage used for heating	84.7%	67.3%	71.6%	-	47.1%	77.5%

¹ In addition to this, 312 thousand tonnes of oil equivalent was used in construction, 914 thousand tonnes of oil equivalent in agriculture, and 3,347 thousand tonnes of oil equivalent was used by industry, but where the end use was not known. This consumption is therefore excluded from the remainder of this article.

Chart 1: Final energy consumption by use by sector, 2012



The following sections provide a more detailed analysis of energy consumption in each of the three non-transport sectors.

Energy consumption for heating purposes by sector and fuel

Majority of energy consumed in the domestic sector is for heat uses

In 2012 energy consumption from the domestic sector was 43,153 thousand tonnes of oil equivalent. Of this it was estimated that 85 per cent (36,542 thousand tonnes) was used for heating purposes (space heating, water heating and cooking/catering) and the remaining 15 per cent (6,611 thousand tonnes of oil equivalent) for lighting and appliances.

Gas dominates domestic fuel mix for heating purposes

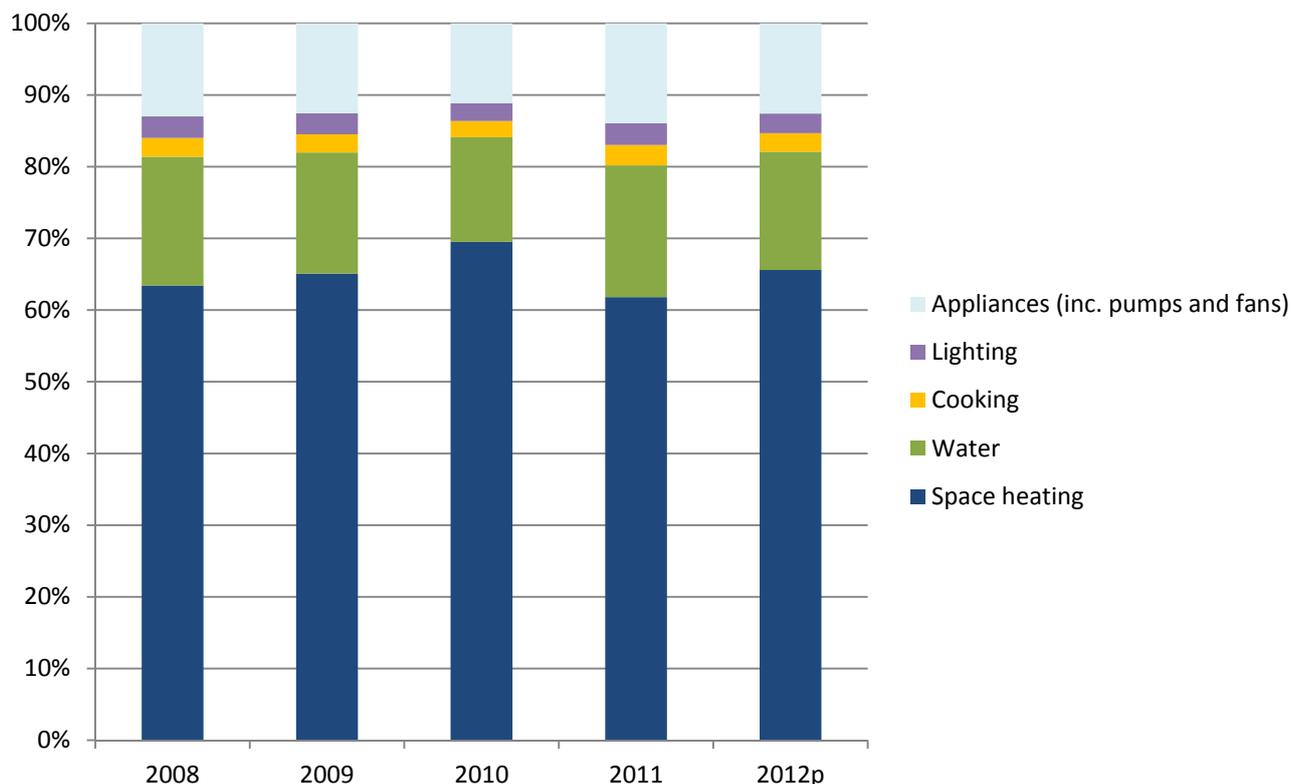
The fuel mix of domestic consumption for heat purposes is dominated by gas where direct consumption was responsible for 80 per cent (29,156 thousand tonnes of oil equivalent) of the sector's heat consumption and 68 per cent of overall domestic consumption (see Table 2). Electricity for heat was responsible for 9 per cent of total heat consumption. Electricity for lighting and appliances accounted for 15 per cent of total domestic energy consumption.

Table 2: Domestic energy consumption by fuel and end use, 2012

Thousand tonnes of oil equivalent							
End use	Gas	Oil	Solid fuel	Electricity	Heat sold	Bio-energy & Waste	Total
Space heating	22,540	2,281	666	2,098	52	669	28,306
Water heating	6,004	425	42	650	-	-	7,120
Cooking/catering	612	-	-	503	-	-	1,116
Heat total	29,156	2,705	709	3,251	52	669	36,542
Lighting & appliances	-	-	-	6,611	-	-	6,611
Overall total	29,156	2,705	709	9,862	52	669	43,153

Chart 2 displays the distribution of domestic consumption by end use, clearly identifying space heating as the main heat purpose within the sector. Energy consumption for space heating was greater in 2010 because the average temperature for the year was approximately one degree lower than the two years before and the two years after 2010.

Chart 2: Domestic sector energy consumption by end use, 2008 to 2012



Two thirds of energy consumed in the services sector is for heating purposes

In 2012, energy consumption in the services sector was 18,113 thousand tonnes of oil equivalent, with 67 per cent (12,192 thousand tonnes of oil equivalent) of this used for heating purposes.

Similar to the domestic sector, space heating dominated energy consumption for heat purposes, being responsible for 71 per cent of energy consumed (Table 3). Direct gas use was used to deliver 66 per cent of total heat used in the services sector with electricity a further 21 per cent.

Table 3: Service sector energy consumption by fuel and end use, 2012

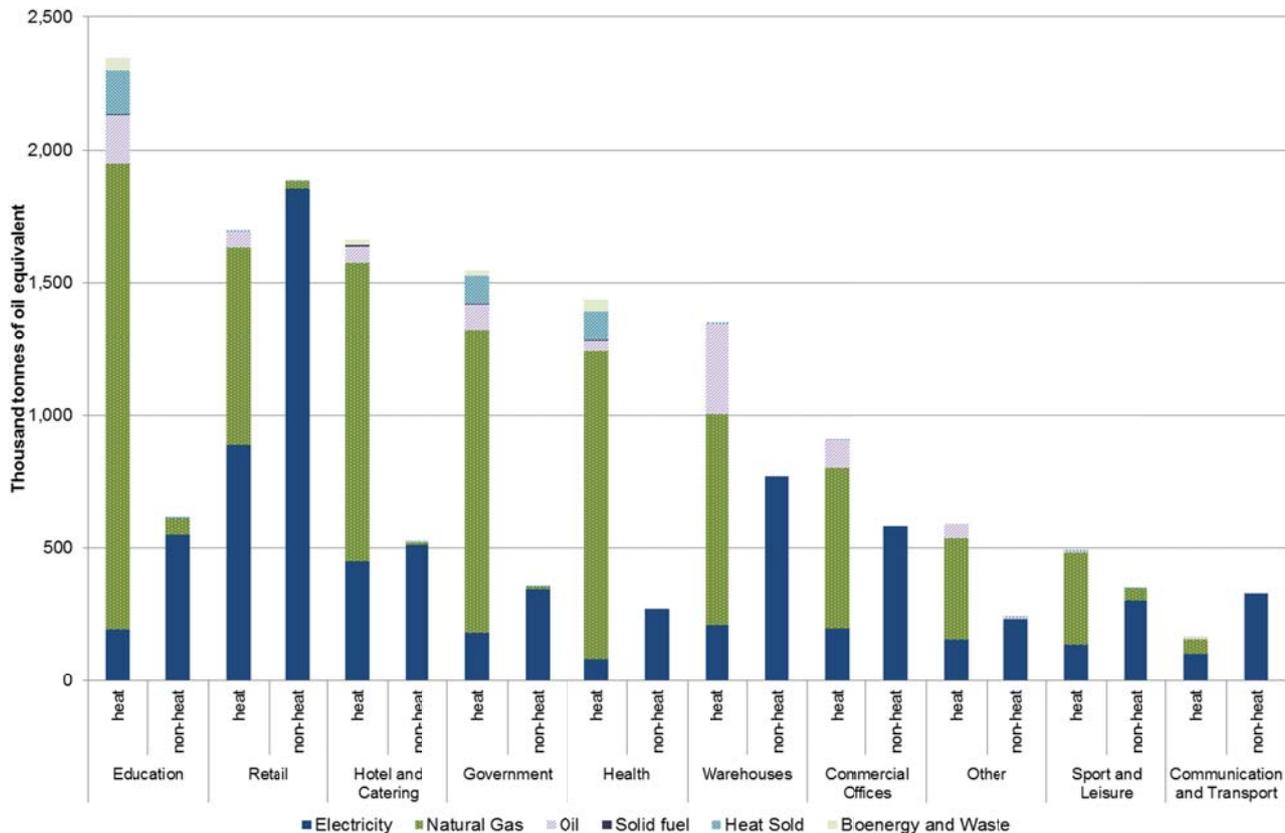
End use	Thousand tonnes of oil equivalent						Total
	Gas	Oil	Solid fuel	Electricity	Heat sold	Bio-energy & Waste	
Space heating	6,244	831	13	1,192	301	121	8,702
Water heating	1,206	87	3	295	55	14	1,659
Cooking/catering	656	35	0	1,114	23	1	1,831
Heat total	8,106	954	16	2,601	379	136	12,192
Computing	-	-	-	505	-	-	505
Cooling and ventilation	23	-	-	741	0	-	764
Lighting	-	-	-	3,405	-	-	3,405
Other	134	10	-	1,096	7	-	1,247
Overall total	8,263	964	16	8,349	386	136	18,113

Education is the main consumer of energy for heat in the service sector

In 2012, the four main consumers of heat related energy in the services sector were Education, Retail, Hotel and Catering and Government who between them consumed nearly three fifths of total service sector heating use.

Chart 3 shows the distribution of energy consumed in the services sector by end-use.

