Department of Energy & Climate Change

Energy Trends September 2015

24 September 2015

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This is a National Statistics publication

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

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

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

Any enquiries regarding this publication should be sent to us at energy.stats@decc.gsi.gov.uk

This document is also available from our website at www.gov.uk/government/collections/energy-trends

Explanatory notes are to be found inside the back cover

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Special feature articles

Introduction

Energy Trends and 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 2015 edition of the Digest was published on 30 July 2015. Printed and bound copies of the 2015 Digest can be obtained from The Stationery Office and an electronic version is available on the DECC section of the GOV.UK website at: www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

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 Energy Prices publication and on the DECC section of the GOV.UK website at: www.gov.uk/government/collections/quarterly-energy-prices

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The main points for the second quarter of 2015:

- Total energy production was 11 per cent higher than in the second quarter of 2014. This increase was mainly due to rises in oil and gas production, though also reflects higher renewables output following increased capacity and favourable weather conditions for generation.

- Oil production rose by 14 per cent when compared with the second quarter of 2014, boosted by a new field coming online and less maintenance activity than in 2014.

- Natural gas production was 12 per cent higher than the second quarter of 2014, reflecting less maintenance activity than in 2014 particularly at associated gas terminals. Gas imports fell by 13 per cent driven by low demand and strong production; pipeline imports fell by 3½ per cent whilst LNG imports fell by 19 per cent.

- Coal production in the second quarter of 2015 was 14 per cent lower than the second quarter of 2014 due to less demand from electricity generators and some mines producing less coal as they come to the end of operation. Coal imports were 52 per cent lower with generators demand for coal down by 27 per cent.

- Total primary energy consumption for energy rose by ½ per cent. However, when adjusted to take account of weather differences between the second quarter of 2014 and the second quarter of 2015, total primary energy consumption fell by 2 per cent continuing the recent trend.

- Temperatures in the quarter were on average 1.2 degrees cooler than a year earlier, with April the coldest month of the quarter, 1.0 degrees cooler than a year earlier.

- Final consumption was 3 per cent higher than in the second quarter of 2014. Domestic consumption rose by 11 per cent reflecting the cooler weather in the quarter, transport consumption rose by 2 per cent, other final users (mainly services) consumption was broadly unchanged, whilst industrial consumption fell by ½ per cent. On a temperature adjusted basis, final energy consumption fell by 2 per cent, with falls in all sectors except transport which rose by 1½ per cent.

- Total deliveries of the key transport fuels were up 3 per cent when compared to the same period last year. Motor spirit deliveries were down 3 per cent, DERV deliveries were up 5½ per cent while aviation turbine fuel deliveries were up 3½ per cent.

- Electricity generated in the second quarter of 2015 fell marginally, from 78.84 TWh a year earlier to 78.75 TWh. There has been though a large generation switch from coal to renewables, which will have reduced emissions.

- Of electricity generated in the second quarter of 2015, gas accounted for 30 per cent, whilst coal accounted for 21 per cent. Nuclear generation accounted for 22 per cent of total electricity generated in the second quarter of 2015.

- Low carbon electricity's share of generation increased from 38.9 per cent in the second quarter of 2014 to 46.8 per cent in the second quarter of 2015.

- Renewables' share of electricity generation increased to 25 per cent from the 17 per cent share in the second quarter of 2014, due to increased renewable capacity and more favourable weather conditions for renewable generation (higher wind speeds, rainfall and sun hours). Renewable generation rose by 51 per cent compared to a year earlier, though was 8½ per cent lower than the Q1 2015 peak.

- In the second quarter of 2015, 151 MW of capacity joined the Feed in Tariff scheme, increasing the total to 3,781 MW, approximately 13 per cent of all renewable installed capacity.

Section 1 - Total Energy

Key results show:

Total energy production was 10.8 per cent higher than in the second quarter of 2014, boosted by increases in oil and gas production. (**Charts 1.1 & 1.2**)

Total primary energy consumption for energy uses rose by 0.6 per cent. However, when adjusted to take account of weather differences between the second quarter of 2014 and the second quarter of 2015, primary energy consumption fell by 2.0 per cent, largely due to decreased coal use in electricity generation. (**Chart 1.3**)

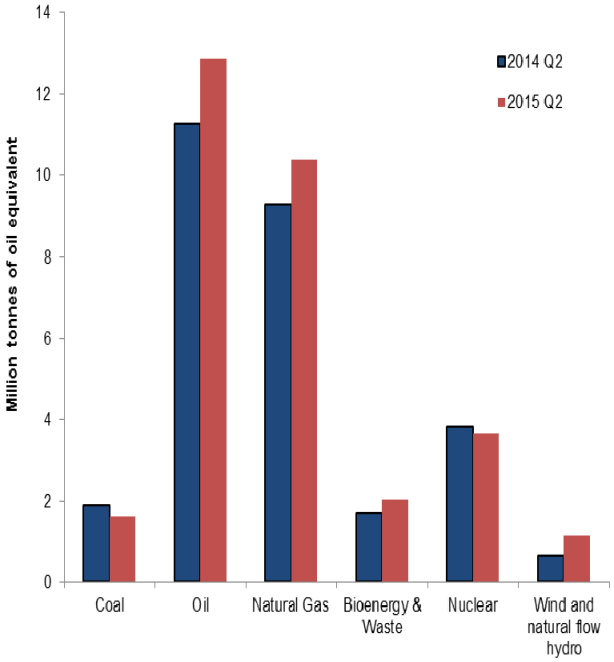
Final consumption rose by 2.9 per cent compared to the second quarter of 2014. Domestic consumption rose by 10.8 per cent reflecting the cooler weather in the quarter, transport consumption rose by 1.8 per cent, other final users' consumption rose by 0.1 per cent, whilst industrial consumption fell by 0.4 per cent. (**Chart 1.4**)

On a temperature adjusted basis, final energy consumption fell by 2.0 per cent, with falls in all sectors except transport, up 1.6 per cent. (**Chart 1.5**)

Net import dependency was 34.1 per cent, down 10.9 percentage points from the second quarter of 2014, its lowest level for four years. (**Chart 1.6**)

Fossil fuel dependency fell to 81.5 per cent in the second quarter of 2015. (**Chart 1.7**)

Chart 1.1 Production of indigenous primary fuels



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

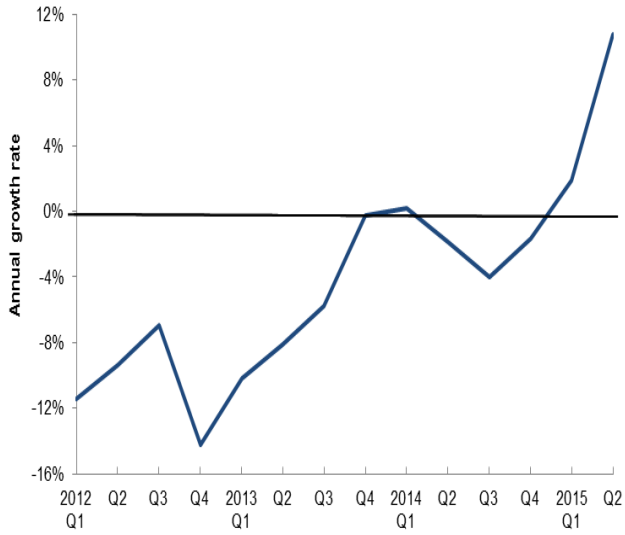
Total primary energy production in the second quarter of 2015 stood at 31.7 million tonnes of oil equivalent, 10.8 per cent higher than in the second quarter of 2014.

Production of oil rose by 14.2 per cent as a result of increased production at a number of fields which were affected by maintenance activity in the second quarter of 2014. Production of natural gas rose by 12.0 per cent due to lower production levels in the same quarter of the previous year.

Primary electricity output in the second quarter of 2015 was 7.4 per cent higher than in the second quarter of 2014, within which nuclear electricity output was 3.3 per cent lower, whilst output from wind, hydro and solar pv were 69 per cent higher than the same period in 2014, due to higher wind speeds, increased rainfall and higher solar capacity.

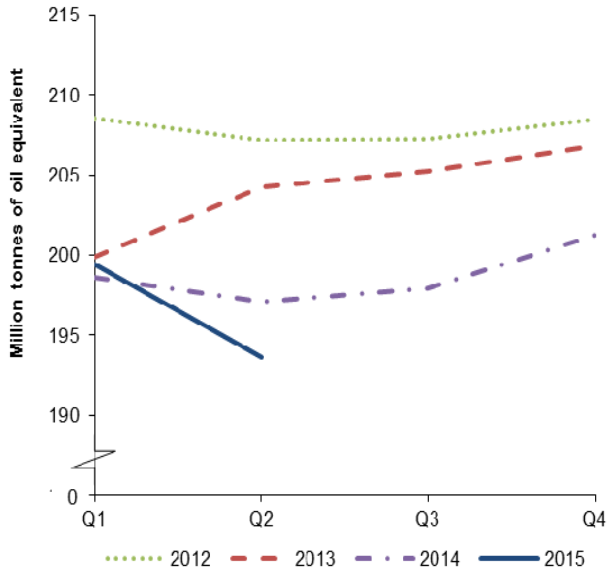
In the second quarter of 2015 production of coal and other solid fuels was 14.8 per cent lower than the corresponding period of 2014. This was due to a decrease in both deep-mined and surface mining production following mine closures.

Chart 1.2 UK production (annual growth rate)



In the second quarter of 2015, the annual growth rate of UK quarterly production was 10.8 per cent. This is the highest growth rate since before production peaked at the start of 2000, and is largely due to the increases in oil and gas as well as in renewable sources.

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



Total inland consumption on a primary fuel input basis (seasonally adjusted and temperature corrected annualised rate), was 193.3 million tonnes of oil equivalent in the second quarter of 2015, 2.0 per cent lower than in the second quarter of 2014. The average temperature in the second quarter of 2015 was 1.2 degree Celsius cooler than the same period a year earlier.

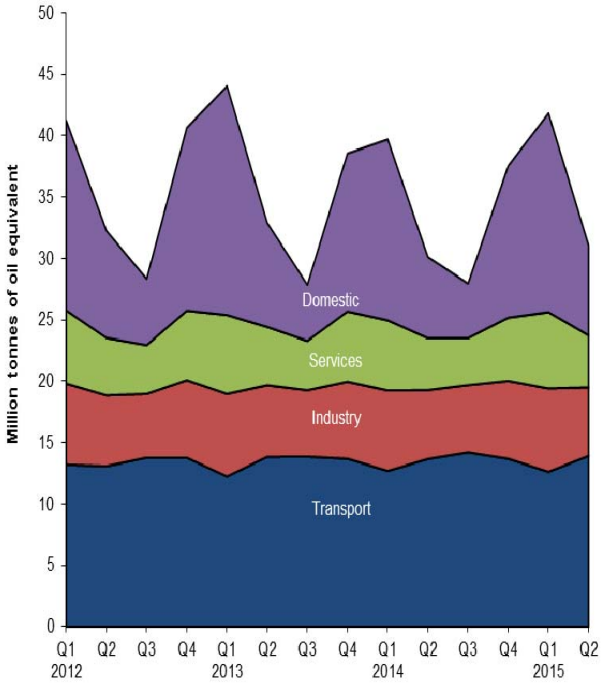
Between the second quarter of 2014 and the second quarter of 2015 (on a seasonally adjusted and temperature corrected basis) coal and other solid fuel consumption fell by 25 per cent, driven by decreased coal use in electricity generation.

On the same basis, natural gas consumption rose slightly by 0.1 per cent between the second quarter of 2014 and the second quarter of 2014.

Also on a seasonally adjusted and temperature corrected basis, oil consumption in the second quarter of 2015 was 1.3 per cent higher than in the second quarter of 2014. On the same basis and over the same period, there was a fall of 3.2 per cent in nuclear consumption but an increase of 18.9 per cent in bioenergy & waste consumption.

(1) Seasonally adjusted and temperature corrected annual rates

Chart 1.4 Final energy consumption by user



Total final consumption rose by 2.9 per cent between the second quarter of 2014 and the second quarter of 2015.

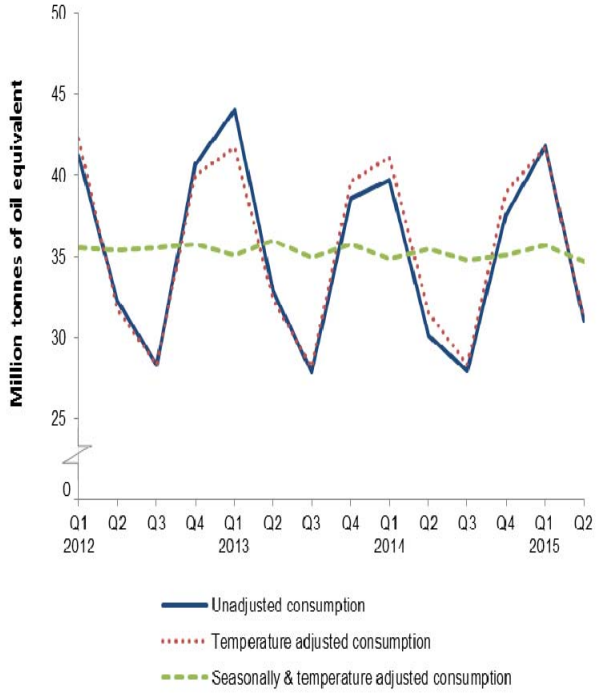
Domestic sector energy consumption rose by 10.8 per cent, reflecting the cooler weather compared to a year earlier.

Transport sector energy consumption rose by 1.8 per cent.

Service sector energy consumption rose by 0.1 per cent.

Industrial sector energy consumption fell by 0.4 per cent.

Chart 1.5 Seasonally adjusted and temperature corrected final energy consumption



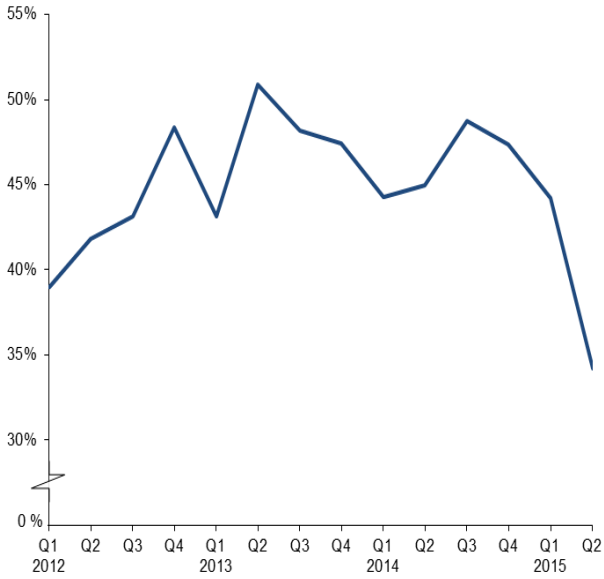
Total unadjusted final energy consumption (excluding non-energy use) rose by 3.1 per cent between the second quarter of 2014 and the second quarter of 2015.

On a seasonally and temperature adjusted basis final energy consumption (excluding non-energy use) fell by 2.0 per cent between the second quarter of 2014 and the second quarter of 2015.