Chart 3: Service sector energy consumption by fuel and end use, 2012



Special feature – Estimates of heat use in the UK

Industrial sector uses more than seventy per cent of its energy for heating, and low temperature processes are the main use of heat

In 2012, industrial consumption accounted for 21,505 thousand tonnes of oil equivalent, of which 15,388 thousand tonnes of oil equivalent (72 per cent of the total) was consumed for heating purposes.

Of the energy used for heating, 39 per cent was for low temperature process, with high temperature process accounting for a further 26 per cent, space heating 21 per cent and drying/separation 14 per cent.

Direct consumption of fossil fuels accounted for 68 per cent of heat consumption in the industrial sector. Gas consumption dominated the fuel mix for heat with 54 per cent of consumption, followed by electricity (23 per cent), solid fuel (9 per cent) and oil (6 per cent). Three per cent of heat generated within the sector was attributable to renewables.

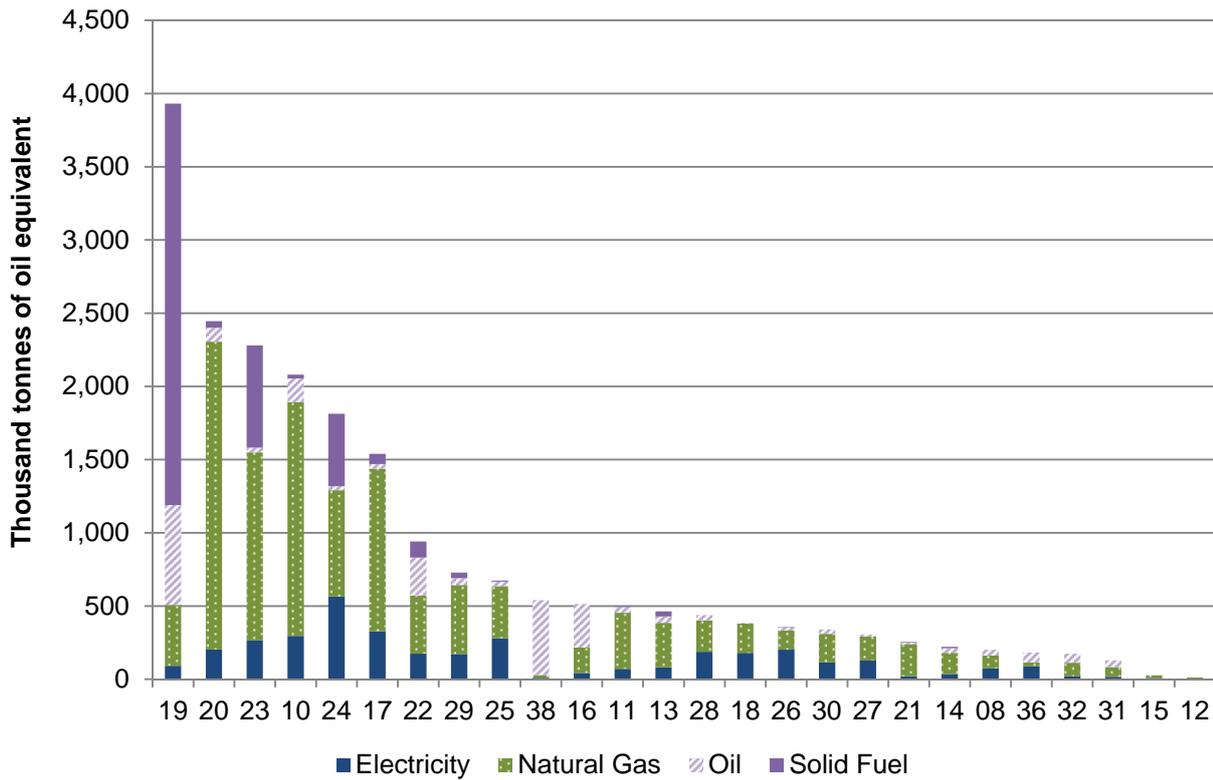
Table 4: Industrial energy consumption by fuel and end use, 2012

End use	Thousand tonnes of oil equivalent						Total
	Gas	Oil	Solid fuel	Electricity	Heat sold	Bio-energy & Waste	
Space heating	1,133	83	75	656	795	487	3,229
High temperature process	1,973	91	989	951	-	-	4,005
Low temperature process	3,780	570	183	1,436	-	-	5,969
Drying/separation	1,387	167	109	524	-	-	2,186
Heat total	8,273	911	1,356	3,567	795	487	15,388
Motors	-	-	-	2,788	-	-	2,788
Compressed air	-	-	-	793	-	-	793
Lighting	-	-	-	242	-	-	242
Refrigeration	-	-	-	482	-	-	482
Other	1,106	149	146	411	-	-	1,811
Overall total	9,378	1,059	1,502	8,283	795	487	21,505

Less than one quarter of industry sub-sectors consume two thirds of the sectors heat

Chart 4 shows that there are 6 key sub-sectors that are more heat intensive. 66 per cent of total energy consumption for heat purposes comes from 6 of the 26 industry sub-sectors at two digit SIC (2007) level. The chart also shows the fuel mix for heat use varies between the different sub-sectors within the industrial sector.

Chart 4: Fuel energy consumption for heat in the industry sector, 2012



- 08 Other mining and quarrying
- 10 Manufacture of food products
- 11 Manufacture of beverages
- 12 Manufacture of tobacco products
- 13 Manufacture of textiles
- 14 Manufacture of wearing apparel
- 15 Manufacture of leather and related products
- 16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
- 17 Manufacture of paper and paper products
- 18 Printing and publishing of recorded media and other publishing activities
- 19 Manufacture of coke and refined petroleum products
- 20 Manufacture of chemicals and chemical products
- 21 Manufacture of basic pharmaceutical products and pharmaceutical preparations
- 22 Manufacture of rubber and plastic products
- 23 Manufacture of other non-metallic mineral products
- 24 Manufacture of basic metals
- 25 Manufacture of fabricated metal products, except machinery and equipment
- 26 Manufacture of computer, electronic and optical products
- 27 Manufacture of electrical equipment
- 28 Manufacture of machinery and equipment n.e.c.
- 29 Manufacture of motor vehicles, trailers and semi-trailers
- 30 Manufacture of other transport equipment
- 31 Manufacture of furniture
- 32 Other manufacturing
- 36 Water collection, treatment and supply
- 38 Waste collection, treatment and disposal activities; materials recovery

Summary

The data presented in this article highlight the significant proportion of energy used for heating purposes. An understanding of the types of fuel used for heating purposes, the specific end uses, as well as the energy efficiency improvements in use of modern heating equipment, are important in order to gain a full knowledge of the heat market.

Fossil fuels are still the main energy source used for generating heat

Direct primary consumption of fossil fuels (gas, oil and solid fuel) were the main energy sources for heating purposes (81 per cent); electricity (fuelled by fossil and renewable fuels) accounted for a further 15 per cent. The use of those fuels made up 89 per cent of heat energy consumption in the domestic sector and 74 and 68 per cent in the services and industrial sectors respectively.

Over half of energy generated for heating was from gas

In 2012, gas was the main fuel used for heating purposes in all sectors (55 per cent). In the domestic sector gas for heating contributed to 68 per cent of total domestic energy consumption. The respective proportions for the services and industry sectors were 45 per cent 38 per cent.

Use of oil for heating comprised 6 per cent of total energy consumption. The domestic sector used oil to generate heat for 6 per cent of its total energy consumption. The industrial and service sectors used slightly less, 5 per cent and 4 per cent respectively. Solid fuels were the least common fossil fuel source (3 per cent) in all sectors to generate heat but were mainly used by the domestic and industrial sectors accounting for 2 and 6 per cent of total energy consumption within each sector respectively. Direct consumption of sold heat, sourced from CHP and community heating schemes accounted for around 2 per cent all heat, but was more prevalent in the industrial and services sectors (at 5 per cent and 3 per cent respectively).

Electricity is used more for heating purposes in the service and industry sectors

Use of electricity made up 9 per cent of heat energy consumption in the domestic sector. The respective figures for services and industry sectors were 21 and 23 per cent.

Two per cent of energy for heating was generated by renewables

Total renewables final energy consumption in the UK, including biofuels for transport, was 2,250 thousand tonnes of oil equivalent in 2012, with consumption for heating purposes at 57 per cent (1,292 thousand tonnes of oil equivalent). This figure equates to two per cent of the total energy consumed for heating purposes across the three sectors. Renewables made up 2 per cent of total consumption in both the domestic and industrial sectors and 1 per cent of total service sector consumption. Nearly all, 99 per cent, renewable heat is used for space heating across the three sectors.

User feedback

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

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Diversity of supply for oil and oil products in OECD countries

Introduction and summary

Countries meet their oil needs through a combination of indigenous production and trade. This article conducts a comparative assessment of how OECD countries manage their crude oil and transport fuel demand, focussing both on indigenous production and import diversity, using data extracted from the IEA database¹. The purpose of the exercise is to determine how the UK compares with other OECD countries in terms of how it secures oil supplies.

Within the OECD, only four countries were net exporters of crude oil: Norway, Mexico, Canada and Denmark. The UK would be able to meet 63 per cent of its demand via indigenous production, and was the sixth most self-sufficient country. The UK also had above-average diversity in terms of where it imported products from and these factors added together means that it ranked sixth in our simplified ranking of overall security of supply (deemed as the combination of indigenous production and import diversity) for crude oil.

The majority of OECD countries met their motor gasoline (petrol) demand through indigenous production, with the UK and most of Western Europe being net exporters. Despite motor gasoline having the lowest average diversity index, it achieved the highest average security of supply score of the four products due to high levels of indigenous production in the OECD.

For jet fuel, the position is markedly different with only a third of OECD countries self-sufficient. Although the UK was not self-sufficient, it had the third most diverse source of imports after Sweden and France. The UK ranked middle of all OECD countries when indigenous production and diversity of imports are combined into a single index.

Most OECD countries were not able to support their diesel consumption by indigenous production alone. The UK was positioned below the average OECD score for self-sufficiency but this was offset by a diverse range of import sources which put the UK in the top half of OECD countries in terms when production and diversity were combined.

Charting oil self-sufficiency and diversity of supply

Bubble Charts

The bubble charts demonstrate the relationship between a country's demand, its indigenous production, diversity of its gross imports and the political stability of the countries of import. The profiles show:

- Self-sufficiency: the proportion of a country's demand that could be met through indigenous production is shown on the vertical axis. A score of 1 indicates a country produces as much oil as it uses.
- A diversity score: the diversity and political stability –defined via the World Bank's governance indicators - of a country's gross imports is shown on the horizontal axis (see appendix 2 for a methodological note).
- Consumption: is represented by the circle or bubble, the area of which indicates the relative level of consumption for 2012 for each OECD country.

Bar Charts

The bars charts provide a means of comparing OECD countries by self-sufficiency and diversity of imports. These profiles combine the proportion of demand that is met through indigenous production (shown in blue) with the diversity and political stability of import origins (shown in white). The sum of these two components is used as a simplified metric for security of supply. This is a

¹ <http://wds.iea.org/WDS/Common/Login/login.aspx>

Special feature – Supply of oil and oil products

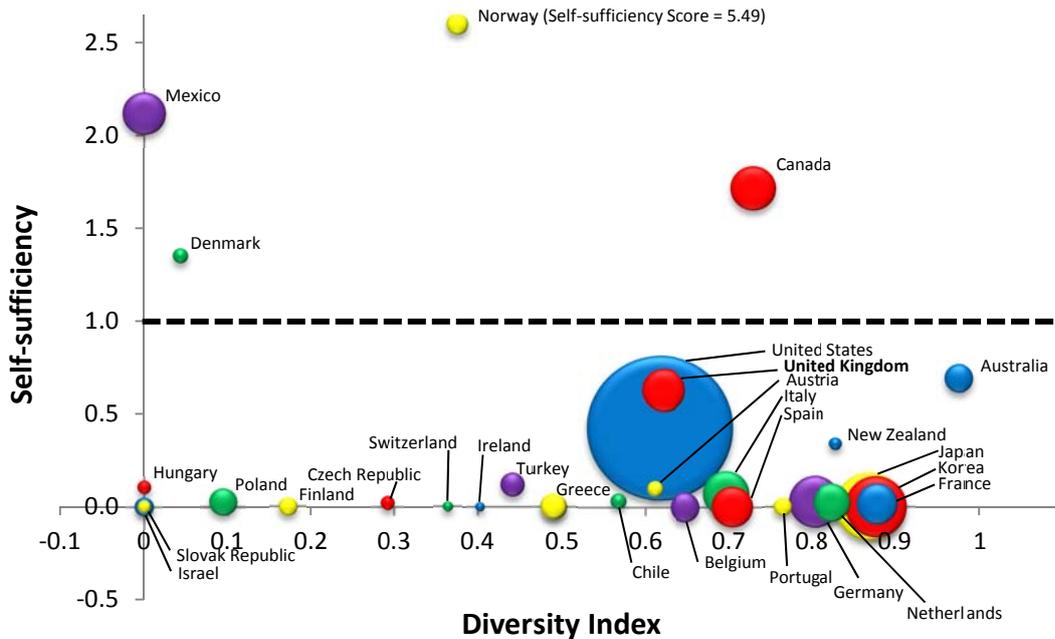
simplified metric, and does not represent a full description of security of supply beyond import diversity, stability and self-sufficiency. Appendix 1 shows the underlying data.

Results

Crude

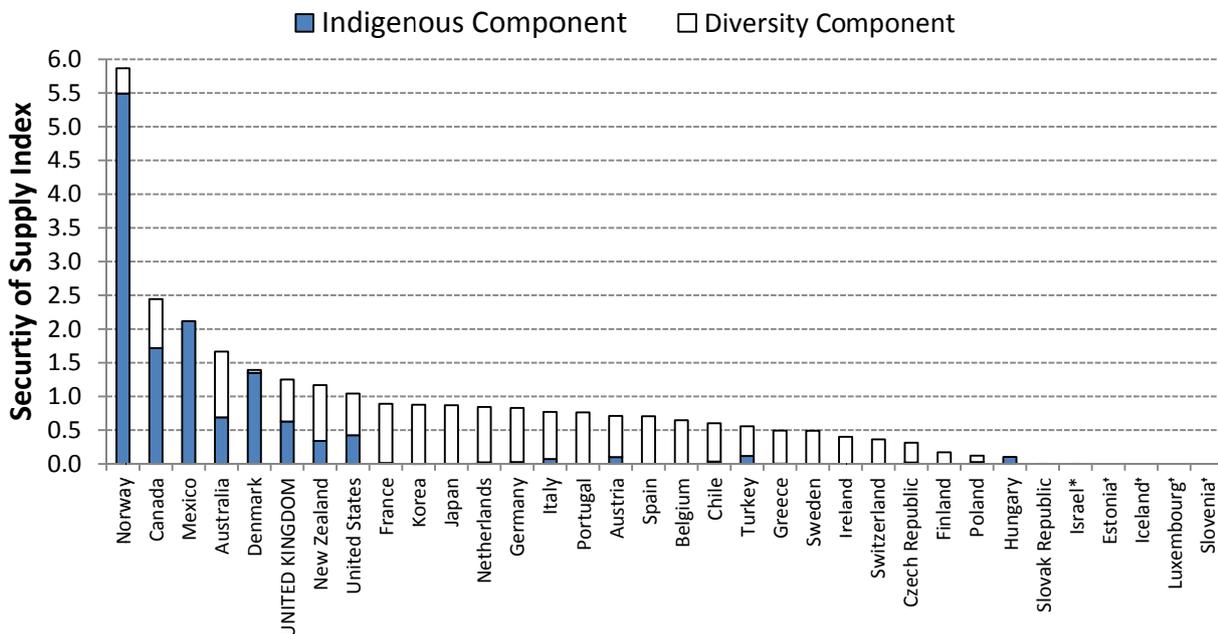
Only four OECD countries were self-sufficient for crude oil in 2012 (Chart 1). Norway had by far the highest self-sufficiency score, producing over 5 times its own consumption of crude oil. With a self-sufficiency score of 0.63, the UK was above the OECD average of 0.44 (or 0.27 with the exclusion of Norway). Similarly, the UK's diversity score of 0.62 was above the average score of 0.52.

Chart 1: Diversity and self-sufficiency of crude oil for OECD countries 2012



The majority of OECD countries showed scores that reflect a strong trading element, with a relatively small contribution from indigenous production (Chart 2). Chart 2 shows that the UK placed highly in the ranking of OECD countries being one of the few countries with significant oil production.

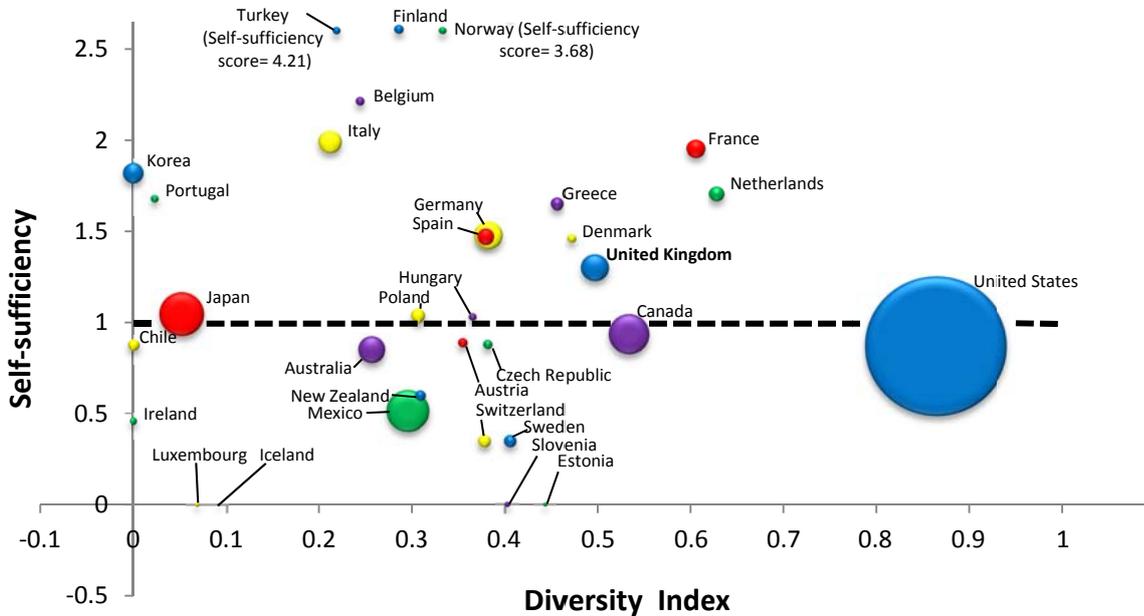
Chart 2: Security of supply of crude oil for OECD countries 2012



Motor Gasoline

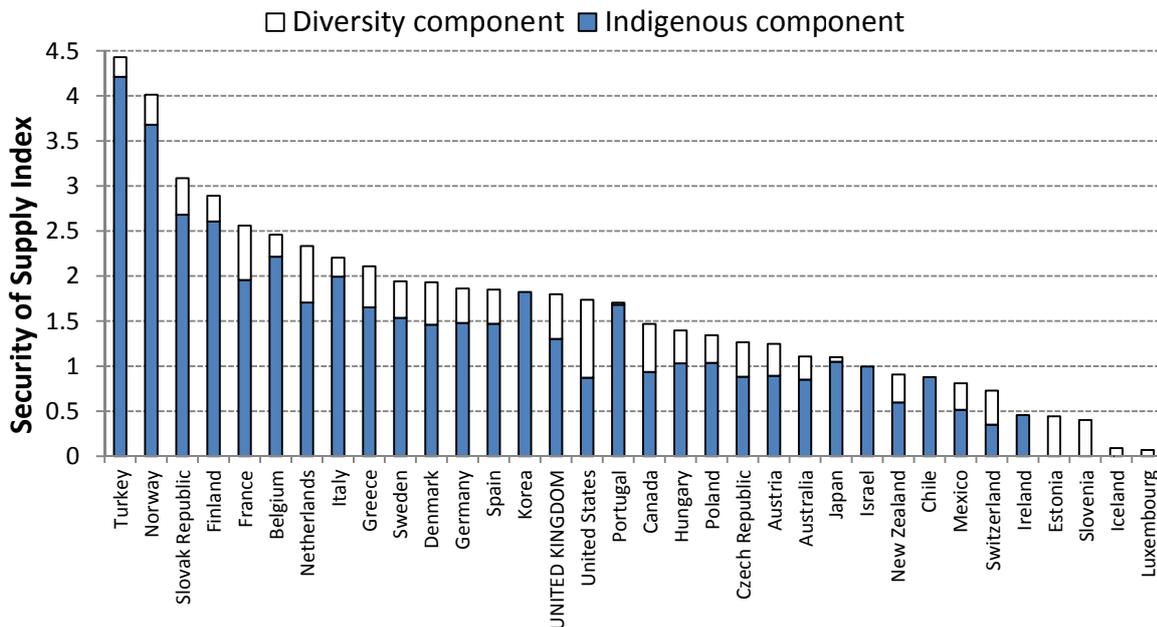
The profiles for motor gasoline are considerably different to that of crude. Nearly 60 per cent of OECD countries were self-sufficient in 2012 (Chart 3). The UK had a self-sufficiency score of 1.30, which was in line with the average across all OECD countries. The UK's diversity score of 0.50 was higher than the average of 0.31.