Unadjusted domestic consumption rose by 10.8 per cent over this same period, but was down 5.5 per cent on a seasonally and temperature adjusted basis.

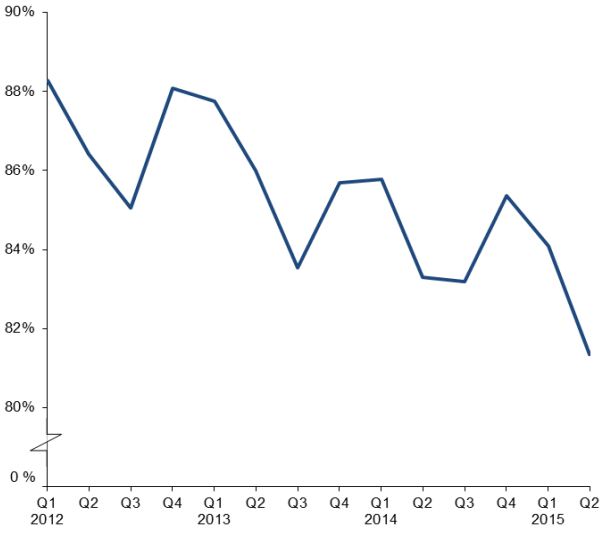
Consumption data by fuel and sector is available in the table ET 1.3c on the DECC section of the GOV.UK website at:
www.gov.uk/government/statistics/total-energy-section-1-energy-trends

Chart 1.6 Net import dependency



In the second quarter of 2015 net import dependency was 34.1 per cent, the lowest level since the second quarter of 2011, and down 10.9 percentage points from the second quarter of 2014 reflecting the increases in oil and gas production, and reduced coal imports.

Chart 1.7 Fossil fuel dependency



In the second quarter of 2015 fossil fuel dependency was 81.5 per cent, a new record low, down 1.8 percentage points from the second quarter of 2014.

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]	Bioenergy & waste[4,5]	Nuclear	Wind and natural flow hydro[6]
2010		158.6	11.4	69.0	57.2	5.9	13.9	1.19
2011		137.3	11.5	56.9	45.3	6.1	15.6	1.86
2012		122.6	10.6	48.8	38.9	6.8	15.2	2.28
2013		114.9	8.0	44.5	36.5	7.5	15.4	3.02
2014		112.9	7.3	43.7	36.6	7.9	13.9	3.61
Per cent change		*-1.7*	*-8.6*	*-1.7*	*+0.2*	*+5.3*	*-10.3*	*+19.5*
2014	Quarter 2	28.6	1.9	11.3	9.3	1.7	3.8	0.66
	Quarter 3	24.5	1.9	9.0	8.0	1.6	3.4	0.64
	Quarter 4	29.1	1.7	11.4	9.3	2.4	3.1	1.12
2015	Quarter 1	31.3r	1.9	11.5	9.9	2.8r	3.9	1.28r
	Quarter 2 p	31.7r	1.6	12.9r	10.4r	2.0	3.7	1.12r
Per cent change[7]		*+10.8*	*-14.8*	*+14.2*	*+12.0*	*+19.0*	*-3.3*	*+69.3*

1. Includes an estimate of slurry.
2. Crude oil, offshore and land, plus condensates and petroleum gases derived at onshore treatment plants.
3. Includes colliery methane, excludes gas flared or re-injected.
4. Includes solid renewable sources (wood, straw and waste), a small amount of renewable primary heat sources (solar, geothermal etc), liquid biofuels and sewage gas and landfill gas.
5. Bioenergy & waste introduced as a separate category from March 2014 - see special feature article in the March 2014 edition of Energy Trends at: www.gov.uk/government/collections/energy-trends-articles
6. Includes generation by solar PV.
7. Percentage change between the most recent quarter and the same quarter a year earlier.

1 TOTAL ENERGY

TABLE 1.2 Inland energy consumption: primary fuel input basis

Million tonnes of oil equivalent

							Primary electricity								Primary electricity	
					Natural	Bioenergy		Wind and natural	Net				Natural	Bioenergy		Wind and natural	Net
		Total	Coal[1]	Petroleum[2]	gas[3]	& waste[4, 5]	Nuclear	flow hydro[6]	imports	Total	Coal	Petroleum	gas	& waste	Nuclear	flow hydro	imports
		Unadjusted [7]								*Seasonally adjusted and temperature corrected* [8,9] *(annualised rates)*							
2010		219.4	32.6	70.2	93.6	7.6	13.9	1.19	0.23	213.4	31.1	70.2	89.2	7.6	13.9	1.19	0.23
2011		203.5	32.2	67.8	77.6	7.7	15.6	1.86	0.53	209.0	34.0	67.8	81.5	7.7	15.6	1.86	0.53
2012		208.0	40.9	67.0	73.3	8.3	15.2	2.28	1.02	207.9	40.9	67.0	73.3	8.3	15.2	2.28	1.02
2013		207.0	39.1	66.1	72.7	9.4	15.4	3.02	1.24	204.1	38.3	66.1	70.5	9.4	15.4	3.02	1.24
2014		193.4	31.7	65.8	65.9	10.7	13.9	3.61	1.76	198.7	33.4	65.8	69.6	10.7	13.9	3.61	1.76
Per cent change		*-6.6*	*-18.9*	*-0.3*	*-9.3*	*+13.4*	*-10.3*	*+19.5*	*+42.1*	*-2.6*	*-12.9*	*-0.3*	*-1.3*	*+13.4*	*-10.3*	*+19.5*	*+42.1*
2014	Quarter 2	43.9	7.1	16.4	13.1	2.4	3.8	0.66	0.44	197.1	35.0	65.4	67.0	9.7	15.0	3.20	1.75
	Quarter 3	41.1	5.8	16.8	11.5	2.4	3.4	0.64	0.47	197.9	29.4	67.4	72.2	9.6	13.9	3.52	1.87
	Quarter 4	52.6	8.5	16.8	19.7	3.1	3.1	1.12	0.44	201.3	31.7	67.0	71.8	12.4	12.9	3.67	1.76
2015	Quarter 1	58.0r	9.0r	16.0	23.8r	3.5r	3.9	1.28r	0.42	199.2r	30.7r	64.0r	69.4r	14.1r	15.0	4.24r	1.68
	Quarter 2 p	44.2r	5.6	16.6r	13.9	2.9r	3.7	1.12r	0.47r	193.3r	26.4r	66.3r	67.0r	11.6r	14.5	5.55r	1.90r
Per cent change [10]		*+0.6*	*-21.8*	*+1.3*	*+5.9*	*+18.9*	*-3.3*	*+69.3*	*+8.6*	*-2.0*	*-24.7*	*+1.3*	*+0.1*	*+18.9*	*-3.2*	*+73.5*	*+8.6*

1. Includes 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 and colliery methane. Excludes gas flared or re-injected and non-energy use of gas.
4. Includes solid renewable sources (wood, straw and waste), a small amount of renewable primary heat sources (solar, geothermal, etc.), liquid biofuels, landfill gas and sewage gas.
5. Bioenergy & waste introduced as a separate category from March 2014 - see special feature article in the March 2014 edition of Energy Trends at:
www.gov.uk/government/collections/energy-trends-articles
6. Includes generation by solar PV. Excludes generation from pumped storage stations.
7. Not seasonally adjusted or temperature corrected.
8. Coal and natural gas are temperature corrected; petroleum, bioenergy and waste, and primary electricity are not temperature corrected.
9. 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/collections/energy-trends
10. Percentage change between the most recent quarter and the same quarter a year earlier.

1 TOTAL ENERGY

Table 1.3a Supply and use of fuels

Thousand tonnes of oil equivalent

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change [1]*
SUPPLY													
Indigenous production	114,908	112,910	*-1.7*	29,129	25,567	29,545	30,719	28,592	24,546	29,052	31,291r	31,682	*+10.8*
Imports	178,596	164,770	*-7.7*	46,420	40,120	44,983	43,792	39,202	38,187	43,589	42,976r	35,253	*-10.1*
Exports	-76,129	-70,704	*-7.1*	-20,614	-18,312	-17,903	-17,971	-18,289	-16,968	-17,476	-16,236r	-19,285	*+5.4*
Marine bunkers	-2,691	-2,484	*-7.7*	-714	-684	-629	-636	-599	-618	-630	-621r	-604	*+0.9*
Stock change[2]	+32	-3,525		-4,221	-2,129	+467	+1,761	-2,998	-2,239	-49	+2,531	-883	
Primary supply	214,716	200,967	*-6.4*	49,999	44,563	56,462	57,666	45,908	42,907	54,486	59,941r	46,164	*+0.6*
Statistical difference[3]	-298	-448		-119	-25	-33	-34	-161	-267	15	28r	31	
Primary demand	215,014	201,415	*-6.3*	50,118	44,588	56,495	57,700	46,069	43,174	54,471	59,913r	46,134	*+0.1*
Transfers[4]	-5	-3		-4	-7	7	-1	-5	6	-2	23	1	
TRANSFORMATION	-48,153	-43,689	*-9.3*	-11,056	-11,000	-12,393	-12,144	-10,403	-9,948	-11,192	-11,936r	-9,365	*-10.0*
Electricity generation	-44,071	-39,429	*-10.5*	-10,097	-9,994	-11,272	-10,969	-9,358	-8,857	-10,244	-10,919r	-8,575	*-8.4*
Heat generation	-1,153	-1,132	*-1.8*	-258	-218	-302	-343	-251	-225	-313	-343r	-251	*-0.0*
Petroleum refineries	-67	-349	*(+)*	6	-33	-89	-86	-128	-137	3	-16r	-15	*-88.1*
Coke manufacture	-446	-334	*-25.1*	-90	-146	-113	-86	-77	-85	-86	-43r	-22	*-71.6*
Blast furnaces	-2,376	-2,379	*+0.1*	-608	-601	-606	-644	-573	-626	-537	-605r	-480	*-16.1*
Patent fuel manufacture	-40	-66	*+66.7*	-10	-9	-11	-17	-17	-18	-15	-10r	-22	*+31.9*
Energy industry use	12,539	11,619	*-7.3*	3,251	3,047	2,972	3,047	2,877	2,755	2,940	3,204r	3,099	*+7.7*
Losses	3,242	3,262	*+0.6*	800	673	826	933	713	704	913	1,006r	675	*-5.3*
FINAL CONSUMPTION	151,074	142,843	*-5.4*	35,008	29,872	40,331	41,552	32,088	29,784	39,419	43,765r	33,012	*+2.9*
Iron & steel	1,348	1,357	*+0.7*	335	331	348	356	347	340	314	370r	353	*+1.7*
Other industries	22,888	22,629	*-1.1*	5,509	5,084	5,926	6,185	5,265	5,150	6,029	6,403r	5,239	*-0.5*
Transport	53,563	54,177	*+1.1*	13,815	13,832	13,669	12,692	13,646	14,176	13,663	12,622r	13,890	*+1.8*
Domestic	44,578	38,162	*-14.4*	8,481	4,570	12,881	14,739	6,606	4,449	12,368	16,200r	7,321	*+10.8*
Other Final Users	20,949	18,957	*-9.5*	4,749	4,028	5,733	5,721	4,234	3,838	5,164	6,225r	4,240	*+0.1*
Non energy use	7,749	7,561	*-2.4*	2,120	2,027	1,775	1,860	1,989	1,830	1,882	1,945r	1,969	*-1.0*
DEPENDENCY[5]													
Net import dependency	47.1%	46.2%		50.9%	48.2%	47.4%	44.3%	45.0%	48.7%	47.4%	44.2%	34.1%	
Fossil fuel dependency	85.9%	84.5%		86.0%	83.5%	85.7%	85.8%	83.3%	83.2%	85.4%	84.2%	81.5%	
Low carbon share	13.1%	14.2%		13.0%	15.1%	13.5%	13.1%	15.3%	15.2%	13.5%	14.8%	17.0%	

1. Percentage change between the most recent quarter and the same quarter 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

	2014 Quarter 2									2015 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	1,882	-	11,254	-	9,292	1,699	4,464	-	-	1,604	-	12,857	-	10,402	2,023	4,796	-	-
Imports	6,954	144	13,701	8,040	9,035	832	-	496	-	3,474	206	13,100	9,074	7,892	992	-	514	-
Exports	-60	-22	-8,183	-6,339	-3,531	-95	-	-60	-	-57	-53	-10,051	-5,635	-3,331	-117	-	-41	-
Marine bunkers	-	-	-	-599	-	-	-	-	-	-	-	-	-604	-	-	-	-	-
Stock change[1]	-1,699	-65	+71	+249	-1,554	-	-	-	-	+557	-150	-153	-186	-949	-	-	-	-
Primary supply	7,077	57	16,843	1,351	13,242	2,436	4,464	436	-	5,578	4	15,752	2,649	14,013	2,897	4,796	474	-
Statistical difference[2]	-53	-1	-23	-11	-62	+9	-	-23	-	-32	+0	+11	+17	+8	-	-	+26	-
Primary demand	7,130	58	16,866	1,361	13,304	2,427	4,464	459	-	5,610	3	15,742	2,632	14,006	2,897	4,796	447	-
Transfers[3]	-	-7	-376	+379	-2	-	-662	+662	-	-	+8	-440	+441	-8	-	-1,120	+1,120	-
TRANSFORMATION	-6,693	430	-16,490	16,198	-4,865	-1,602	-3,803	6,060	360	-5,125	471	-15,302	15,124	-4,741	-2,077	-3,676	5,601	360
Electricity generation	-5,304	-227	-	-126	-4,373	-1,586	-3,803	6,060	-	-3,863	-199	-	-127	-4,248	-2,062	-3,676	5,601	-
Heat generation	-73	-13	-	-18	-492	-15	-	-	360	-73	-13	-	-18	-492	-15	-	-	360
Petroleum refineries	-	-	-16,490	16,362	-	-	-	-	-	-	-	-15,302	15,287	-	-	-	-	-
Coke manufacture	-978	901	-	-	-	-	-	-	-	-800	778	-	-	-	-	-	-	-
Blast furnaces	-286	-286	-	-	-	-	-	-	-	-340	-140	-	-	-	-	-	-	-
Patent fuel manufacture	-51	55	-	-20	-	-	-	-	-	-49	45	-	-19	-	-	-	-	-
Energy industry use	0	201	-	1,009	1,061	-	-	534	71	-	199	-	1,013	1,294	-	-	521	71
Losses	-	48	-	-	135	-	-	529	-	-	77	-	-	129	-	-	469	-
FINAL CONSUMPTION	437	232	-	16,930	7,240	825	-	6,117	306	485	205	-	17,183	7,835	820	-	6,178	306
Iron & steel	10	138	-	2	116	-	-	81	-	10	132	-	2	129	-	-	79	-
Other industries	323	11	-	1,059	1,640	155	-	1,854	224	362	8	-	964	1,651	157	-	1,872	224
Transport	2	-	-	13,224	-	328	-	92	-	3	-	-	13,556	-	239	-	92	-
Domestic	95	47	-	447	3,658	258	-	2,091	9	100	36	-	495	4,272	332	-	2,078	9
Other final users	7	-	-	361	1,710	84	-	2,000	73	11	-	-	342	1,665	92	-	2,058	73
Non energy use	-	36	-	1,836	117	-	-	-	-	-	29	-	1,823	117	-	-	-	-

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. Inludes 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:

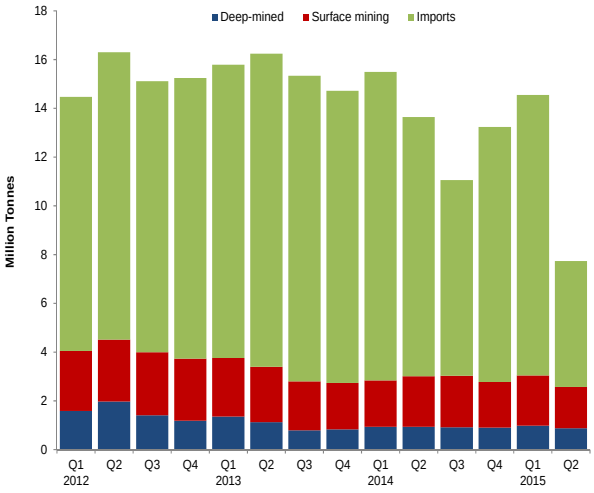
Overall coal production of 2.6 million tonnes (a record low) was down 14 per cent (-0.4 million tonnes) compared to the second quarter of 2014 with deep-mined output down 6.2 per cent (-0.1 million tonnes) and surface mining output down by 18 per cent (-0.4 million tonnes). **(Chart 2.1)**

Coal imports were down 52 per cent (-5.5 million tonnes) on levels shown in the second quarter of 2014, as demand for coal fell. **(Charts 2.1 and 2.2)**

Demand for coal by electricity generators in the second quarter of 2015 was 27 per cent (-2.3 million tonnes) lower than demand in the second quarter of 2014 reflecting a switch away from coal. **(Chart 2.3)**

Total stock levels were 18.5 million tonnes, up 13 per cent (+2.1 million tonnes) compared to the second quarter of 2014 and down by 0.9 million tonnes on quarter 1 2015. **(Chart 2.4)**

Chart 2.1 Coal supply



Provisional figures for the second quarter of 2015 show that coal production at 2.6 million tonnes (a new record low) was 14 per cent lower than the second quarter of 2014. This was due to less demand from electricity generators and some mines producing less coal as they approach the end of their operating lives.