Chart 3: Diversity and self-sufficiency of motor gasoline for OECD countries 2012



Our simplified security of supply index (Chart 4) shows how the vast majority of countries produce enough petrol to meet their needs and how much trade there is in motor gasoline amongst the OECD countries. The UK ranks approximately middle out of all OECD countries.

Chart 4: Security of supply of motor gasoline for OECD countries 2012

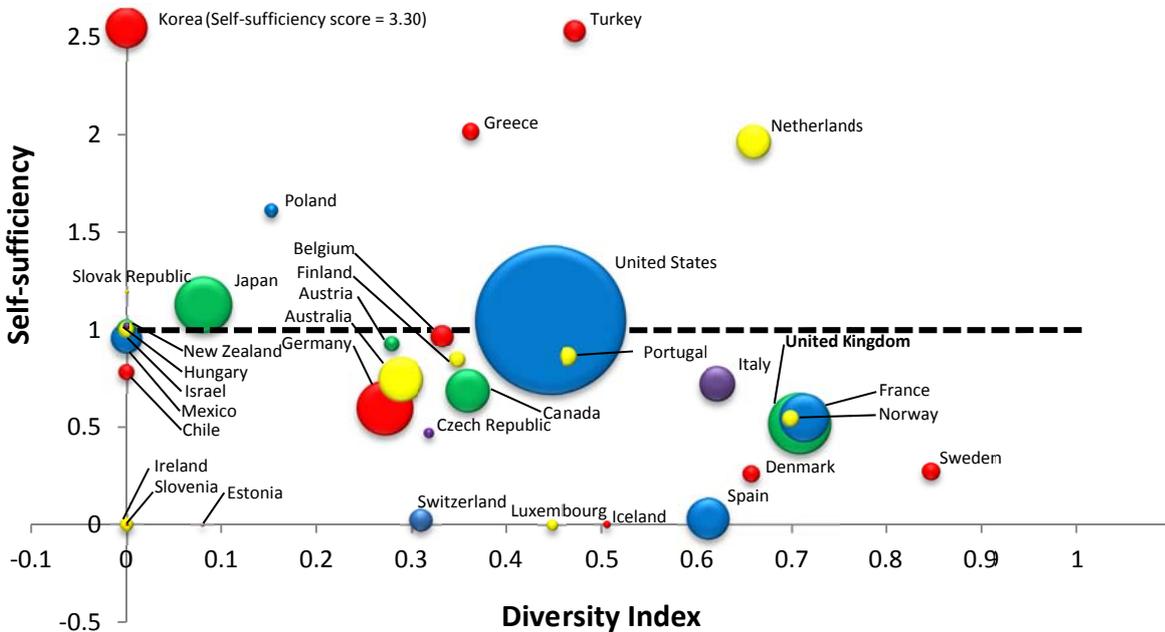


Special feature – Supply of oil and oil products

Jet Fuel

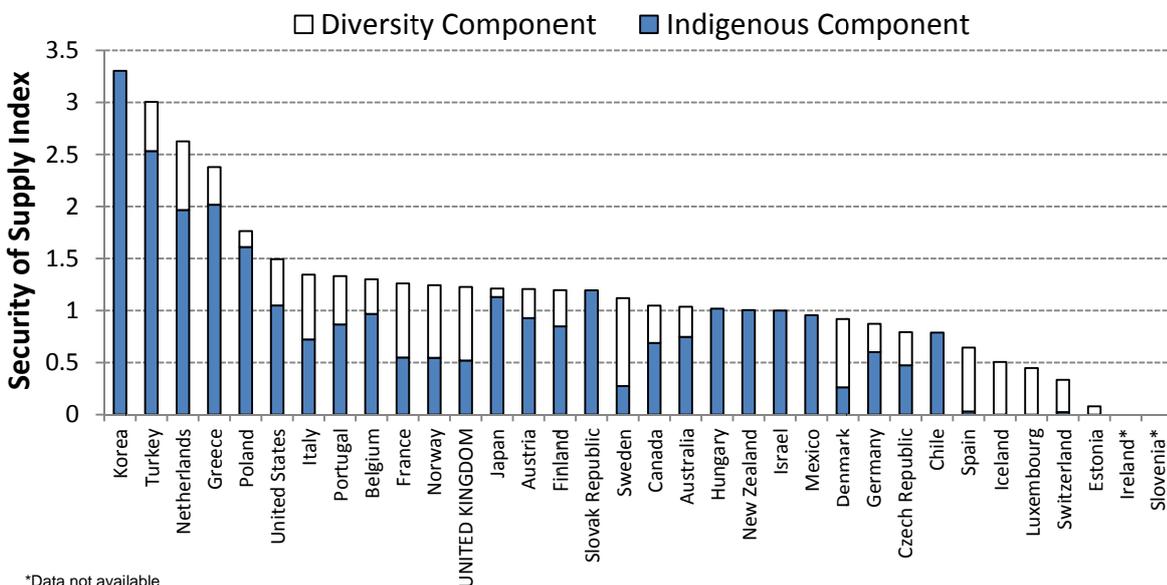
Chart 5 shows that, with a self-sufficiency score of 0.52, the UK was below both the self-sufficient threshold of 1 and the OECD average 0.89 for jet fuel. However, the UK's import diversity score of 0.71 was more than double the average for all OECD countries (0.32) and third highest of all OECD countries.

Chart 5: Diversity and self-sufficiency of jet fuel for OECD countries 2012



Many OECD countries have significant production capacity of jet fuel. Korea is particularly strong, and produces some three times its demand and requires no imports. The UK's capacity to meet its demand through indigenous production is low: in 2012 the UK met only around half its demand, which is one of the largest deficits in the OECD. However, this was compensated by having one of the most diverse and stable import sources within the OECD.

Chart 6: Security of supply of jet fuel for OECD countries 2012

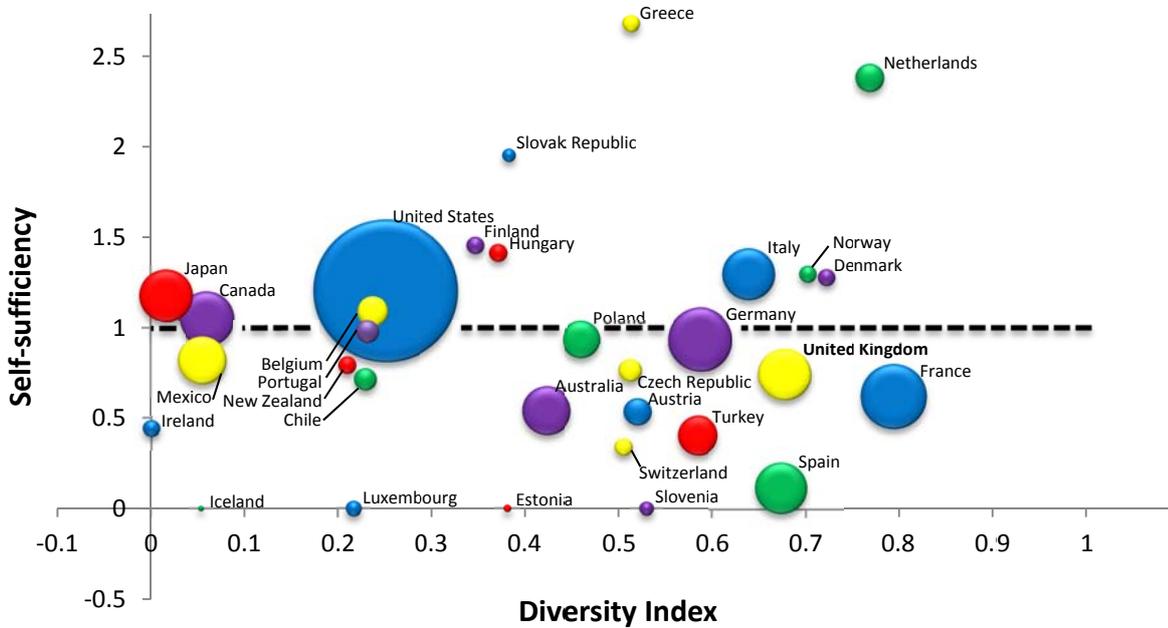


*Data not available

Diesel Road Fuel

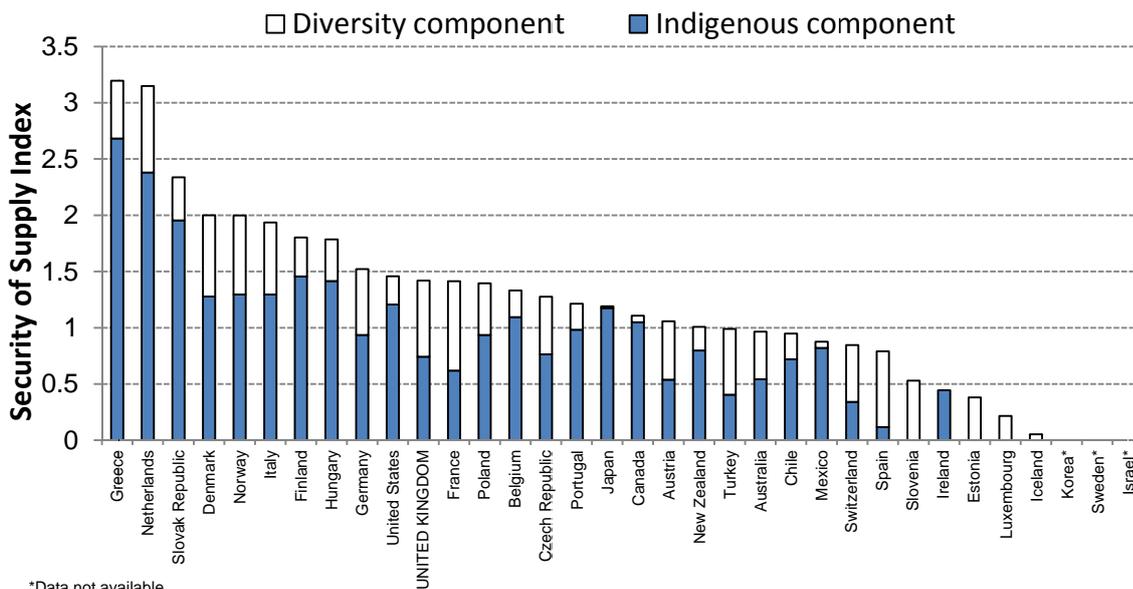
At 0.74 on the self-sufficiency axis, the UK produces around ¾ of the diesel it consumes. The UK was below the average OECD self-sufficiency score of 0.9 in 2012. However, the UK is in a favourable position in terms of diversity and political stability of imports; the UK's diversity score of 0.68 was markedly higher than the OECD average of 0.41 (Chart 7).