Imports of coal in the second quarter of 2015 were 52 per cent lower than in the second quarter of 2014 at 5.2 million tonnes. This was the lowest value for over 15 years. The decrease reflects the fact that consumption by electricity generators was down. The decline was due to a number of reasons: the temporary closure of some plants due to market conditions, along with an increase in the carbon price floor from April 2015, the partial closure of Ferrybridge C during 2014, and a second unit of Drax being converted to biomass in May 2014.

Table 2A Coal imports by origin

Thousand Tonnes

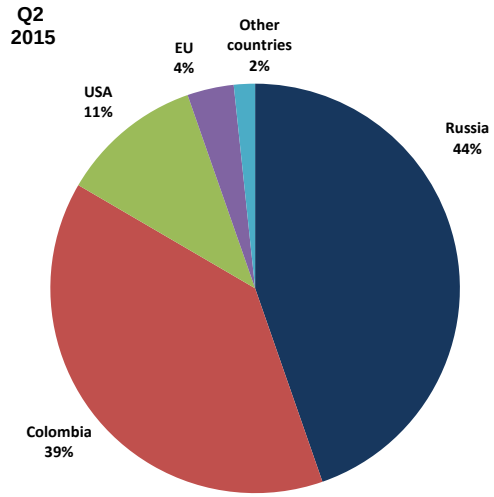
	2013	2014	2014 Q2	2015 Q2 p
European Union	1,228	764	203	153
Russia	20,250	17,676	4,625	2,020
USA	12,196	10,994	2,869	1,197
Colombia	11,494	9,681	2,085	1,359
Australia	2,147	1,249	377	290
Other Countries	2,087	1,401	473	135
Total imports	49,402	41,765	10,631	5,153

Total coal imports decreased by 52 per cent to 5.2 million tonnes in the second quarter of 2015.

Steam coal imports in the second quarter of 2015 fell by 61 per cent to 3.5 million tonnes and accounted for 68 per cent of total coal imports, down from 84 per cent in the same period last year.

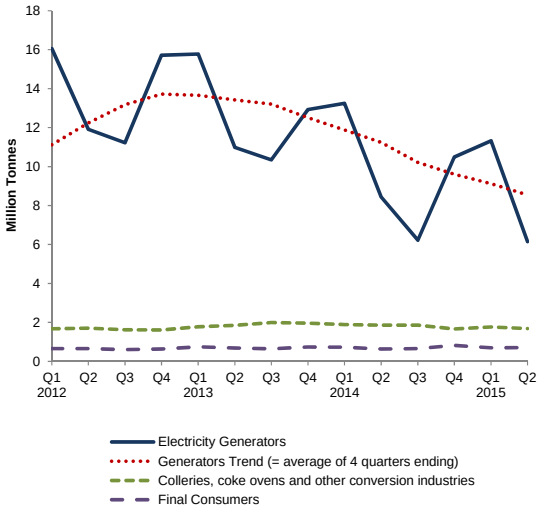
Coking coal imports in the second quarter of 2015 fell marginally by 2.9 per cent to 1.6 million tonnes and accounted for 31 per cent of total coal imports.

Chart 2.2 Steam coal imports by origin



All but six per cent of UK steam coal imports came from just three countries: Russia (44 per cent), Colombia (39 per cent), and the USA (11 per cent).

Chart 2.3 Coal consumption

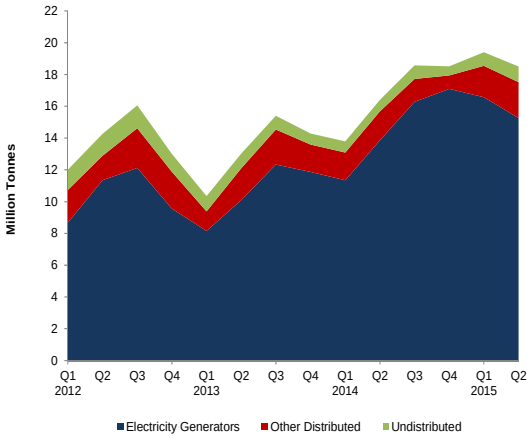


Total demand for coal in the second quarter of 2015, at 8.5 million tonnes, was 22 per cent lower than in the second quarter of 2014. Consumption by electricity generators was down by 27 per cent to 6.1 million tonnes (a new record low).

Electricity generators accounted for 72 per cent of total coal use in the second quarter of 2015; compared with 77 per cent a year earlier.

Sales to industrial users rose by 12 per cent in the second quarter of 2015 and sales to other final consumers (including domestic) increased by 9.0 per cent to 0.2 million tonnes during the second quarter of 2015, reflecting colder temperatures in April and May.

Chart 2.4 Coal stocks



Coal stocks showed a fall of 0.9 million tonnes during the second quarter of 2015 compared to the end of March 2015 and stood at 18.5 million tonnes. This was an unusual fall for this period due to power stations using up stocks rather than buying more coal. Coal stocks were 2.1 million tonnes higher than at the end of June 2014.

The level of coal stocks at power stations at the end of the second quarter of 2015 was 15.3 million tonnes, 1.4 million tonnes higher than at the end of June 2014, reflecting lower generation.

Stocks held by coke ovens were 1.0 million tonnes at the end of the second quarter of 2014, this was 0.5 million tonnes higher than stock levels at the end of the June 2014.

Stocks held by coal producers (undistributed stocks) decreased during the second quarter of 2015 to 1.0 million tonnes, but were 0.3 million tonnes higher than at the end of June 2014.

Relevant tables

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2 SOLID FUEL AND DERIVED GASES

Table 2.1 Supply and consumption of coal

Thousand tonnes

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change* [1]
SUPPLY													
Indigenous production	12,767	11,648	*-8.8*	3,425	2,858	2,731	2,833	3,009	3,030	2,776	3,040	2,574	*-14.4*
Deep mined	4,089	3,685	*-9.9*	1,124	785	829	932	936	916	901	980	879	*-6.2*
Surface mining[2]	8,584	7,962	*-7.2*	2,268	2,011	1,902	1,902	2,072	2,113	1,875	2,060	1,696	*-18.2*
Other sources	95	-	*-100.0*	33	62	-	-	-	-	-	-	-	
Imports[3]	49,402	41,765	*-15.5*	12,843	12,540	11,983	12,653	10,631	8,026	10,454	11,507	5,153	*-51.5*
Exports[4]	593	425	*-28.4*	127	95	185	129	79	112	105	102	75	*-5.1*
Stock change[5]	-1,328	-4,330	*(+)*	-2,676	-2,383	+1,074	+536	-2,606	-2,175	-84	-681r	+893	*(-)*
Total supply	60,248	48,658	*-19.2*	13,465	12,920	15,603	15,894	10,955	8,768	13,041	13,765r	8,545	*-22.0*
Statistical difference	-177	+158	*(-)*	-54	-58	-26	+35	+25	+33	+65	-19r	+4	*-82.9*
Total demand	60,425	48,500	*-19.7*	13,519	12,977	15,630	15,859	10,930	8,735	12,976	13,784r	8,541	*-21.9*
TRANSFORMATION	57,607	45,665	*-20.7*	12,830	12,335	14,889	15,137	10,292	8,084	12,153	13,090r	7,833	*-23.9*
Electricity generation	50,041	38,400	*-23.3*	10,983	10,349	12,933	13,248	8,439	6,223	10,490	11,320	6,147	*-27.2*
Heat generation[6]	609	516	*-15.2*	143	129	157	151	117	107	140	151	117	-
Coke manufacture	5,288	4,977	*-5.9*	1,310	1,404	1,331	1,270	1,287	1,264	1,156	1,165	1,053	*-18.2*
Blast furnaces	1,411	1,513	*+7.3*	325	393	399	411	377	416	309	423	447	*+18.6*
Patent fuel manufacture	259	259	*+0.1*	69	60	69	58	72	72	57	31r	69	*-4.6*
Energy industry use	3	1	*-78.0*	0	0	0	0	0	-	-	-	-	*-100.0*
FINAL CONSUMPTION	2,816	2,834	*+0.6*	689	642	740	722	638	652	823	694r	708	*+11.1*
Iron & steel	53	54	*+2.0*	13	13	13	14	14	13	13	14	14	*+3.1*
Other industries	2,078	2,186	*+5.2*	510	481	546	558	485	507	636	504r	543	*+11.9*
Domestic	636	547	*-14.1*	157	137	166	138	126	119	163	158r	132	*+4.4*
Other final users	48	48	*-1.0*	8	11	15	13	13	12	10	17	20	*+55.2*
Stocks at end of period													
Distributed stocks	13,591	17,944	*+32.0*	12,096	14,540	13,591	13,085	15,672	17,719	17,944	18,551r	17,516	*+11.8*
Of which:													
Major power producers[7]	11,871	17,091	*+44.0*	10,093	12,336	11,871	11,350	13,858	16,275	17,091	16,573	15,264	*+10.1*
Coke ovens	518	795	*+53.3*	1,170	952	518	323	473	739	795	836	985	*(+)*
Undistributed stocks	696	576	*-17.2*	928	867	696	712	731	860	576	849r	991	*+35.6*
Total stocks[8]	14,287	18,520	*+29.6*	13,024	15,407	14,287	13,797	16,403	18,578	18,520	19,400r	18,507	*+12.8*

1. Percentage change between the most recent quarter and the same quarter a year earlier.

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

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

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

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

6. Heat generation is based on an annual figure and is then split over a quarterly period. The 2015 heat generation will not be published until the end of July 2016. Therefore, the 2014 figure is used as an estimate for 2015.

7. This includes stocks held at ports.

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

2 SOLID FUEL AND DERIVED GASES

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

Thousand tonnes

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change* [3]
SUPPLY													
Indigenous production	4,136	3,906	*-5.6*	1,052	1,053	1,047	994	1,025	990	897	895	868	*-15.3*
Coke Oven Coke	3,769	3,601	*-4.4*	958	969	949	919	940	912	830	854	800	*-14.9*
Coke Breeze	32	31	*-2.6*	8	8	8	8	8	8	7	5	5	*-41.5*
Other MSF	336	274	*-18.4*	87	76	90	67	77	70	60	36	64	*-16.8*
Imports	834	940	*+12.7*	327	235	167	204	202	283	251	302	290	*+43.2*
Exports	117	112	*-4.3*	35	20	26	40	30	29	13	23	74	*(+)*
Stock change[1]	-122r	-211	*+73.0*	-98	-111	-4	+42	-92	-75	-86	-10	-211	*(+)*
Transfers	0	-5		0	0	-0	-1	-13	9	-	-2	-1	*-93.3*
Total supply	4,730	4,519	*-4.5*	1,246	1,157	1,184	1,199	1,093	1,177	1,049	1,162	872	*-20.2*
Statistical difference	-1	-0	*-90.9*	-	-0	-0	-0	-	-0	0	-0	-	
Total demand	4,732	4,519	*-4.5*	1,246	1,157	1,184	1,200	1,093	1,177	1,049	1,162	872	*-20.2*
TRANSFORMATION	3,713	3,585	*-3.5*	987	913	912	958r	856	929	842	925	665	*-22.3*
Coke manufacture	-	-		-	-	-	-	-	-	-	-	-	
Blast furnaces	3,713	3,585	*-3.5*	987	913	912	958r	856	929	842	925	665	*-22.3*
Energy industry use	-	-		-	-	-	-	-	-	-	-	-	
FINAL CONSUMPTION	1,019	934	*-8.3*	259	244	273	242	237	248	207	237	207	*-12.5*
Iron & steel	626	634	*+1.3*	156	159	169	165	161	174	134	165	151	*-6.1*
Other industries	83	45	*-46.4*	25	22	23	11	10	10	14	10	6	*-39.6*
Domestic	310	256	*-17.5*	78	63	81	66	66	64	59	62	50	*-24.1*
Stocks at end of period[2]	714	719	*+0.8*	689	599	714	465	525	624	719	626	788	*+50.0*

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 between the most recent quarter and the same quarter 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

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change* [1]
SUPPLY													
Indigenous production	25,686	25,441	*-1.0*	6,517	6,675	6,563	6,628	6,393	6,673	5,748	7,055r	6,270	*-1.9*
Coke oven gas	8,479	8,473	*-0.1*	2,140	2,216	2,119	2,132	2,211	2,199	1,931	2,324r	2,056	*-7.0*
Blast furnace gas	15,576	15,386	*-1.2*	3,974	4,043	4,028	4,075	3,762	4,094	3,455	4,359r	3,876	*+3.0*
Benzole & tars	1,630	1,582	*-3.0*	403	417	416	421	420	380	361	371r	339	*-19.4*
Transfers	61	140	*(+)*	12	14	5	9	25	40	66	92r	94	*(+)*
Total supply	25,746	25,581	*-0.6*	6,530	6,689	6,568	6,637	6,418	6,713	5,813	7,147r	6,365	*-0.8*
Statistical difference	+16	-35	*(-)*	-11	-0	+2	-8	-8	-19	+0	-3r	+5	
Total demand	25,730	25,616	*-0.4*	6,540	6,690	6,566	6,645	6,426	6,732	5,813	7,150r	6,360	*-1.0*
TRANSFORMATION	11,522	11,253	*-2.3*	2,996	2,874	2,836	2,915	2,792	2,858	2,688	3,226r	2,469	*-11.5*
Electricity generation	10,925	10,655	*-2.5*	2,847	2,725	2,687	2,765	2,642	2,709	2,539	3,077r	2,320	*-12.2*
Heat generation[2]	598	598	*-*	149	149	149	149	149	149	149	149	149	*-*
Energy industry use	9,041	9,331	*+3.2*	2,289	2,358	2,323	2,463	2,333	2,381	2,154	2,581r	2,319	*-0.6*
Losses	2,500	2,517	*+0.7*	604	755	697	579	561	926	452	674r	899	*+60.3*
FINAL CONSUMPTION	2,667	2,515	*-5.7*	651	703	709	689	740	567	519	669r	672	*-9.2*
Iron & steel	862	768	*-10.9*	214	244	248	236	276	143	114	253r	290	*+5.4*
Other industries	174	165	*-5.3*	33	42	45	32	45	44	44	44	43	*-3.7*
Non-Energy Use[3]	1,630	1,582	*-3.0*	403	417	416	421	420	380	361	371r	339	*-19.4*

1. Percentage change between the most recent quarter and the same quarter a year earlier.

2. For Heat generation, the 2015 figures currently shown are the 2014 figures carried forward - these will be updated in July 2016.

3. From 2009, unclassified final consumption for benzole and tars has been recorded under non energy use

Section 3 - Oil and Oil Products

Key results show:

Total indigenous UK production of crude oil and Natural Gas Liquids (NGL) in Q2 2015 was 14.3 per cent higher than a year ago. Production was boosted by a new field coming online and less maintenance activity than last year **(Chart 3.1)**

Indigenous production of petroleum products was 6.3 per cent lower in the second quarter of 2015 compared with the same quarter in 2014. Production was affected by maintenance at a major refinery as well as a general decline in UK refinery production. (**Chart 3.2**)

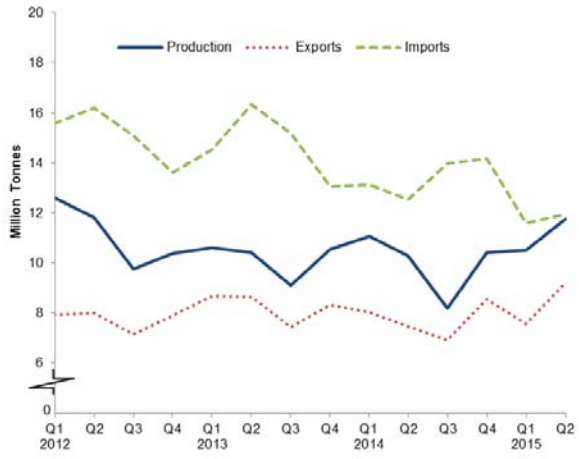
Imports of petroleum products increased by 12.5 per cent and exports decreased by 11.3 per cent compared with the second quarter of 2014 due to the low refinery production. As a result, the UK was a net importer of petroleum products in Q2 2015, for the eighth consecutive quarter, by 3.1 million tonnes. This follows a long period where the UK was generally a net exporter of petroleum products. **(Chart 3.2)**

Net imports of primary oils (crude oil, NGLs and process oils) in Q2 2015 decreased to 2.8 million tonnes (down 45 per cent) due to higher indigenous production and lower refinery demand. This met about 19 per cent of UK's refinery demand. **(Chart 3.3)**

In Q2 2015 total deliveries of key transport fuels increased by 2.9 per cent compared with Q2 2014. Motor Spirit deliveries were down by 2.8 per cent, DERV deliveries were up by 5.7 per cent (excluding the blended bio-element), while deliveries of Aviation Turbine Fuel increased by 3.5 per cent. (**Chart 3.5)**

Overall stocks of crude oil and petroleum products were up by 9.2 per cent at end of the Q2 2015 compared to a year earlier when they had been particularly low. **(Chart 3.7)**

Chart 3.1 Production and trade of crude oil and NGLs



Indigenous crude oil production was higher by 14.8 per cent in Q2 2015 compared with the same quarter a year ago. This is the highest quarterly increase since production peaked in 1999. Production has been boosted in 2015 by a new field coming online towards the end of 2014. Elsewhere, there was less planned maintenance than in the same quarter of 2014.

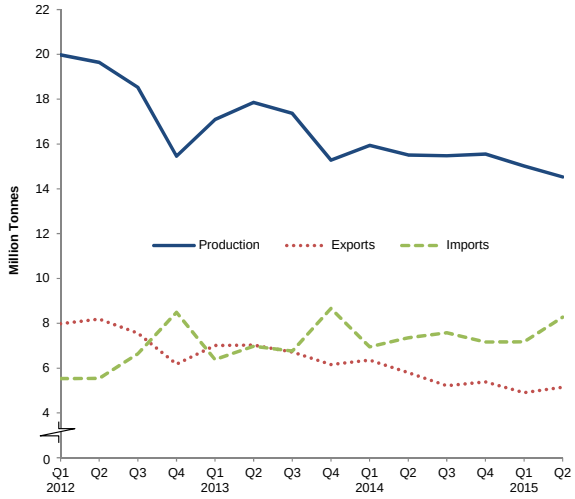
Production of Natural Gas Liquids (NGLs) increased by 6.9 per cent on the second quarter of 2014; production was boosted by two new fields coming online during 2014.

Taken together, indigenous production of crude and NGLs was 14.3 per cent higher. Despite the large increase, production was still lower in Q2 2015 than in Q2 2012 and was 64 per cent lower than in the same quarter of 1999.

In Q2 2015, imports of crude oil and NGL's were 4.5 per cent lower compared with the same period a year ago, reflecting both lower demand for primary oils for the UK's refining industry and greater exports. Exports of crude oil and NGLs increased by 21 per cent.

Overall, net imports of primary oils (crude, NGL's and feedstocks) were 2.8 million tonnes in Q2 2015 compared with 5.0 million tonnes in the same quarter of 2014.

Chart 3.2 Production and trade of petroleum products

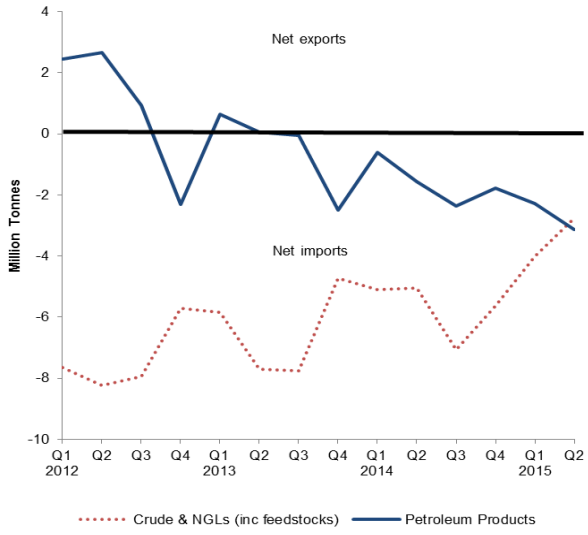


Indigenous production of petroleum products in Q2 2015 was lower by 6.3 per cent lower compared with the same quarter in 2014. There has been a general decline in refinery production for some time. Furthermore, production at one of the UK's refineries has been suspended, it was still operational for part of Q2 2014. Elsewhere production has been affected by planned maintenance at a major refinery.

Imports have increased and exports have decreased as a result of the fall in domestic production. Imports of petroleum products have increased by 12.5 per cent on the second quarter of 2014. In absolute terms, the largest increase was imports of road diesel up by more than a quarter (0.8 million tonnes).

The UK was a net importer (3.1 million tonnes) of petroleum products in Q2 2015, the eighth consecutive quarter where imports have outweighed exports.

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

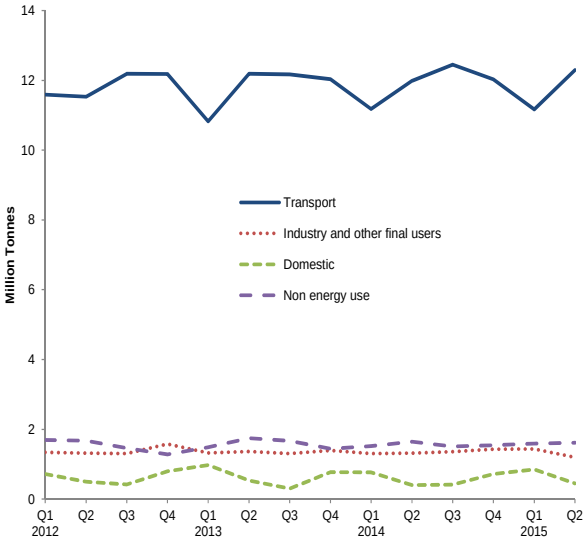


In Q2 2015, net imports of primary oils (crude, NGL's and feedstocks) decreased to 2.8 million tonnes compared with 5.0 million tonnes in Q2 2014, a decrease of 45 per cent. This is again indicative of lower refinery demand.

The UK's overall net import dependence for primary oils (crude, NGL's and feedstocks) was 19 per cent in Q2 2015, down from 33 per cent in Q2 2014.

In Q2 2015 the UK was a net importer of petroleum products, by 3.1 million tonnes, up from 1.6 million tonnes in the same quarter of 2014. There have now been 8 consecutive quarters where the UK has imported more petroleum products than it exported. This follows decades where the UK has been a net exporter of petroleum. In 2014 as a whole, the UK was a net importer for only the second time since 1984 when there was industrial action in the coal industry.

Chart 3.4 Final consumption of oil



In Q2 2015, final consumption of petroleum products was higher by 1.3 per cent compared with Q2 2014. Within this:

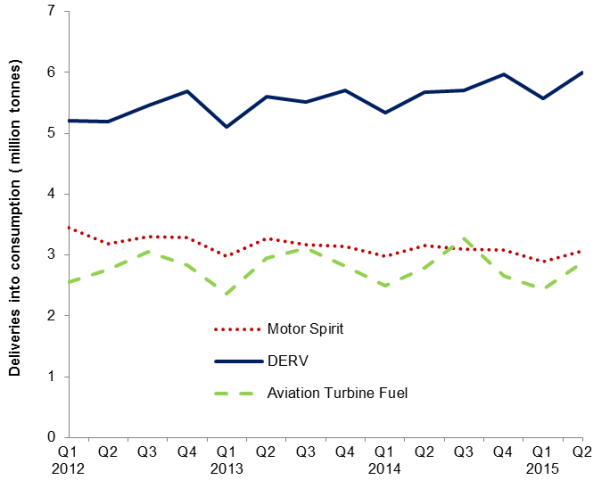
Transport, which accounts for about three-quarters of UK final consumption, was higher, by 2.5 per cent. (See chart 3.5 for more detail).

Final consumption within the Industry sector in Q2 2015 fell by around 10 per cent on last year to 0.9 million tonnes.

Domestic consumption of oil was significantly higher by nearly 11 per cent - oil is mostly used for heating, average temperatures were, on average, 1.2 degrees lower in Q2 2015 than Q2 2014.

Demand for oil for non-energy use was lower by 2.0 per cent in the latest quarter.

Chart 3.5 Demand for key transport fuels



In Q2 2015, total deliveries of key hydrocarbon transport fuels were higher by 2.9 per cent. Within this:

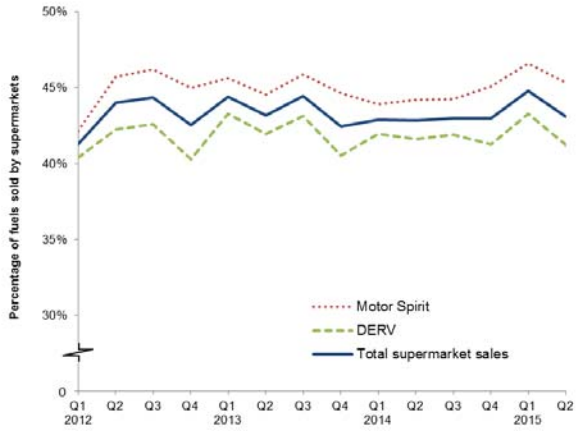
Motor spirit (petrol) deliveries were down by 2.8 per cent on the second quarter of 2015.

Hydrocarbon DERV (diesel) demand increased by 5.7 per cent on the second quarter of 2014. However, total DERV consumption, including bio-diesel increased by 3.9 per cent as a smaller quantity of bio-fuels were blended into diesel in Q2 2014. Consumption of bio-diesel had been especially high in 2014.

The overall decrease in motor spirit demand and increase in diesel demand is broadly in line with the long term trend as more motorists switch from petrol to diesel.

Demand for aviation turbine fuel (ATF) increased by 3.5 per cent on the second quarter of 2014, reflecting greater air passenger numbers this year. Consumption of ATF increased sharply on the first quarter of this year but demand is seasonal with more people flying during summer months.

Chart 3.6 Supermarket share of road fuel sales

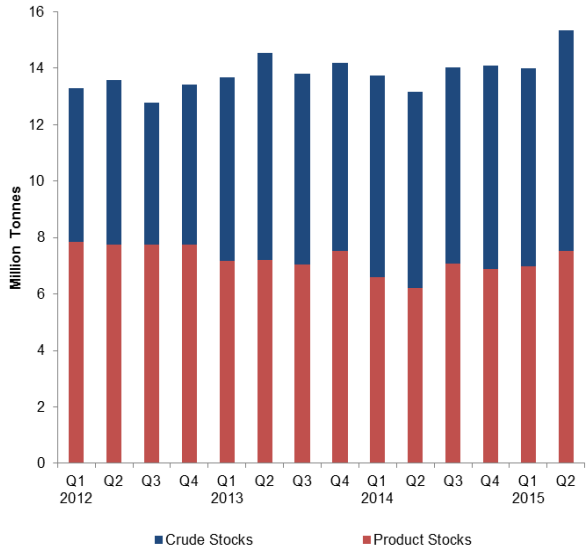


In Q2 2015, the total share of road fuel sales remained broadly consistent. On an overall basis, supermarket outlets accounted for 43 per cent of total retail sales, roughly the same level as the second quarter of 2014. Within this:

The overall volume of motor spirit sales (petrol, including the bio-fuel element) decreased by 2.8 per cent but supermarkets sold 45 per cent of that volume, up slightly from 44 per cent in the same period last year.

Sales of DERV (diesel, again including the bio-fuel element) increased but the supermarket share decreased slightly from 42 per cent to 41 per cent.

Chart 3.7 UK oil stocks



At the end of Q2 2015, total stocks for all oil were up by 9.2 per cent (1.2 million tonnes) compared to the same point in 2014. However, total stocks had been particularly low at the end of Q2 2014, this was largely because one of the UK's refineries had ceased refining activity and was instead drawing down from stocks in Q2 2014.