Chart 7: Diversity and self-sufficiency of diesel for OECD countries 2012



The majority of countries either met demand through indigenous production or by a combination of production and diverse imports. The profile depicts how the UK was in the top half of OECD countries (Chart 8).

Chart 8: Security of supply of diesel for OECD countries 2012



*Data not available

Summary

Self-Sufficiency and Import Diversity of OECD Countries

The overall picture of diversity of supply for oil and oil products reflects a higher security of supply for oil products than for crude oil, primarily driven by higher levels of indigenous production for products than for crude itself. With an average self-sufficiency score (excluding Norway) of just over one quarter of consumption (0.27), OECD countries are highly dependent on imports of crude oil to meet refinery demand, compared to average scores of 1.32, 0.89 and 0.90 for motor gasoline, jet fuel and diesel respectively. However, although average self-sufficiency scores for transport fuels were much higher, these scores are dependent on refining crude oil, and as such indigenous production of productions cannot be decoupled easily from crude oil security of supply.

Motor gasoline production across the OECD was a particular strength, because the refining profile has historically been biased towards petrol production. With the increasing shift to dieselisation of passenger road transport, the majority of OECD countries more than met their consumption needs. This high self-sufficiency is reflected through the lower diversity of imports compared to crude.

In contrast to motor gasoline, many countries did not produce enough jet fuel or diesel domestically to meet their demand. Although diesel imports scored the highest average diversity index of approximately 0.4, jet fuel imports had an average score similar to that of motor gasoline, at approximately 0.3. This relatively low diversity score, combined with a low self-sufficiency score put jet fuel as the lowest scoring oil product in our simplified security of supply index. However the UK, along with a number of north-western European countries, scored much higher than average on the diversity index, at around 0.7. This suggests a number of countries have taken steps to maximise the diversity and political stability of jet fuel imports.

Self-Sufficiency and Import Diversity of the UK

The UK compares well with other OECD countries for both self-sufficiency and diversity, always being in the top half of rankings for both crude oil and oil. The UK met around two thirds of its crude oil consumption via indigenous production, putting it sixth out of all the OECD countries. The UK meets its needs for motor gasoline from indigenous production, depending on its offshore fields for some of the crude oil and the production profiles of its refineries. Conversely, the UK relies on imports to meet its requirements for jet fuel and diesel road fuel as its refineries do not meet demand from increasing air movements and the shift towards diesel cars. The closure of Coryton refinery in mid-2012 and maintenance of other refineries late in 2012 also saw production of petroleum products fall by around 8 per cent from July onwards. At least some of this will pick up for 2013.

The data show that the UK is supplementing its indigenous capacity with a diverse trading position where its indigenous capacity does not meet current demand. For both jet fuel and diesel, the UK scored highly on the diversity index, indicating a diverse range of imports from politically stable countries.

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Appendix 1 – Provisional Data for 2012

	Crude Oil			Motor Spirit			Jet Fuel			Diesel Road Fuel		
	Diversity plus Political Stability	Self-sufficiency	Demand (KT)	Diversity plus Political Stability	Self-sufficiency	Demand (KT)	Diversity plus Political Stability	Self-sufficiency	Demand (KT)	Diversity plus Political Stability	Self-sufficiency	Demand (KT)
Australia	0.98	0.69	28,669	0.26	0.85	13,516	0.29	0.75	5,820	0.42	0.54	19,093
Austria	0.61	0.10	8,347	0.35	0.89	1,714	0.28	0.93	666	0.52	0.54	6,090
Belgium	0.65	0.00	31,777	0.24	2.21	1,358	0.33	0.97	1,499	0.24	1.09	7,187
Canada	0.73	1.72	69,477	0.53	0.94	31,414	0.36	0.69	5,469	0.06	1.05	23,778
Chile	0.57	0.03	8,502	0.00	0.88	2,660	0	0.79	781	0.23	0.72	3,963
Czech Republic	0.29	0.02	7,247	0.38	0.88	1,676	0.32	0.47	302	0.51	0.76	4,166
Denmark	0.04	1.35	7,628	0.47	1.46	1,385	0.66	0.26	853	0.72	1.28	2,386
Estonia	0	-	0	0.44	0.00	292	0.08	0.00	49	0.38	0.00	430
Finland	0.17	0.00	10,756	0.29	2.61	1,600	0.35	0.85	729	0.35	1.46	2,428
France	0.88	0.01	56,799	0.61	1.96	6,113	0.71	0.55	6,954	0.79	0.62	33,531
Germany	0.80	0.03	94,937	0.53	1.48	14,108	0.27	0.60	8,684	0.59	0.94	33,680
Greece	0.49	0.00	20,479	0.46	1.65	3,004	0.36	2.02	825	0.51	2.68	2,149
Hungary	0	0.10	6,192	0.37	1.03	1,149	0	1.02	166	0.37	1.42	2,560
Iceland	0	-	0	0.09	0.00	139	0.51	0.00	149	0.054	0.00	239
Ireland	0.40	0.00	3,064	0.00	0.46	1,204	0	0.00	557	0.00	0.44	2,147
Israel	0	0.002	12,058	0.00	1.00	2,713	0	1.00	772	0.00	-	1,450
Italy	0.70	0.07	73,987	0.21	1.99	9,275	0.62	0.72	3,717	0.64	1.30	21,652
Japan	0.87	0.00	158,910	0.05	1.05	37,349	0.08	1.13	9,204	0.02	1.18	22,053
Korea	0.88	0.00	128,549	0.00	1.82	8,409	0	3.30	4,960	0.00	-	13,660
Luxembourg	0	-	0	0.069	0.00	354	0.45	0.00	348	0.22	0.00	1,833
Mexico	0	2.12	62,365	0.30	0.51	34,035	0	0.96	2,712	0.05	0.82	18,048
Netherlands	0.82	0.02	50,251	0.63	1.71	4,139	0.66	1.97	3,327	0.21	2.38	6,124
New Zealand	0.83	0.34	5,440	0.31	0.60	2,268	0	1.00	1,042	0.77	0.80	2,450
Norway	0.37	5.49	14,277	0.33	3.68	997	0.70	0.55	810	0.70	1.30	2,399
Poland	0.09	0.03	25,151	0.31	1.04	3,867	0.15	1.61	542	0.46	0.93	11,465
Portugal	0.76	0.00	11,234	0.023	1.68	1,129	0.46	0.87	1,037	0.23	0.98	4,221
Slovak Republic	0	0.00	5,406	0.41	2.68	514	0	1.20	41	0.38	1.95	1,436
Slovenia	0	-	0	0.40	0.00	506	0	0.00	26	0.53	0.00	1,482
Spain	0.70	0.00	59,123	0.38	1.47	4,916	0.61	0.03	5,225	0.67	0.12	21,147
Sweden	0.49	0.00	20,815	0.40	1.54	2,861	0.85	0.27	888	0.00	-	4,425
Switzerland	0.36	0.00	3,395	0.38	0.35	2,930	0.31	0.02	1,557	0.51	0.34	2,516
Turkey	0.44	0.12	19,844	0.22	4.21	1,786	0.47	2.53	1,294	0.58	0.41	13,077
<u>United Kingdom</u>	<u>0.62</u>	<u>0.63</u>	<u>66,812</u>	<u>0.501</u>	<u>1.30</u>	<u>13,849</u>	<u>0.71</u>	<u>0.52</u>	<u>11,116</u>	<u>0.68</u>	<u>0.74</u>	<u>22,232</u>
United States	0.62	0.43	742,915	0.86	0.87	385,265	0.45	1.05	64,786	0.25	1.21	162,381

Source: IEA (<http://data.iea.org/ieastore/statslisting.asp>)

Items in **bold** highlight those countries where indigenous capacity exceeded domestic consumption.

Appendix 2 – Methodology

Crude oil and transport fuel self-sufficiency

Data for crude oil, motor gasoline and jet fuel were extracted from the IEA database. For diesel, data were provided on request from the IEA. Self-sufficiency was determined from data on indigenous production and consumption (production (kt) ÷ consumption (kt)).

Crude oil and transport fuel diversity indices

The diversity index used here is a product of a standard diversity index and an index for political stability. As a basic index for measuring diversity, we used the Shannon-Wiener diversity index. The Shannon-Wiener index is of the form:

$$\sum_{i=1}^n -x_i \ln(x_i)$$

Where x is the proportion of total fuel supply represented by the i th source country and n represents the final source country. A value below 1 signifies a country that is dependent on a small range of import sources, a value above 2 represents a country with a wide range of import sources. The minimum value of zero denotes a country that has one imported fuel source or relies entirely on indigenous production.

A previous comparative study on import diversities in Energy Trends March 2011 used the Herfindahl Index as the basic diversity index. Although both of these indices have their advantages, the Shannon-Wiener was chosen here as this represents the data with less skew, as well as placing more weight on the diversity of contributions from smaller countries and lessening the impact of larger nations.

Political stability was determined using data from the World Bank worldwide governance indicators. Specifically, the index reflects perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. These data were standardised between 0 and 1. Once Shannon-Wiener and political stability indices were determined, these were multiplied and summed:

$$\sum_{i=1}^n -x_i \ln(x_i) b_i$$

Where b is an index of political stability of producing country. This is called the SWNI (Shannon-Weiner-Neumann index), in line with previous work.

Each SWNI index was normalised for each petroleum product between 0 and 1, in order to have a standardised index. This was done by working out a maximum diversity score, by assuming maximum diversity was equivalent to importing products in line with proportional contributions of exporting countries (e.g. if a single country were responsible for exporting 50 per cent of all product, and five other countries were responsible for 10 per cent each, we assumed maximum import diversity at a ratio of 5:1:1:1:1:1). This maximum diversity score then acted as our upper score of 1, with all other scores divided by this maximum to standardise the data.