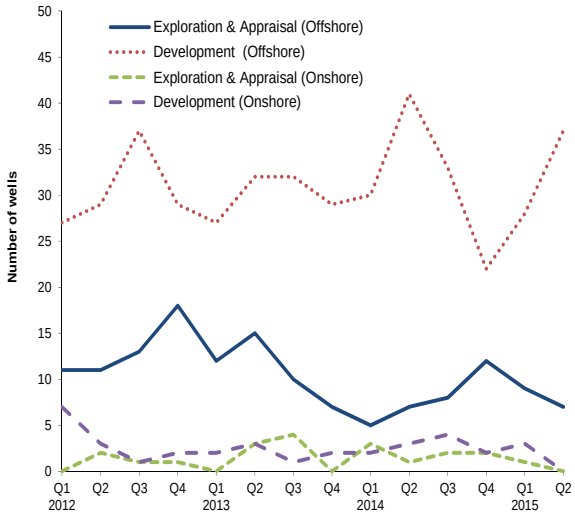
Total stocks of crude and process oils were 2.9 per cent (0.2 million tonnes) higher at the end of Q2 2015 compared with the same quarter a year earlier. Within this, stocks held at refineries increased by 6.1 per cent, this was partially offset by a decrease in offshore stocks.

There has been a very large increase in product stocks held abroad for the UK (under bilateral agreements), up by more than 50 per cent (0.8 million tonnes). 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. It has taken some time for the market to settle.

Chart 3.7 combines stocks of products with the product equivalent of stocks of crude oil to give an overall level of UK stocks of key products.

At the end of the Q2 2015, the UK had stocks equal to around 70 days of demand.

Chart 3.8 Drilling activity on the UKCS



There were 7 exploration and appraisal wells started offshore in the second quarter of 2015, the same number as in the corresponding quarter of 2014.

There were 37 development wells drilled offshore in the second quarter of 2015, compared to 41 in the corresponding quarter of 2014.

There were no exploration and appraisal wells started onshore in the second quarter of 2015, compared to 1 in the corresponding quarter of 2014.

There were no development wells drilled onshore in the second quarter of 2015, compared to 3 in the corresponding quarter of 2014.

Relevant tables

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3 OIL AND OIL PRODUCTS

Table 3.1 Supply and use of crude oil, natural gas liquids and feedstocks[1]

Thousand tonnes

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change*[8]
SUPPLY													
Indigenous production[2]	40,646	39,928	*-1.8*	10,397	9,108	10,541	11,052	10,278	8,195	10,402	10,523r	11,749	*+14.3*
Crude oil	38,456	37,474	*-2.6*	9,729	8,647	10,074	10,369	9,634	7,692	9,779	9,954r	11,061	*+14.8*
NGLs[3]	2,190	2,453	*+12.0*	668	461	466	683	644	503	623	569r	688	*+6.9*
Imports[4]	59,137	53,798	*-9.0*	16,344	15,195	13,056	13,118	12,521	13,984	14,174	11,591r	11,961	*-4.5*
Crude oil & NGLs	52,470	48,890	*-6.8*	14,773	13,533	11,284	11,619	11,340	12,831	13,101	10,522r	10,824	*-4.5*
Feedstocks	6,667	4,907	*-26.4*	1,571	1,662	1,773	1,499	1,182	1,153	1,074	1,069	1,137	*-3.8*
Exports[4]	33,105	30,946	*-6.5*	8,649	7,452	8,318	8,017	7,474	6,924	8,532	7,581r	9,189	*+22.9*
Crude Oil & NGLs	31,670	29,887	*-5.6*	8,287	7,028	8,065	7,796	7,192	6,651	8,248	7,087r	8,696	*+20.9*
Feedstocks	1,436	1,060	*-26.2*	362	424	253	221	282	273	284	494r	493	*+74.6*
Stock change[5]	+724	-592		-222	+615	-224	-288	+63	+199	-566	+31r	-141	
Transfers[6]	-1,758	-1,361		-598	-507	-132	-338	-296	-288	-438	-60r	-351	
Total supply	65,644	60,826	*-7.3*	17,271	16,960	14,922	15,527	15,093	15,165	15,041	14,504r	14,030	*-7.0*
Statistical difference[7]	-44	+3		-21	+51	+20	+21	-2	-24	+8	-7r	+16	
Total demand	65,687	60,823	*-7.4*	17,293	16,909	14,903	15,505	15,095	15,189	15,033	14,511r	14,014	*-7.2*
TRANSFORMATION	65,687	60,823	*-7.4*	17,293	16,909	14,903	15,505	15,095	15,189	15,033	14,511r	14,014	*-7.2*
Petroleum refineries	65,687	60,823	*-7.4*	17,293	16,909	14,903	15,505	15,095	15,189	15,033	14,511r	14,014	*-7.2*

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 between the most recent quarter and the same quarter a year earlier.

3 OIL AND OIL PRODUCTS

Table 3.2 Supply and use of petroleum products

Thousand tonnes

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change [1]*
SUPPLY													
Indigenous production [2]	67,596	62,477	*-7.6*	17,852	17,370	15,280	15,943	15,507	15,472	15,556	15,015r	14,533	*-6.3*
Imports [3]	28,769	29,055	*+1.0*	6,975	6,758	8,657	6,954	7,353	7,581	7,167	7,176r	8,272	*+12.5*
Exports [3]	26,910	22,748	*-15.5*	7,025	6,718	6,157	6,353	5,796	5,212	5,387	4,905r	5,144	*-11.3*
Marine bunkers	2,540	2,340	*-7.9*	677	645	591	600	563	582	595	579	565	*+0.5*
Stock change [4]	+106	+292		+53	+63	-41	+204	+227	-324	+184	-23r	-173	
Transfers [5]	-463	-817		-29	-49	-371	-238	-272	-181	-125	-522r	-251	
Total supply	66,559	65,920	*-1.0*	17,150	16,778	16,776	15,910	16,456	16,754	16,800	16,162r	16,671	*+1.3*
Statistical difference [6]	-69	-180		+9	-14	-29	-22	-10	-105	-43	-14r	+12	
Total demand	66,628	66,100	*-0.8*	17,141	16,791	16,806	15,932	16,467	16,859	16,843	16,175r	16,660	*+1.2*
TRANSFORMATION	722	630	*-12.7*	155	187	179	173	153	147	157	154	153	-
Electricity generation	546	471	*-13.8*	113	148	131	129	113	110	120	121	114	*+1.6*
Heat generation	65	68	*+5.6*	16	16	16	17	17	17	17	17	17	*-0.5*
Other Transformation	111	91	*-17.8*	26	24	32	27	24	20	20	16	22	*-7.4*
Energy industry use	4,378	3,892	*-11.1*	1,153	1,153	987	996	958	978	960	979r	955	*-0.4*
Petrolem Refineries	3,759	3,245	*-13.7*	998	999	832	834	796	816	798	817r	793	*-0.4*
Blast Furnaces	-	-		-	-	-	-	-	-	-	-	-	
Others	619	647	*+4.4*	155	155	155	162	162	162	162	162	162	-
FINAL CONSUMPTION	61,528	61,578	*+0.1*	15,832	15,451	15,640	14,763	15,355	15,734	15,726	15,042r	15,552	*+1.3*
Iron & steel	4	7	*+80.3*	2	1	1	1	2	2	2	2r	2	*+21.5*
Other industries	4,013	4,026	*+0.3*	1,006	963	1,057	1,011	984	966	1,065	1,126r	881	*-10.4*
Transport	47,222	47,648	*+0.9*	12,191	12,173	12,035	11,177	11,988	12,454	12,030	11,169r	12,293	*+2.5*
Domestic	2,580	2,299	*-10.9*	532	301	770	764	403	411	721	848r	447	*+10.9*
Other final users	1,365	1,379	*+1.0*	354	342	337	291	333	393	363	308r	314	*-5.6*
Non energy use	6,344	6,220	*-2.0*	1,748	1,671	1,441	1,518	1,647	1,508	1,546	1,589r	1,615	*-2.0*

1. Percentage change between the most recent quarter and the same quarter 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

Thousand tonnes

	2013									2014								
	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]	67,596	17,691	14,831	8,193	4,527	6,574	6,630	2,705	6,445	62,477	15,709	13,726	8,049	4,635	5,409	6,153	2,093	6,702
Imports[5]	28,769	4,442	10,115	1,208	8,219	620	431	678	3,057	29,055	3,482	11,460	1,423	8,157	1,004	422	619	2,489
Exports[5]	26,910	10,809	2,843	3,310	970	4,677	1,165	381	2,755	22,748	8,683	1,942	3,463	1,072	4,148	898	164	2,378
Marine bunkers	2,540	-	-	1,248	-	1,292	0	-	-	2,340	-	-	1,280	-	1,059	-	-	-
Stock change[6]	+106	-356	+46	+91	-20	+93	+11	+52	188	+292	+113	-61	+24	+123	+107	-30	-15	31
Transfers[7]	-463	+1,606	-253	+250	-519	-401	+23	+447	-1,617	-817	+1,610	-509	+489	-642	-616	+23	+621	-1,793
Total supply	66,559	12,575	21,896	5,185	11,238	916	5,930	3,501	5,318	65,920	12,232	22,674	5,241	11,201	696	5,669	3,154	5,052
Statistical difference[8]	-69	1	-30	11	-4	5	3	-6	-51	-180	-94	-1	-0	-19	-32	-15	-26	5
Total demand	66,628	12,574	21,926	5,174	11,242	911	5,926	3,507	5,369	66,100	12,326	22,675	5,241	11,220	728	5,684	3,179	5,046
TRANSFORMATION	722	-	-	93	-	237	229	-	162	630	-	-	114	-	200	225	-	91
Electricity generation	546	-	-	88	-	185	222	-	51	471	-	-	109	-	147	214	-	0
Heat generation	65	-	-	5	-	53	7	-	-	68	-	-	5	-	52	11	-	-
Petroleum refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coke manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blast furnaces	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Patent fuel manufacture	111	-	-	-	-	-	-	-	111	91	-	-	-	-	-	-	-	91
Energy industry use	4,378	-	-	619	-	344	2,112	-	1,303	3,892	-	-	647	-	174	1,907	-	1,164
FINAL CONSUMPTION	61,528	12,574	21,926	4,461	11,242	330	3,585	3,507	3,903	61,578	12,326	22,675	4,480	11,220	355	3,552	3,179	3,791
Iron & steel	4	-	-	-	-	3	1	-	-	7	-	-	-	-	4	3	-	-
Other industries	4,013	-	-	1,833	-	147	203	1,383	-	4,026	-	-	1,873	-	167	352	1,270	-
Transport	47,222	12,574	21,926	1,282	11,242r	89	94	-	16	47,648	12,326	22,675	1,234	11,220	87	88	-	18
Domestic	2,580	-	-	156	-	-	300	2,125	-	2,299	-	-	159	-	-	231	1,909	-
Other final users	1,365	-	-	1,173	-	90	102	-	-	1,379	-	-	1,198	-	96	85	-	-
Non energy use	6,344	-	-	17	-	-	2,885	-	3,442	6,220	-	-	17	-	-	2,793	-	3,410

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

	2014 2nd quarter									2015 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]	15,507	4,001	3,299	2,081	1,148	1,386	1,615	405	1,572	14,533	3,699	2,836	1,796	1,251	1,256	1,648	371	1,675
Imports[5]	7,353	910	3,093	322	1,853	228	137	66	744	8,272	986	3,926	378	1,950	207	127	179	519
Exports[5]	5,796	2,378	531	908	167	1,055	304	29	424	5,144	2,161	384	669	245	893	209	8	576
Marine bunkers	563	-	-	341	-	221	-	-	-	565	-	-	391	-	174	-	-	-
Stock change[6]	+227	+180	-48	-7	+24	+71	+19	+5	-18	-173	+116	-107	-62	+29	-70	-34	-24	-22
Transfers[7]	-272	+445	-140	+141	-95	-227	+4	+91	-491	-251	+427	-274	+217	-102	-180	-	+96	-436
Total supply	16,456	3,159	5,674	1,288	2,763	182	1,471	537	1,384	16,671	3,068	5,997	1,269	2,883	147	1,533	613	1,161
Statistical difference[8]	-10	-4	+0	-0	-21	-0	+8	+0	+7	+12	-6	-	-	+0	-13	+15	-4	+18
Total demand	16,467	3,163	5,674	1,288	2,784	182	1,463	537	1,377	16,660	3,074	5,997	1,269	2,883	160	1,517	617	1,142
TRANSFORMATION	153	-	-	28	-	45	56	-	24	153	-	-	25	-	48	56	-	23
Electricity generation	113	-	-	27	-	32	54	-	-	114	-	-	24	-	35	54	-	-
Heat generation	17	-	-	1	-	13	3	-	-	17	-	-	1	-	13	3	-	-
Petroleum refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coke manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blast furnaces	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Patent fuel manufacture	24	-	-	-	-	-	-	-	24	22	-	-	-	-	-	-	-	22
Energy industry use	958	-	-	162	-	46	449	-	301	955	-	-	162	-	60	463	-	270
FINAL CONSUMPTION	15,355	3,163	5,674	1,098	2,784	91	958	537	1,052	15,552	3,074	5,997	1,082	2,883	52	998	617	849
Iron & steel	2	-	-	-	-	1	-	-	-	2	-	-	-	-	2	-	-	-
Other industries	984	-	-	454	-	34	158	215	122	881	-	-	454	-	24	115	250	38
Transport	11,988	3,163	5,674	310	2,784	32	21	-	5	12,293	3,074	5,997	293	2,883	24	19	-	4
Domestic	403	-	-	39	-	-	42	322	-	447	-	-	39	-	-	41	367	-
Other final users	333	-	-	291	-	23	19	-	-	314	-	-	293	-	3	18	-	-
Non energy use	1,647	-	-	4	-	-	717	-	926	1,615	-	-	4	-	-	804	-	807

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.

3 OIL AND OIL PRODUCTS

Table 3.5 Demand for key petroleum products[1]

Thousand tonnes

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change [2]*
MOTOR SPIRIT													
of which, Hydrocarbon [3]	12,574	12,326	*-2.0%*	3,268	3,178	3,145	2,974	3,163	3,103	3,086	2,892	3,074	*-2.8%*
of which, Bio-ethanol [4]	650	645	*-0.9%*	161	178	160	152	164	168	160	150	161	*-1.5%*
Total Motor Spirit including Bio-ethanol	**13,224**	**12,971**	*-1.9%*	**3,429**	**3,355**	**3,305**	**3,126**	**3,327**	**3,271**	**3,247**	**3,042**	**3,235**	*-2.8%*
of which, sold through Supermarkets [5]	5,974	5,755	*-3.7%*	1,528	1,539	1,476	1,373	1,471	1,448	1,464	1,418	1,467	*-0.2%*
of which, sold through Refiners, and other traders [6]	7,250	7,216	*-0.5%*	1,901	1,816	1,829	1,753	1,856	1,823	1,783	1,624	1,768	*-4.8%*
of which, sold via commercial sales [7]	-	-		-	-	-	-	-	-	-	-	-	
DIESEL ROAD FUEL													
Hydrocarbon [8]	21,926	22,675	*3.4%*	5,598	5,518	5,706	5,341	5,674	5,701	5,960	5,575	5,997	*5.7%*
Bio-diesel [9]	682	850	*24.7%*	170	197	201	174	230	243	204	111	135	*-41.1%*
Total Diesel Road Fuel including Bio-diesel	**22,607**	**23,525**	*4.1%*	**5,768**	**5,715**	**5,907**	**5,514**	**5,903**	**5,944**	**6,164**	**5,687**	**6,132**	*3.9%*
of which, sold through Supermarkets [10]	6,217	6,394	*2.8%*	1,577	1,607	1,562	1,508	1,602	1,625	1,658	1,605	1,648	*2.8%*
of which, sold through Refiners, and other traders [11]	8,519	8,946	*5.0%*	2,182	2,118	2,289	2,087	2,247	2,252	2,360	2,103	2,351	*4.6%*
of which, sold via commercial sales [12]	7,871	8,185	*4.0%*	2,008	1,989	2,056	1,919	2,054	2,067	2,146	1,979	2,134	*3.9%*
OTHER GAS DIESEL OIL [13]	**5,174**	**5,241**	*1.3%*	**1,322**	**1,313**	**1,321**	**1,183**	**1,288**	**1,485**	**1,286**	**1,129r**	**1,269**	*-1.4%*
AVIATION FUELS													
Total sales	11,257	11,238	*-0.2%*	2,954	3,119	2,817	2,510	2,788	3,284	2,655	2,447r	2,886	*3.5%*
Aviation spirit	16	18	*15.7%*	4	5	3	7	5	4	3	2	4	*-22.7%*
Aviation turbine fuel	11,242	11,220	*-0.2%*	2,950	3,113	2,814	2,504	2,784	3,280	2,652	2,445r	2,883	*3.6%*
FUEL OIL													
Total Sales	569	554	*-2.7%*	144	133	120	150	136	136	132	135r	101	*-25.9%*
Light	219	175	*-20.3%*	57	65	19	29	74	68	3	43r	32	*-57.1%*
Medium	139	126	*-10.0%*	45	31	32	32	31	31	32	31r	23	*-26.0%*
Heavy	209	255	*21.5%*	43	37	69	89	32	37	97	62r	46	*46.3%*

1. Monthly data for inland deliveries of oil products are available - See DECC website: https://www.gov.uk/government/collections/oil-statistics
2. Percentage change between the most recent quarter and the same quarter a year earlier
3. Demand excluding bioethanol. Based on HMRC data.
4. Bioethanol based on HMRC data and excludes other renewables
5. Data for sales by supermarkets collected by a monthly reporting system. Includes Asda, Morrisons, Sainsburys and Tesco only.
6. Equals total motor spirit sales minus supermarket and commercial sales.
7. Commercial sales are estimated through returns provided by the UK's refiners
8. Demand excluding biodiesel. Based on HMRC data.
9. Biodiesel based on HMRC data and excludes other renewables.
10. Data for sales by supermarkets collected by a monthly reporting system. Includes Asda, Morrisons, Sainsburys and Tesco only.
11. Equals total diesel sales minus supermarket and commercial sales.
12. Commercial sales are estimated through returns provided by the UK's refiners
13. This includes gas diesel oil used for other purposes such as heating and middle distillate feedstock destined for use in the petrochemical industry.

3 OIL AND OIL PRODUCTS

Table 3.6 Stocks of petroleum[1] at end of period

Thousand tonnes

		Crude oil and refinery process oil					Petroleum products								Total stocks	
		Refineries[2]	Terminals[3]	Offshore[4]	Net bilaterals of Crude and Process oil [5]	Total[5]	Motor Spirit[6]	Kerosene[7]	Gas/Diesel Oil[8]	Fuel oils	Other products[9]	Net bilaterals of products [5]	Total products	Total Net bilaterals [5]	Total Stocks in UK[10]	Total stocks
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	1,931	491	841	2,441	7,735	2,636	10,790	13,425
2013		3,592	1,102	513	1,469	6,677	1,041	1,419	1,539	404	693	2,432	7,528	3,901	10,304	14,205
2014		3,876	1,147	460	1,728	7,211	947	1,178	1,656	253	773	2,064	6,871	3,792	10,290	14,082
2013	2nd quarter	3,843	1,274	508	1,719	7,344	987	1,235	1,634	481	872	2,005	7,213	3,724	10,833	14,557
	3rd quarter	3,314	1,020	473	1,943	6,750	1,015	1,276	1,641	469	804	1,841	7,047	3,784	10,012	13,797
	4th quarter	3,592	1,102	513	1,469	6,677	1,041	1,419	1,539	404	693	2,432	7,528	3,901	10,304	14,205
2014	1st quarter	3,538	1,216	452	1,946	7,152	1,066	1,210	1,477	368	710	1,769	6,600	3,715	10,037	13,752
	2nd quarter	3,384	1,226	548	1,799	6,956	887	1,118	1,715	241	718	1,529	6,208	3,328	9,837	13,164
	3rd quarter	3,248	1,309	512	1,863	6,932	914	1,259	1,681	330	684	2,215	7,083	4,078	9,938	14,016
	4th quarter	3,876	1,147	460	1,728	7,211	947	1,178	1,656	253	773	2,064	6,871	3,792	10,290	14,082
2015	1st quarter	3,793r	877r	485r	1,871r	7,026r	1,304	1,136	1,553r	292r	640	2,051r	6,976r	3,922r	10,080r	14,001r
	2nd quarter p	3,590	1,257	449	1,862	7,158	996	1,211	1,706	352	634	2,315	7,214	4,177	10,194	14,372
Per cent change [11]		*+6.1*	*+2.6*	*-18.1*	*+3.5*	*+2.9*	*+12.3*	*+8.3*	*-0.5*	*+46.0*	*-11.8*	*+51.5*	*+16.2*	*+25.5*	*+3.6*	*+9.2*

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 underare approved bilateral agreements 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 lead 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 between the most recent quarter and the same quarter a year earlier.

3 OIL AND OIL PRODUCTS

Table 3.7 Drilling activity[1] on the UKCS

Number of wells started

		Offshore				Onshore	
				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
2013		15	29	44	120	7	8
2014		14	18	32	126	8	11
Per cent change		*-6.7*	*-37.9*	*-27.3*	*+5.0*	*+14.3*	*+37.5*
2013	2nd quarter	3	12	15	32	3	3
	3rd quarter	3	7	10	32	4	1
	4th quarter	2	5	7	29	-	2
2014	1st quarter	3	2	5	30	3	2
	2nd quarter	4	3	7	41	1	3
	3rd quarter	3	5	8	33	2	4
	4th quarter	4	8	12	22	2	2
2015	1st quarter	2	7r	9r	28r	1	3
	2nd quarter p	5	2	7	37	-	-
Per cent change[3]		*+25.0*	*-33.3*	-	*-9.8*	*-100.0*	*-100.0*

1. Including sidetracked wells

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

3. Percentage change between the most recent quarter and the same quarter a year earlier.

Section 4 - Gas

Key results show:

Gross UK production of natural gas in Q2 2015 was 12 per cent higher than in Q2 2014 (**Chart 4.1**). This is the largest increase in gas production since 2000. This increase stands in marked contrast to recent years. (**Chart 4.2**).

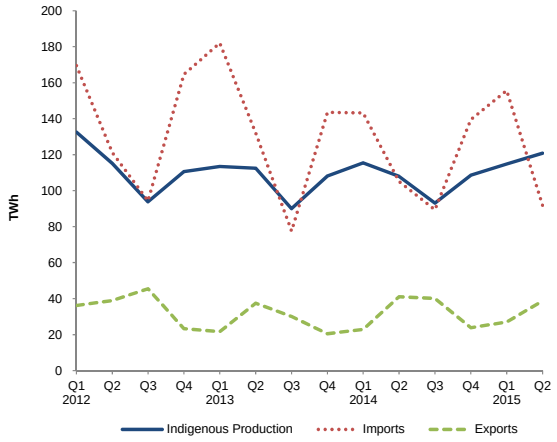
Gas available in Q2 2015 was 0.7 per cent lower than in Q2 2014, at 160 TWh. (**Chart 4.3**)

Total imports fell nearly 13 per cent in Q2 2015 compared to Q2 2014, driven by low demand and strong production (**Chart 4.4**).

Nominated pipeline imports decreased by 7.9 per cent compared to Q2 2014, whereas LNG imports decreased 19 per cent (**Chart 4.4**). Pipeline imports accounted for 61 per cent of all imports in Q2 2015, versus 57 per cent in Q2 2014 (**Chart 4.5**).

Overall UK gas demand increased by 5.2 per cent in Q2 2015 compared to Q2 2014. This was primarily driven by domestic consumption which was up 17 per cent. This reflects the cooler temperatures in Q2 2015 versus the previous year. Gas used for electricity generation was similar to Q2 2014 (down 2.8 per cent) whilst gas use by the service sector was down by 2.6 per cent (**Chart 4.6**).

Chart 4.1 Production and imports and exports of natural gas



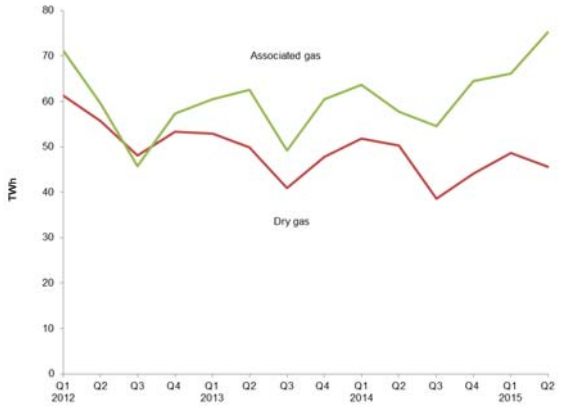
Total indigenous UK production of natural gas in Q2 2015 was 12 per cent higher than in the same quarter a year earlier. This is a virtually unprecedented increase.

In addition to strong production, planned maintenance at UK gas terminals during Q2 2015 has not been as intense as during Q2 2014, particularly at associated gas terminals.

On the whole, UKCS production has been declining on an annual basis in recent years with the exception of 2014 which saw a marginal increase. UKCS production over the last ten years has decreased by over 7 per cent on average per annum since production peaked in 2000.

UK imports were down nearly 13 per cent in Q2 2015 compared with the same quarter in 2014. Exports have also fallen, decreasing by 5.7 per cent. As a result, net imports in Q2 2015 decreased by 17 per cent on the same quarter the previous year.

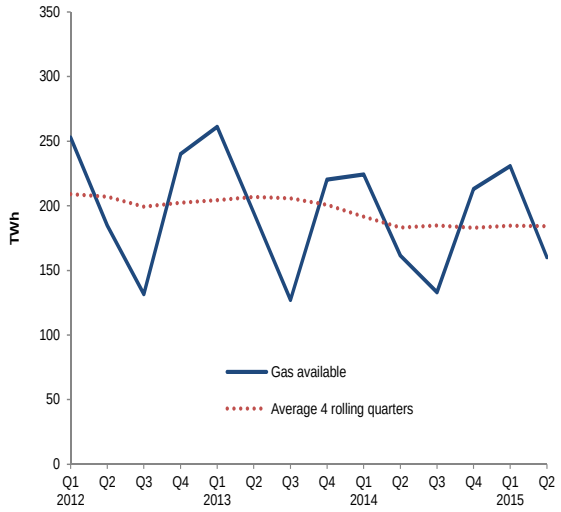
Chart 4.2 Production of dry gas and associated gas



Associated gas production in Q2 2015 increased by 30 per cent from 58 TWh in Q2 2014 to 75 TWh. During Q2 2015 the maintenance schedule has been relatively light versus the previous year. Especially at associated gas terminals.

Dry gas production decreased by 9.3 per cent from 50 TWh in Q2 2014 to 46 TWh in Q2 2015.

Chart 4.3 Gas availability

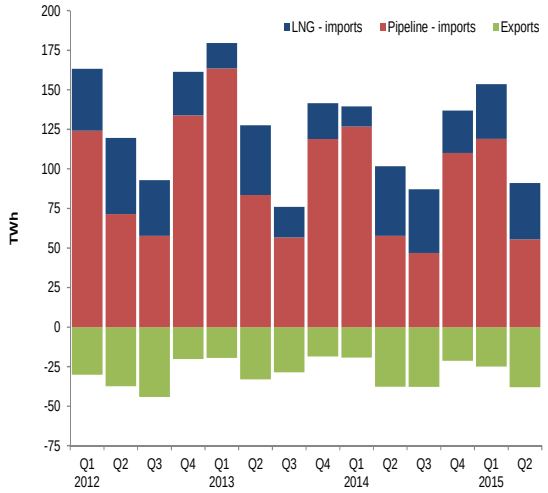


Gas available at terminals is equal to the gross gas production minus producers own use, plus net imports.

Gas availability is seasonal, mirroring gas demand, and peaks during Q1 and Q4 each year. Gas availability in Q2 2015 decreased marginally by 0.7 per cent compared to Q2 2014 to 160 TWh.

The annual average availability for gas had remained reasonably constant up to 2010. However, in 2013, gas availability fell slightly as a result of the milder weather during the second half of the year. This pattern continued into 2015 with gas availability being marginally higher compared with the same period in the previous year.

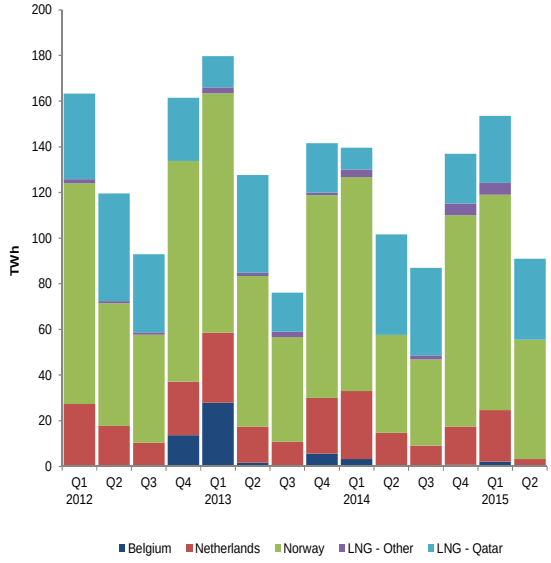
Chart 4.4 Import and exports



Total nominated imports in Q2 2015 decreased by 13 per cent compared to the same quarter a year earlier with the biggest change being the decrease in imports of Liquefied Natural Gas (LNG) which were down 19 per cent. LNG imports accounted for 39 per cent of total imports compared with 43 per cent a year earlier. Nominated pipeline imports for Q2 2015 decreased by 7.9 per cent.

Total nominated exports decreased by 5.7 per cent in Q2 2015. This came as a result of a decrease in exports to the Netherlands and Ireland.