Fuel Poverty levels in England, 2011

Introduction

The Government has recently announced a new definition of fuel poverty that it plans to adopt, based on the Low Income High Costs (LIHC) framework that was recommended by Professor Hills in his Independent review (www.gov.uk/government/publications/fuel-poverty-a-framework-for-future-action). This article summarises the 2011 Fuel Poverty statistics using the new. The 2013 annual reports and data can be downloaded in full at: www.gov.uk/government/organisations/department-of-energy-climate-change/series/fuel-poverty-statistics. In addition, a snapshot of fuel poverty under the original 10 per cent indicator is provided.

The Low Income High Cost Indicator

Under the new **Low Income High Cost** definition a household is considered to be fuel poor where:

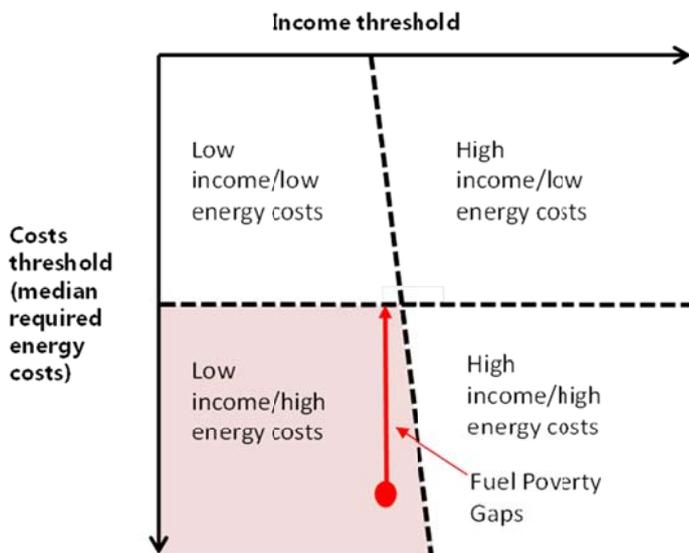
- they have required fuel costs that are above average (the national median level)
- were they to spend that amount, they would be left with a residual income below the official poverty line.

The low income high cost indicator consists of two parts:

The **number** of households that have both low incomes and high fuel costs (the bottom left quadrant in the diagram below);

The **depth** of fuel poverty amongst these households. This is measured in terms of a fuel poverty gap, which represents the difference between the modelled fuel bill for each household, and the reasonable cost threshold for the household. This is summed for all households that have both low income and high costs to give an aggregate fuel poverty gap.

Fuel Poverty under the Low Income High Costs (LIHC) indicator



Headline figures

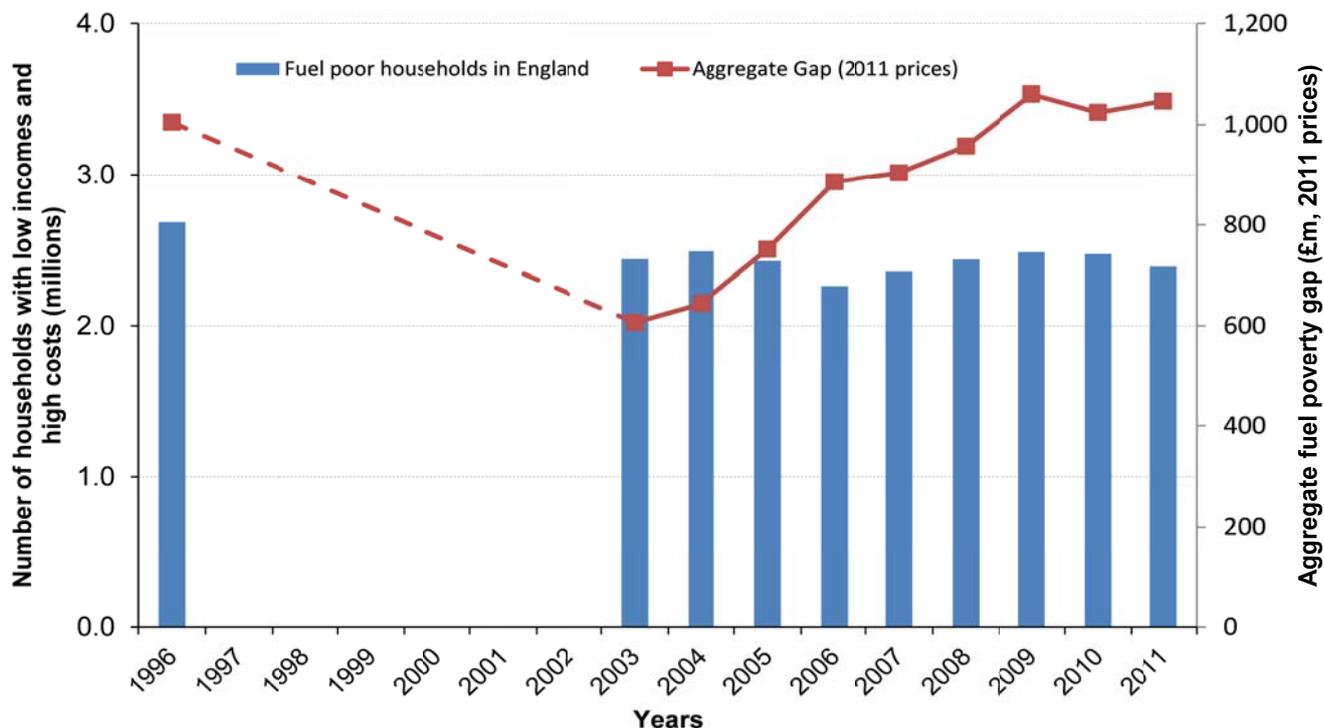
Chart 1 shows that the number of households living in fuel poverty in England, under the LIHC indicator, fell from 2.47 million in 2010 to around 2.39 million in 2011 (around 11% of households).

However, the aggregate and average fuel poverty gap increased. The aggregate gap increased from £1.02 billion in 2010 to £1.05 billion in 2011 (approximately 2%), and the average gap

Special feature – Fuel Poverty levels in England

(defined as the total gap divided by the number of households in fuel poverty) rose by £24 to £438 in 2011.

Chart 1 – Fuel poverty in England, 1996 to 2011



Note: Figures not calculated for 1997-2002.

Interpreting the change in fuel poverty

Looking at the trends over time, the number of households with low income and high costs (LIHC) has remained relatively stable. The fuel poverty gap has however increased over time in response to prices. Between 2004 and 2009 energy prices increased substantially: domestic electricity prices rose by around 56 per cent and gas prices increased by around 97 per cent (both in real terms). Over the same period the fuel poverty gap (in 2011 prices) rose from £644 million to £1 billion. In 2010, electricity and gas prices declined by approximately five and eight per cent respectively. This is reflected in a slight reduction in the fuel poverty gap.

In 2011, the number of households in fuel poverty remained broadly similar to 2010, falling by around 80,000 households. When considering the change in the LIHC indicator, the key factor is how the key drivers of fuel poverty change for households with low incomes and high costs, relative to other households. Between 2010 and 2011 after housing cost (AHC) incomes remained broadly similar for those in the LIHC group, falling very slightly compared with a slight increase for the overall population. Modelled fuel costs fell by a similar amount for both LIHC households and the overall population. However, SAP ratings increased by slightly more for LIHC households than the overall population. The last factor is likely to have led to the small reduction in the number of fuel poor households between the two years, where improvements in energy efficiency in the LIHC group may have caused some households previously classed as fuel poor to move across the energy cost threshold, such that they are no longer classed as having high costs.

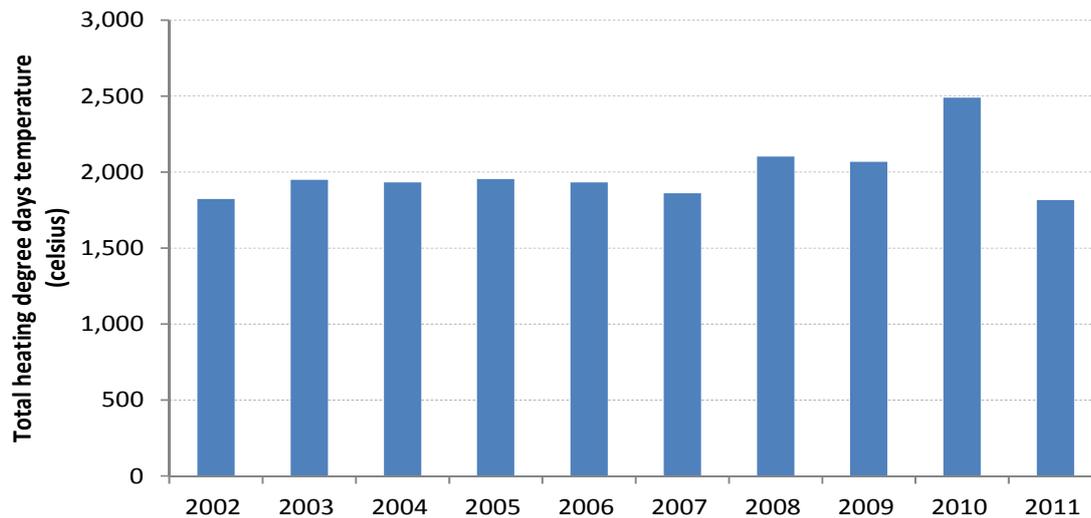
Between 2010 and 2011, the aggregate and average fuel poverty gap increased. This was largely due to price rises between the two years, which is the key driver of changes in the gap.

Table 1 - Fuel Poverty in England, 1996 to 2011

	1996	2003	2004	2005	2006	2007	2008	2009	2010	2011
Households with low incomes and high costs (millions)	2.69	2.44	2.49	2.43	2.26	2.36	2.44	2.49	2.48	2.39
Aggregate Fuel Poverty Gap (£million)	1,005	606	644	752	886	904	957	1,060	1,024	1,047
Average Fuel Poverty Gap (£)	374	248	259	310	391	384	393	427	414	438

It is important to consider the fuel poverty numbers alongside energy consumption data for the same year. The winter months falling in 2011 (i.e. the end of the 2010/11 winter and the start of the 2011/12 one) were mild relative to previous years. This resulted in a much lower number of heating degree days¹ in 2011 (chart 2) when compared with the cold year in 2010, but also relative to the past ten years in general. As a result of the milder winter, average annual household energy consumption was also lower than 2010 (chart 3).