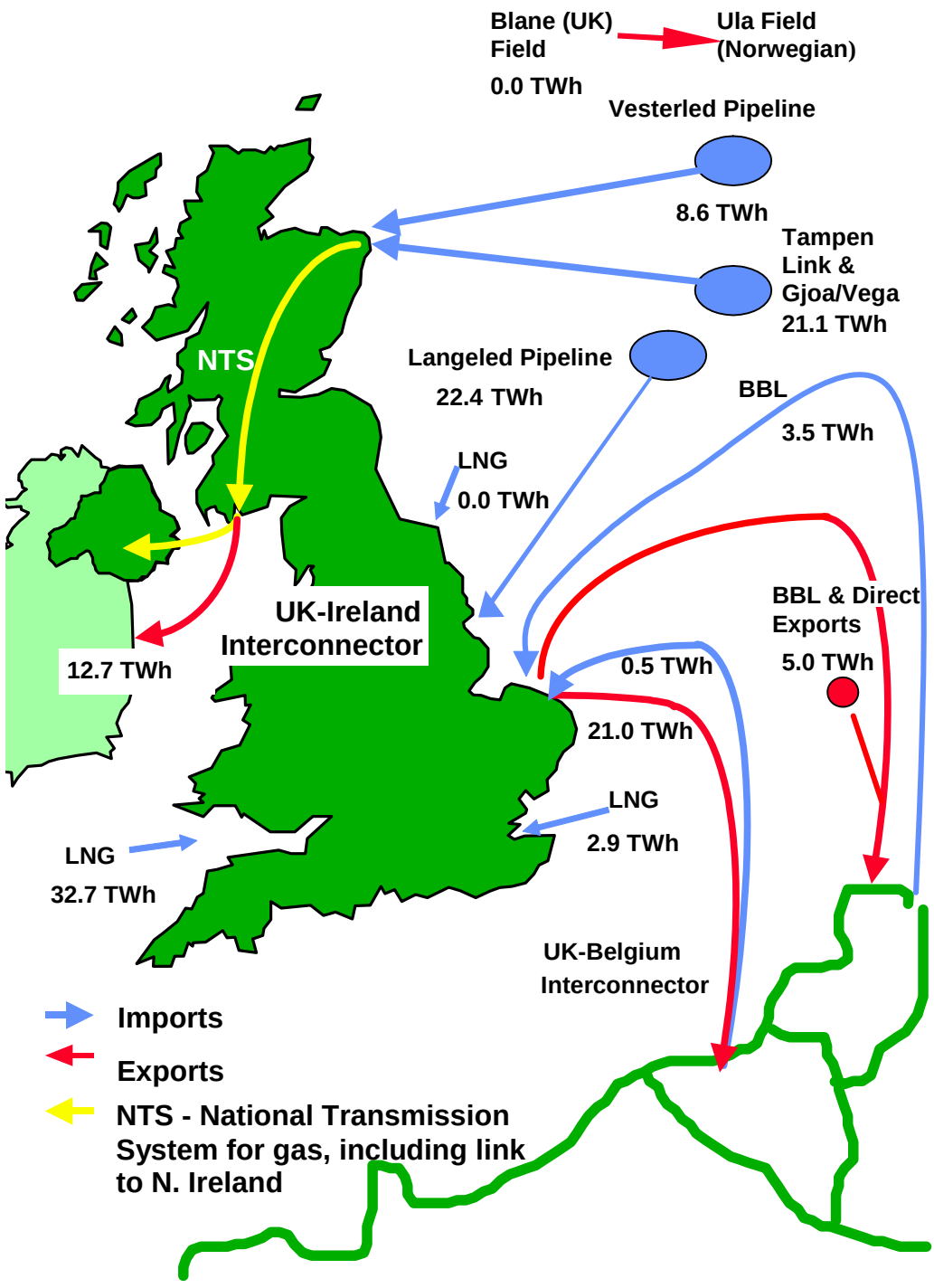
Chart 4.5 Imports by origin



The UK imported 52 TWh and 3 TWh via pipelines from Norway and the Netherlands respectively, a decrease of 3.7 per cent on the amounts in Q2 2014. Dutch imports comprised 4% of total imports, the lowest since the BBL pipeline commenced supply in 2006.

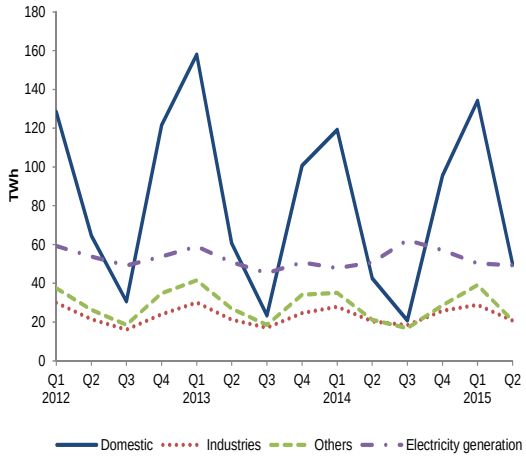
Since 2009, LNG imports have been mainly procured from Qatar. LNG imports from Qatar were 19 per cent lower in Q2 2015 compared with the same quarter a year earlier.

Map: UK imports and exports of gas Q2 2015[1]



1. Please note that imports and exports in this map uses nominated flows through the UK-Belgium Interconnector and BBL pipeline as in table 4.1. The figures here will differ from those in ET Table 4.3 which uses actual physical flows through the Interconnector.

Chart 4.6 UK demand for natural gas



UK overall demand in Q2 2015 increased by 5.2 per cent compared to Q2 2014. Within this:

Gas use for transformation (electricity and heat generation) fell by 2.6 per cent compared to the same quarter last year. Over the past few years, the drop in gas demand has generally been driven by a reduction in gas used for electricity generation. In the latest quarter gas used for electricity generation fell by 2.8 per cent compared to last year.

Final consumption increased 8.2 per cent. Domestic consumption increased 17 per cent. This reflects the greater impact of temperature on this sector versus the industrial sector. The average temperature in Q2 2015 was 11.3 degrees Celsius, 1.2 degrees cooler than in Q2 2014.

In the latest quarter the industrial sector, where gas demand is driven less by use for space heating, saw smaller increases in gas use than other sectors; iron and steel gas use grew by 11 per cent, whereas other industry use increased by 0.7 per cent. Energy industry use increased in Q2 2015 versus Q2 2014, being 22 per cent higher. This is mostly driven by increases in gas own use by UKCS producers which corresponds with strong production.

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

	2013	2014	per cent change	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	per cent change [1]
SUPPLY													
Indigenous production	424,153	424,897	*+0.2*	112,494	90,047	108,142	115,395	107,923	93,050	108,529	114,772r	120,838	*+12.0*
Imports	535,105	477,163	*-10.8*	132,068	77,546	143,520	143,212	105,078	89,405	139,468	155,644r	91,781	*-12.7*
of which LNG	*102,620*	*123,912*	*+20.7*	*44,196*	*19,428*	*22,771*	*12,911*	*43,973*	*40,151*	*26,877*	*34,556r*	*35,518*	*-19.2*
Exports	109,664	127,907	*+16.6*	37,423	30,106	20,443	22,862	41,063	40,102	23,880	27,059	38,741	*-5.7*
Stock change [2]	+621	-2,383		-25,196	-14,890	+327	+16,992	-18,072	-7,057	+5,754	+34,500	-11,042	
Transfers	-61	-140		-12	-14	-5	-9	-25	-40	-66	-92r	-94	
Total supply	850,155	771,630	*-9.2*	181,931	122,583	231,541	252,728	153,841	135,256	229,806	277,764r	162,741	*+5.8*
Statistical difference	1,888	-867		429	347	420	-270	-716	-683	803	820r	90	
Total demand	848,267	772,497	*-8.9*	181,502	122,236	231,121	252,998	154,557	135,939	229,003	276,944r	162,650	*+5.2*
TRANSFORMATION	230,558	243,972	*+5.8*	56,379	49,819	57,246	55,833	56,467	67,323	64,349	58,223r	55,021	*-2.6*
Electricity generation	205,831	217,944	*+5.9*	50,830	45,222	50,715	47,866	50,742	62,230	57,106	50,256r	49,296	*-2.8*
Heat generation	24,727	26,028	*+5.3*	5,549	4,597	6,530	7,967	5,725	5,093	7,243	7,967	5,725	-
Energy industry use	53,775	49,281	*-8.4*	14,399	11,853	12,783	13,167	12,316	10,895	12,903	14,839r	15,020	*+22.0*
Losses	7,473	6,856	*-8.3*	2,069	1,614	1,828	1,959	1,573	1,656	1,668	1,809r	1,496	*-4.9*
FINAL CONSUMPTION	556,460	472,387	*-15.1*	108,655	58,950	159,265	182,038	84,200	56,065	150,083	202,074r	91,113	*+8.2*
Iron & steel	5,338	5,448	*+2.1*	1,288	1,223	1,335	1,455	1,350	1,303	1,339	1,578	1,504	*+11.4*
Other industries	87,652	87,032	*-0.7*	19,929	15,878	23,234	26,431	19,064	17,087	24,450	27,273r	19,201	*+0.7*
Domestic	342,501	278,101	*-18.8*	60,537	23,367	100,641	119,112	42,542	20,825	95,621	134,108r	49,682	*+16.8*
Other final users	115,372	96,377	*-16.5*	25,501	17,083	32,656	33,683	19,886	15,492	27,316	37,757r	19,369	*-2.6*
Non energy use [3]	5,598	5,430	*-3.0*	1,399	1,399	1,399	1,357	1,357	1,357	1,357	1,357	1,357	-

1. Percentage change between the most recent quarter and the same quarter a year earlier.

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

3. For non energy use, the 2015 figures currently shown are the 2014 figures carried forward - these will be updated in July 2016.

Section 5 – Electricity

Key results show:

In 2015 Q2, total electricity generated remained unchanged at 78.8 TWh compared to a year earlier. (**Chart 5.1**)

There has been a large generation switch from coal to renewables, which will have reduced emissions. **(Chart 5.2)**

Renewables' share of electricity increased from 16.7 in the second quarter of 2014 to 25.3 per cent in the second quarter of 2015. **(Chart 5.2)**

Coal's share of generation decreased from 28.2 per cent to 20.5 per cent, whilst gas share of generation in 2015 Q2 remained unchanged from 30.2 per cent in 2014 Q2. (**Chart 5.2**).

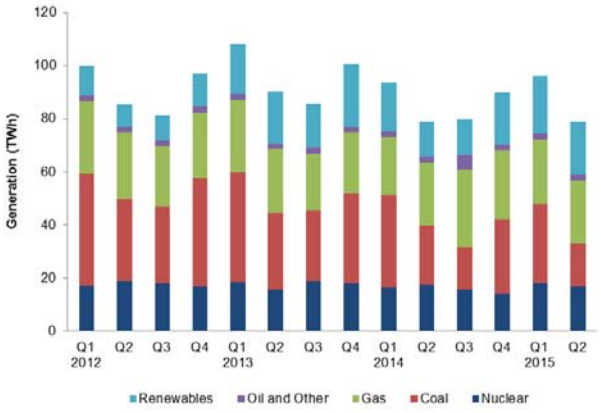
Nuclear's share of generation decreased from 22.2 per cent in the second quarter of 2014 to 21.5 per cent in the second quarter of 2015. (**Chart 5.2**).

Low carbon electricity's share of generation increased from 38.9 per cent in the second quarter of 2014 to 46.8 per cent in the second quarter of 2015. **(Chart 5.3)**.

The UK remains a net importer with 6.9 per cent of electricity supplied from net imports in the second quarter of 2015 (**Chart 5.4**).

Final consumption of electricity during the second quarter of 2015, at 71.9 TWh, was provisionally 1.0 per cent higher than in the same period last year. Domestic consumption fell by 0.6 per cent. (**Chart 5.5**).

Chart 5.1 Electricity generated by fuel type



Despite a 3.7 per cent fall in MPP generation in the second quarter of 2015 overall generation remained unchanged from 78.8 TWh in 2014 Q2. This is due to a quarterly record 26 per cent increase in generation from other generators, mainly due to increased wind and solar capacity.

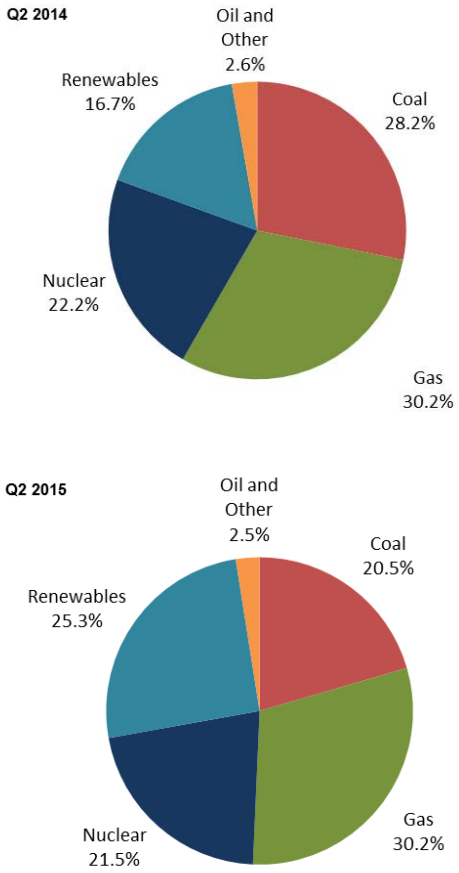
Coal fired generation fell by 27 per cent from 22.2 TWh in 2014 Q2 to 16.1 TWh in 2015 Q2, due to reduced capacity caused by the closure of several power stations, the conversion of a unit at Drax from coal to biomass, the temporary closure of some plants due to market conditions and an increase in the carbon price floor from April 2015.

In 2015 Q2, gas fired generation remained the same as in 2014 Q2, at 23.8 TWh.

Nuclear generation fell by 3.3 per cent from 17.5 TWh in 2014 Q2 to 16.9 TWh in 2015 Q2.

In 2015 Q2, wind and PV generation rose by 76.4 per cent from 6.6 TWh to 11.6 TWh. Wind generation was up 76.4 per cent compared with a year ago, due to higher wind speeds (wind speeds were 1.4 knots higher compared to the same quarter a year earlier). Solar generation increased by 115 per cent due to increased capacity. Hydro generation rose 27.8 per cent from 1.1 TWh to a Q2 record 1.4 TWh, due to a 19.5 per cent increase in rainfall, mainly during May and June.

Chart 5.2 Shares of electricity generation



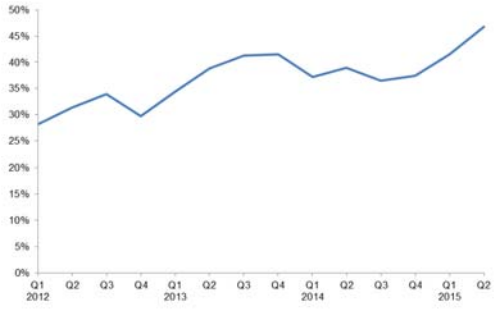
The share of generation from coal decreased from 28.2 per cent in 2014 Q2 to 20.5 per cent in 2015 Q2.

Gas' share of generation in 2015 Q2 remained unchanged from 30.2 per cent in 2014 Q2.

Nuclear's share of generation fell from 22.2 per cent in 2014 Q2 to 21.5 per cent in 2015 Q2.