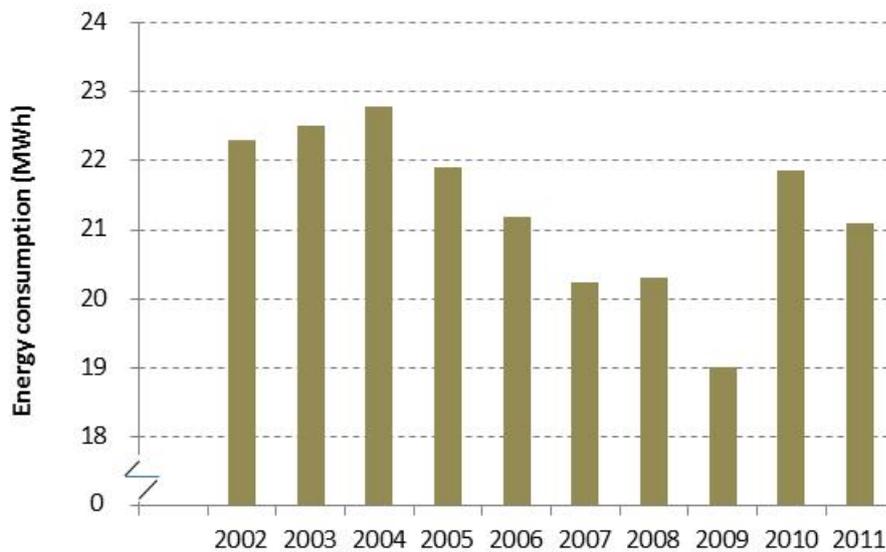
Chart 2 – Total annual degree days UK, 2002 to 2011



Source: Energy Trends, table 7.1

¹ Heating degree days (HDD) are defined relative to a base temperature - the outside temperature above which a building needs no heating. The chart uses 15.5° Celsius. If the average outside air temperature on a day is above this base temperature, no heat is required; if it is below, then the heating requirement that day will be equal to the temperature deficit in degrees. For example, a day with an average temperature of 10°, would score a HDD of 5.5. The HDDs are summed across the year and displayed in the chart.

Chart 3 – Total annual energy consumption per household, 2002 to 2010



Source: Energy Consumption in the UK, Table 3.4

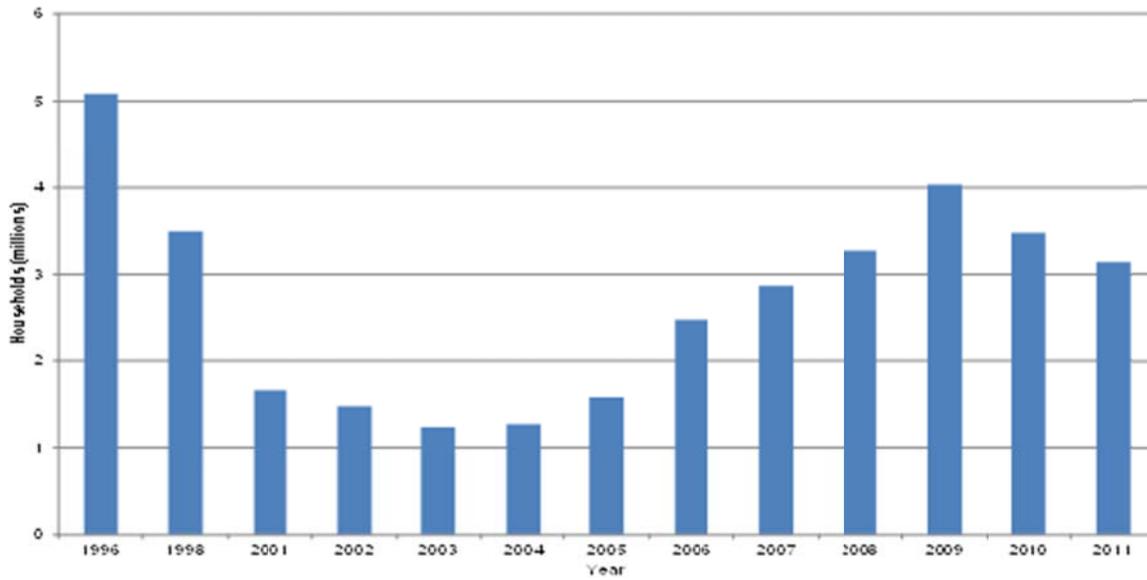
The notional bill used in estimating fuel poverty is modelled based on achieving an adequate standard of warmth of 21 degrees Celsius in the main living area, and 18 degrees in other occupied rooms. Although the fuel poverty modelling of heating requirements varies according to regional differences in climate, it does not reflect periods of annual temperature variations from long-term averages (either cold snaps during the winter that might require additional spells of heating, such as those in chart 2, or mild spells that might reduce the amount of heating required) in any one year that would cause the duration or extent of the heating season to change significantly. Therefore, it is assumed that the same amount of energy will be required to heat an identical dwelling and household in the same location in consecutive years.

So while actual domestic gas consumption rose sharply between 2009 and 2010 before falling again in 2011, the modelled consumption used in the fuel poverty data fell steadily over this period (mainly reflecting improvements in the energy efficiency of homes).

Measuring Fuel Poverty Using the 10 Per cent Indicator of fuel poverty

Under the 10 per cent indicator a household is said to be fuel poor if it needs to spend more than 10 per cent of its income on fuel to maintain an adequate level of warmth. In 2011, 3.2 million households were fuel poor under the 10 per cent indicator, equivalent to 14.6 per cent of all households in England. This is a fall of around nine per cent (0.3 million) since 2010 and 19 per cent since 2009 (the highest peak in recent years).

Chart 4 – Fuel poverty in England – 10 per cent, 1996 to 2011



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DECC report on surveys of businesses and local authorities - 2012/13

Introduction

All survey activities in the Department of Energy and Climate Change (DECC) are monitored by the Survey Control Unit (SCU) in the department. Burdens imposed by surveys on respondents are measured in terms of compliance costs. In 2012/13 DECC imposed an estimated total burden of £131,000 on our data respondents, down 5 per cent on 2011/12.

The SCU in DECC is responsible for compiling and reporting on the compliance costs of all its business and local authority surveys to the Office for National Statistics (ONS), which are then published in the annual Government Statistical Service (GSS) report available at www.ons.gov.uk/ons/publications/all-releases.html?definition=tcm%3A77-210555. The SCU at ONS is responsible for implementing survey controls driven by the UK Statistics Authority Code of Practice for statistics (www.ons.gov.uk/ons/guide-method/method-quality/quality/survey-control/index.html) and for auditing DECC survey control procedures.

This article presents an overview of the survey activities in DECC and their compliance costs.

Survey control in DECC

Survey control is applied to all statistical surveys, conducted by or on behalf of the department. Survey control is the mechanism for the department to oversee the burden its surveys imposed on respondents. It also aims to promote good survey practice, prevents poor quality or unnecessary surveys, and minimise the burden on respondents to DECC's statistical surveys.

DECC is committed to minimising the burden its surveys place on respondents. When a new survey is proposed, DECC assesses its need at the outset by seeking to understand

- How the information collected will be used;
- What the compliance costs will be;
- How the survey will contribute towards achieving DECC priorities, and
- Whether there are alternative ways to obtain the data.

DECC maintains an inventory of all its statistical surveys, ensures that these are systematically reviewed, and annually assesses the compliance costs of running the surveys.

Data collection

Energy statistics are based on regular surveys of companies as follows:

Coal : From the Coal Authority, Iron and Steel Statistics Bureau (ISSB) and electricity generators' returns, major coal companies and the two major distributors and from the major and smaller coal companies.

Upstream oil and gas: From individual companies under the Downstream Oil Reporting System (DORS) and Petroleum Production Reporting System (PPRS).

Downstream oil and gas : From National Grid and pipeline operators, gas suppliers and Major Power Producers for electricity generation.

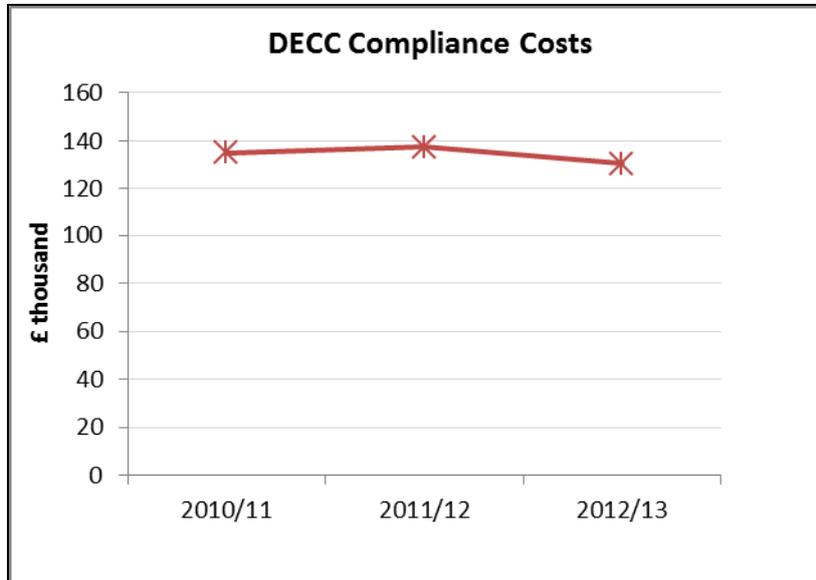
Electricity (including renewables): From inquiries to companies covering generating capacity, fuel use, generation, sales and distribution of electricity and licensed suppliers, ISSB, autogenerators or autoproducers from ONS and small surveys for specific renewable technologies.

Prices : From energy suppliers and manufacturing industries via the ONS.

Compliance costs

Compliance costs are a measure of the cost to respondents for complying with government statistical surveys. It is calculated using the product of the number of forms received, average completion time and the average hourly rates of the person compiling the return. The average hourly rates are based on the Annual Survey of Hours and Earnings (ASHE).

Chart 1



In 2012/13, DECC conducted a total of 32 statistical surveys, 25 of which were regular contributing to official statistics (see table 1). The remaining were ad-hoc surveys conducted to provide evidence for policy development, the compliance costs of which fell by 26 per cent. Total compliance costs in 2012/13, based on the 2012 ASHE rates, were £131,000, down 5 per cent on the previous year (see Chart 1 and table 2).

Burdens across government are published by ONS every year at:

www.ons.gov.uk/ons/publications/all-releases.html?definition=tcm%3A77-210555. In 2011/12, the latest year for which comparable data are available, DECC's compliance costs of businesses and local authorities accounted for less than 0.5 per cent of the total across all government surveys. It is anticipated that a similar proportion will be achieved in 2012/13.

Table 1- List of regular surveys, frequency of data collection and compliance costs in 2012/13.

Surveys	Frequency	Compliance cost (£)
Downstream Oil Reporting System	Monthly	23,770
Liquified Petroleum Gas Deliveries	Quarterly	100
Hypermarket Petrol and DERV	Monthly	140
Oil Stocking	Monthly	570
Coal Producers	Monthly	260
Coal Producers	Quarterly	230
Coal Producers	Yearly	50
Generators, distributors and suppliers of electricity	Monthly	26,150
Generators, distributors and suppliers of electricity	Yearly	2,010
Gas suppliers	Quarterly	2,210
Gas suppliers	Yearly	610
Electricity Generators Inquiry.	Quarterly	4,880
Renewable Energy Statistics	Yearly	110
DECC Oil and Natural Gas Survey	Half-year	5,810
New Price Transparency Survey: Non-domestic	Quarterly	1,980
Generators Inquiry	Quarterly	2,030
Quarterly Fuels Inquiry*	Quarterly	33,470
Domestic Fuels Inquiry	Quarterly	2,110
Annual petroleum products prices inquiry	Yearly	60
Crude Oil imports	Monthly	420
Prices paid by final consumers petroleum products	Monthly	360
Weekly oil product prices	Weekly	1,160
Producer Price Index	Monthly	4,290
Social Programme reporting (Company Fuel Poverty Initiatives)	Yearly	210
New Price Transparency Survey : Domestic	Quarterly	930

Table 2- Achieved sample sizes and compliance costs

	2011/12		2012/13		% change	
	Number of questionnaires returned	Compliance costs (£)	Number of questionnaires returned	Compliance costs (£)	Sample size	Compliance costs
Regular surveys	6,483	114,920	6,414	113,918	-1%	-1%
Ad-hoc surveys	3,270	22,572	3,554	16,644	9%	-26%
Total	9,753	137,492	9,968	130,562	2%	-5%

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New Solar Photovoltaics deployment table

Introduction

In September 2013, in addition to existing quarterly and annual tables on renewable energy, DECC will publish for the first time a table specifically focussing on overall UK solar photovoltaics (PV) deployment. With the rapid growth in solar PV deployment (at both small-scale and large-scale) experienced over the last four years, and the resulting increasing amount of financial support being given to the technology, there is a need for more frequent and up to date figures of overall deployment.

The new table shows the cumulative capacity, as well as number of sites, commissioned; disaggregated by geography (GB/NI), size and financial support mechanism. This monthly table will provide a comprehensive and up to date summary of PV deployment. These data are published one month in arrears in the new table 'ET 6.4' at:

www.gov.uk/government/publications/renewables-section-6-energy-trends

Data Source

In order to provide a comprehensive measure of deployment, table ET 6.4 utilises several data sources. The table below summarises these data sources:

Source	Description	Geographical coverage	Capacity coverage
Central Feed in Tariff Register (CFR)	Sites confirmed on the Feed in Tariff	Great Britain	<= 5 MW
Renewables Obligation (RO) accredited stations list	Sites accredited on the RO	United Kingdom	All (NI) >50 kW (GB)
ROO-FIT accreditations	Sites accredited under ROO-FIT	Great Britain	>50 kW – 5 MW
Microgeneration Certification Scheme (MCS)	Sites registered under MCS	United Kingdom	<=50 kW
Renewable Energy Planning Database (REPD)	Sites going through the planning process	United Kingdom	Typically non-domestic sites (i.e above 50 kW).

The first three of these sources are provided, at installation level, to DECC by the Office of Gas and Electricity Markets (OFGEM), who administer the schemes. Whilst these are provided as internal reports, data are also publically available in the Feed in Tariff (FiT) installations report and RO accredited stations list¹. An installation level report of MCS registrations is provided by Gemserv, who administer this on behalf of DECC. The REPD, administered by Ricardo-AEA on behalf of DECC, is also available publically, as a data extract.²

Methodology

From the reports listed, table ET 6.4 shows cumulative capacity, and count of sites, commissioned each month, aggregated by location, support mechanism (RO/FIT/unaccredited) and capacity band (typically above and below 50 kW). To ensure the greatest coverage of operational sites, but without double-counting any, the following methods are used.

The CFR and RO accredited stations lists are the primary sources used, as establishing the relative take-up of PV under each support mechanism is a key output of this table. All sites

¹ RO accredited stations list:

www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx?ReportVisibility=1&ReportCategory=0

FiT installations report:

www.ofgem.gov.uk/environmental-programmes/feed-tariff-fit-scheme/feed-tariff-reports/installation-reports

² REPD: <https://restats.decc.gov.uk/cms/planning-database-reports/>

Special feature – New Solar PV table

accredited, and commissioned as at the end of August 2013, on the FiT/RO are included in the first publication.

In Great Britain, to be eligible for support under FiTs, solar PV sites must first register under the MCS (for sites up to and equal to 50 kW) or ROOFIT (for sites above 50 kW, up to and including 5 MW). Due to time lags between schemes gaining accreditation under MCS/ROOFIT and being confirmed on to the CFR, there is always a significant amount of capacity registered, but as yet not confirmed on to the FiT scheme. As such, the capacity (and number) of sites accredited/registered on ROOFIT/MCS *but not yet confirmed on the CFR* is also included. Similarly, in Northern Ireland, sites up to and equal to 50 kW must be registered on MCS to be eligible for support under the RO; so any MCS registered capacity not yet accredited under the RO is also included in the table.

The REPD tracks the progress of all sites that have been, or are going through, the planning process. As many RO/FiT accredited schemes will also be listed here, only those certain to not be captured in the other sources are included. Unlike the RO, the CFR, ROOFIT and MCS data are all anonymous, so it is difficult to identify which sites are also captured by the REPD. Therefore, *only those unaccredited GB sites above 5 MW* (the FiT threshold) as well as *all unaccredited NI* sites are included.

Prior to the introduction of the FiT scheme in April 2010, there was little data on solar PV deployment, other than the handful of schemes accredited under the RO. Solar PV deployment was therefore modelled (in capacity only). To be consistent with previous years, the amount of modelled capacity in excess of FiT/RO sites commissioned (in the pre-FiT years), is carried forward.

Revisions and constraints

The monthly table ET 6.4 will be using more up to date information than that used for the quarterly renewable electricity capacity table, ET 6.1. Therefore, there is the possibility of publishing inconsistent figures at the same time. To avoid confusion resulting from this, table ET 6.4 will be constrained to ET 6.1 for the time period up to, and including, the latest quarter published in the latter. Each quarter, when table ET 6.1 is revised (to the beginning of the latest calendar year), so will ET 6.4. For months published in ET 6.4 beyond the latest ET 6.1 quarter, the latest information is used.

Latest statistics

Provisional figures show that, at the end of June 2013, overall solar PV capacity was 2,413 MW. This total includes 1,684 MW accredited on FiTs, 120 MW on the RO, and 609 MW of unaccredited capacity.

Since June 2012, solar PV capacity has increased by 70 per cent (991 MW). Whilst growth in solar PV since June 2009 has been driven by the FiT (and particularly smaller-scale, <=50 kW schemes), more recently there has been an increasing amount of larger-scale capacity. Since December 2012, of a total increase in PV deployment of 707 MW, around 110 MW of RO accredited capacity has been commissioned, with a further 251 MW of as yet unaccredited >50 kW capacity.

User feedback

We welcome all feedback from users; therefore, if you have any comments or queries regarding this new monthly table, please contact James Hemingway using the contact details below.

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Recent and forthcoming publications of interest to users of energy statistics

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 September 2013 at:

www.gov.uk/government/organisations/department-of-energy-climate-change/series/green-deal-and-energy-company-obligation-eco-statistics

Estimates of Home Insulation Levels in Great Britain

This quarterly publication provides estimates of the number of homes in Great Britain with cavity wall insulation, loft insulation and solid wall insulation. The latest release, detailing estimates of home insulation levels in Great Britain: July 2013, was published on 19 September 2013 at:

www.gov.uk/government/statistical-data-sets/estimates-of-home-insulation-levels-in-great-britain

Smart Meters quarterly statistics

This is the first quarterly publication providing estimates of the number of Smart Meters installed and operating in homes and businesses in Great Britain. This first release, covering estimates of the number of Smart Meters deployed up to the end of June 2013, was published on 26 September 2013 at:

www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics

Sub-national residual fuel use, 2011

This factsheet presents the findings of the residual fuels sub-national energy consumption analysis in the UK for the period covering 1 January to 31 December 2011. Residual fuels are defined as non-gas, non-electricity and non-road transport fuels, and cover consumption of coal, petroleum, manufactured solid fuels and bioenergy and waste not used for electricity generation or road transport. The latest release, published on 26 September 2013, can be found at:

www.gov.uk/government/organisations/department-of-energy-climate-change/series/sub-national-consumption-of-other-fuels

Sub-national total energy use, 2011

This factsheet presents the findings of the sub-national energy consumption analysis in the UK for all fuels, for the period covering 1 January to 31 December 2011. The latest release, published on 26 September 2013, can be found at:

www.gov.uk/government/organisations/department-of-energy-climate-change/series/total-final-energy-consumption-at-sub-national-level

UK Energy Sector Indicators

This annual publication aims to provide a headline overview of some of the key developments in the UK energy system: how energy is produced and used and the way in which energy use influence greenhouse gas emissions. The 2013 edition will be released at 9.30am on Thursday 31 October 2013 at:

www.gov.uk/government/organisations/department-of-energy-climate-change/series/uk-energy-sector-indicators

National Energy Efficiency Data-Framework 2013 Part 2

This publication presents analysis from the National Energy Efficiency Data-Framework (NEED). It provides details of the energy savings from loft and wall insulation and replacement boilers. Latest estimates will be published on 7 November 2013 at:

www.gov.uk/government/organisations/department-of-energy-climate-change/series/national-energy-efficiency-data-need-framework

Special feature – Recent and forthcoming publications

Energy Trends and Quarterly Energy Prices: December 2013

Energy Trends and Quarterly Energy Prices are normally published concurrently on the last Thursday of March, June, September and December. Given that the last working Thursday of December, the 26 December, will fall between Christmas and New Year it has been decided that the publication date for the December 2013 editions of the publications will be brought forward to Thursday 19 December 2013. Hard copies of the publications will be posted to subscribers on the day of publication, but there is a possibility that subscribers may not receive their copies until after Christmas due to the high level of post over the holiday period. PDF versions of the publications and data in excel format will however be available to download from the DECC section of the gov.uk website from 9.30am on Thursday 19 December 2013.

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

Note that all factors are quoted to 5 significant figures

Sectoral breakdowns

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

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

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