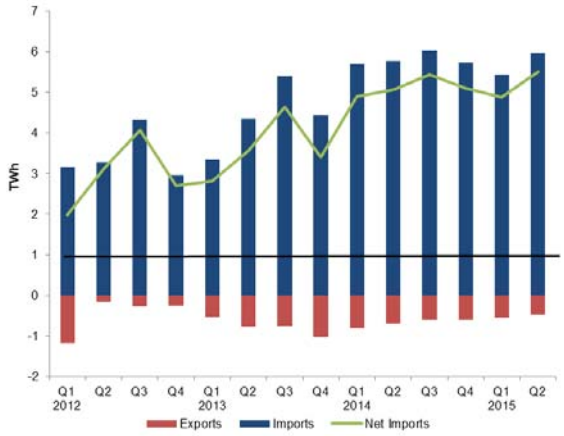
The share of renewables (hydro, wind and other renewables) increased from 16.7 per cent in 2014 Q2 to 25.3 per cent in 2015 Q2. This was due to increased wind and solar generation as well as the conversion of a second unit at Drax from coal to biomass.

Chart 5.3 Low carbon electricity's share of generation



Low carbon electricity's share of generation increased from 38.9 per cent in 2014 Q2 to 46.8 per cent in 2015 Q2, due to higher renewables generation.

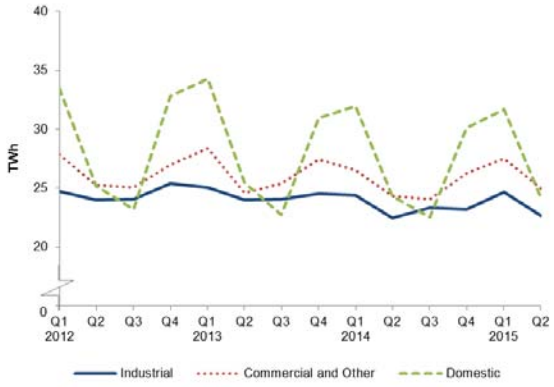
Chart 5.4 UK trade in electricity



In 2015 Q2, compared with the same period in 2014, imports of electricity rose by 3.7 per cent (+0.2 TWh), whilst exports fell by 32 per cent. For every quarter since 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 8.6 per cent from 5.1 TWh in 2014 Q2 to 5.5 TWh in 2015 Q2. Net imports represented 6.9 per cent of electricity supplied in 2015 Q2.

Chart 5.5 Electricity final consumption



Final consumption of electricity rose by 1.0 per cent in 2015 Q2, from 71.1 TWh in 2014 Q2, to 71.9 TWh.

Domestic use fell by 0.6 per cent, from 24.3 TWh to 24.2 TWh as impacts of energy efficiency exceeded that of lower April and May temperatures.

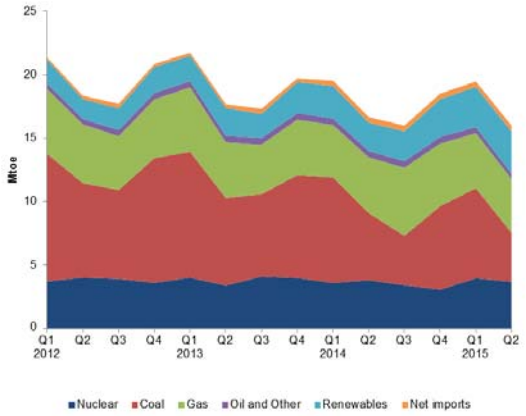
Industrial use of electricity, including iron and steel, rose by 0.8 per cent, from 22.5 TWh to 22.7 TWh, and consumption by commercial and other users [1] increased by 2.8 per cent, from 24.3 TWh to 25.0 TWh.

In 2015 Q2, temperatures were on average 1.2 degrees lower than in 2014 Q2.[2]

[1] Includes commercial, transport and other final users.

[2] Temperature data comes from ET 7.1, at: www.gov.uk/government/publications/energy-trends-section-7-weather

Chart 5.6 Fuel used for electricity generation



Fuel used by generators in 2015 Q2 fell 4.0 per cent, from 16.7 mtoe in 2014 Q2 to 16.0 mtoe in 2015 Q2[3].

In 2015 Q2, gas use was 2.8 per cent lower than in 2014 Q2. Coal use during the quarter was 27.2 per cent lower than a year earlier, and nuclear sources were 3.3 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

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Table 5.1. Fuel used in electricity generation and electricity supplied

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change* [1]
FUEL USED IN GENERATION													
All generating companies												**Million tonnes of oil equivalent**	
Coal	31.43	24.11	*-23.3*	6.90	6.50	8.12	8.32	5.30	3.91	6.59	7.11r	3.86	*-27.2*
Oil	0.59	0.53	*-10.6*	0.13	0.17	0.16	0.14	0.15	0.12	0.12	0.14r	0.11	*-27.0*
Gas	17.74	18.78	*+5.9*	4.38	3.90	4.37	4.13	4.37	5.36	4.92	4.33r	4.25	*-2.8*
Nuclear	15.44	13.85	*-10.3*	3.38	4.09	3.97	3.59	3.80	3.40	3.05	3.95r	3.68	*-3.3*
Hydro	0.40	0.51	*+25.2*	0.08	0.06	0.15	0.19	0.10	0.07	0.15	0.17	0.12	*+27.4*
Wind and Solar [2]	2.62	3.10	*+18.5*	0.62	0.48	0.92	0.99	0.57	0.58	0.97	1.10r	1.00	*+76.8*
Bioenergy [3]	5.54	6.53	*+17.9*	1.50	1.37	1.37	1.38	1.59	1.70	1.87	1.90r	2.20	*+38.2*
Other fuels	1.43	1.52	*+6.3*	0.39	0.35	0.35	0.38	0.35	0.39	0.40	0.34	0.30	*-13.4*
Net imports	1.24	1.76	*+42.1*	0.31	0.40	0.29	0.42	0.44	0.47	0.44	0.42	0.47	*+8.6*
Total all generating companies	76.45	70.70	*-7.5*	17.68	17.32	19.71	19.54	16.66	15.99	18.51	19.47r	15.99	*-4.0*
ELECTRICITY GENERATED													
All generating companies												**TWh**	
Coal	130.77	100.71	*-23.0*	28.97	26.69	33.58	34.67	22.21	16.01	27.81	29.73r	16.14	*-27.4*
Oil	2.09	1.88	*-10.0*	0.47	0.60	0.49	0.53	0.50	0.43	0.42	0.52r	0.37	*-26.1*
Gas	96.03	100.93	*+5.1*	24.21	21.38	23.16	21.76	23.78	29.16	26.22	24.35	23.79	*-*
Nuclear	70.61	63.75	*-9.7*	15.47	18.69	18.16	16.53	17.50	15.66	14.06	18.17	16.92	*-3.3*
Hydro (natural flow)	4.70	5.88	*+25.2*	0.97	0.74	1.74	2.24	1.11	0.78	1.75	2.02r	1.42	*+27.8*
Wind and Solar [2]	30.42	36.07	*+18.6*	7.18	5.54	10.65	11.55	6.58	6.70	11.24	12.84r	11.61	*+76.4*
- of which, Offshore[o]	11.47	13.40	*+16.8*	2.63	1.98	4.03	4.38	2.09	2.24	4.69	4.66r	3.56	*+70.4*
Bioenergy [3]	18.16	22.70	*+25.0*	5.07	4.46	4.44	4.59	5.48	5.94	6.68	6.90r	6.92	*+26.1*
Pumped Storage	2.90	2.88	*-0.7*	0.69	0.71	0.76	0.79	0.67	0.63	0.79	0.64r	0.59	*-12.4*
Other fuels	3.49	4.13	*+18.1*	0.90	0.87	0.86	1.04	1.00	1.03	1.06	1.05r	1.01	*+1.3*
Total all generating companies	359.17	338.93	*-5.6*	83.92	79.67	93.85	93.71	78.84	76.35	90.03	96.22r	78.75	*-0.1*
ELECTRICITY SUPPLIED [4]													
All generating companies												**TWh**	
Coal	124.06	95.53	*-23.0*	27.48	25.32	31.86	32.89	21.07	15.19	26.39	28.21	15.31	*-27.3*
Oil	1.89	1.71	*-9.8*	0.42	0.54	0.45	0.48	0.46	0.39	0.38	0.47r	0.33	*-27.0*
Gas	94.21	99.03	*+5.1*	23.74	20.99	22.72	21.33	23.34	28.63	25.73	23.83	23.33	*-*
Nuclear	64.13	57.90	*-9.7*	14.05	16.97	16.50	15.01	15.90	14.22	12.77	16.51	15.37	*-3.3*
Hydro	4.67	5.83	*+24.9*	0.96	0.74	1.72	2.21	1.10	0.77	1.74	2.01r	1.41	*+27.9*
Wind and Solar [2]	30.42	36.07	*+18.6*	7.18	5.54	10.65	11.55	6.58	6.70	11.24	12.84r	11.61	*+76.4*
- of which, Offshore[o]	11.47	13.40	*+16.8*	2.63	1.98	4.03	4.38	2.09	2.24	4.69	4.66r	3.56	*+70.4*
Bioenergy [3]	16.20	20.08	*+24.0*	4.52	3.99	3.95	4.05	4.84	5.27	5.92	6.10r	6.11	*+26.3*
Pumped Storage (net supply) [5]	-1.04	-1.01	*-2.4*	-0.26	-0.26	-0.25	-0.26	-0.25	-0.24	-0.26	-0.25r	-0.23	*-7.8*
Other fuels	2.80	3.38	*+20.7*	0.73	0.69	0.69	0.86	0.82	0.84	0.87	0.86r	0.83	*+0.7*
Net imports	14.43	20.51	*+42.1*	3.56	4.65	3.40	4.89	5.08	5.43	5.11	4.89	5.51	*+8.6*
Total all generating companies	351.78	339.03	*-3.6*	82.40	79.17	91.68	93.01	78.94	77.21	89.87	95.47r	79.58	*+0.8*

1. Percentage change between the most recent quarter and the same quarter 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.

6. This now includes a small amount of offshore wind generation from other generators

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Table 5.2 Supply and consumption of electricity

GWh

	2013	2014	*Per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*Per cent change* [1]
SUPPLY													
Indigenous production	359,168	338,927	*-5.6*	83,924	79,670	93,848	93,705	78,843	76,350	90,028	96,084r	78,752	*-0.1*
Major power producers [2 3]	321,821	297,939	*-7.4*	74,603	70,848	83,922	83,205	68,844	66,368	79,522	84,312r	66,369	*-3.6*
Auto producers	34,443	38,104	*+10.6*	8,629	8,114	9,163	9,710	9,329	9,354	9,712	11,136r	11,795	*+26.4*
Other sources [4]	2,904	2,883	*-0.7*	692	708	763	791	671	628	793	637r	588	*-12.4*
Imports	17,533	23,230	*+32.5*	4,340	5,402	4,436	5,701	5,771	6,031	5,726	5,436	5,983	*+3.7*
Exports	3,103	2,720	*-12.4*	777	751	1,038	807	695	602	616	546	473	*-32.0*
Transfers	-	-		-	-	-	-	-	-	-	-	-	
Total supply	373,598	359,437	*-3.8*	87,488	84,321	97,246	98,599	83,919	81,780	95,139	100,975r	84,262	*+0.4*
Statistical difference	-1,036	-561		-366	-512	-326	-116	-265	-153	-27	343r	306	
Total demand	374,634	359,998	*-3.9*	87,854	84,833	97,572	98,715	84,184	81,933	95,166	100,632r	83,956	*-0.3*
TRANSFORMATION	-	-		-	-	-	-	-	-	-	-	-	
Energy industry use [5]	29,932	28,027	*-6.4*	7,116	7,177	7,536	7,541	6,882	6,417	7,186	7,545r	6,644	*-3.5*
Losses	27,725	28,562	*+3.0*	6,636	5,459	7,078	8,307	6,156	5,606	8,493	9,223r	5,458	*-11.3*
FINAL CONSUMPTION	316,977	303,409	*-4.3*	74,103	2,904	82,958	82,867	71,146	69,910	79,486	83,863r	71,854	*+1.0*
Iron & steel	3,804	3,786	*-0.5*	968	947	940	956	945	937	949	969r	919	*-2.7*
Other industries	93,865	89,587	*-4.6*	23,034	23,105	23,620	23,415	21,556	22,388	22,228	23,669r	21,774	*+1.0*
Transport	4,268	4,259	*-0.2*	1,067	1,067	1,067	1,065	1,065	1,065	1,065	1,065	1,065	-
Domestic	113,445	108,881	*-4.0*	25,480	22,723	30,936	31,961	24,317	22,518	30,084	31,694r	24,164	*-0.6*
Other final users	101,595	96,896	*-4.6*	23,554	24,355	26,395	25,470	23,263	23,003	25,161	26,466r	23,932	*+2.9*
Non energy use	-	-		-	-	-	-	-	-	-	-	-	

1. Percentage change between the most recent quarter and the same quarter 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 2014 they were:

AES Electric Ltd., Baglan Generation 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., Fred Olsen, Greencoat UK Wind plc.,

HG Capital, Immingham CHP, Infinis plc, International Power Mitsui, London Waste Ltd., Magnox North Ltd., Peel Energy Ltd., Premier Power Ltd., Renewable Energy Systems, Riverside Resource Recovery Ltd.,

Rocksavage Power Company Ltd., RWE Npower plc, Scottish Power plc, Scottish and Southern Energy plc., Seabank Power Ltd., SELCHP Ltd., Spalding Energy Company Ltd., Statkraft Energy Ltd.,

Third Energy Trading Ltd., Vattenfall Wind Power

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 25.3 per cent in 2015 Q2, up 8.6 percentage points on the share in 2014 Q2, due to increasing renewable capacity and more favourable weather conditions for renewable generation (higher wind speeds, rainfall and sun hours). **(Chart 6.1)**

Renewable electricity generation was 19.9 TWh in 2015 Q2, an increase of 51 per cent on the 13.2 TWh in 2014 Q2, though 8.4 per cent lower than the peak quarterly generation of 2015 Q1 (21.8 TWh). **(Chart 6.2)**

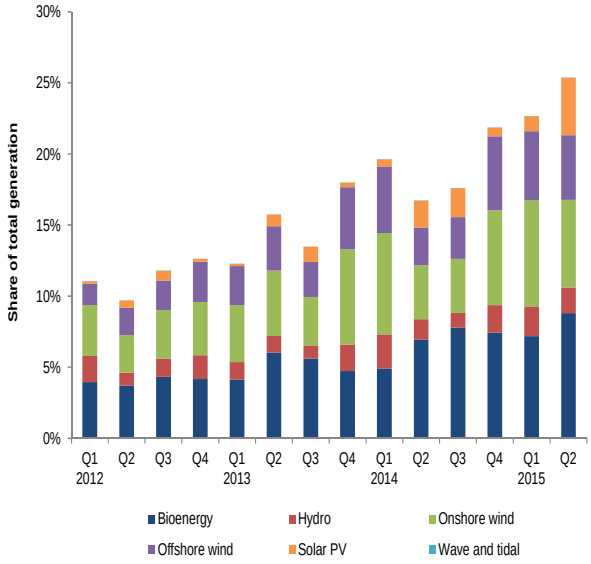
Onshore wind generation increased by 62 per cent, from 3.0 TWh in 2014 Q2 to 4.9 TWh in 2015 Q2. Offshore wind increased from 2.1 TWh to 3.6 TWh, an increase of 70 per cent. Solar PV more than doubled from 1.5 TWh to 3.2 TWh due to increased capacity **(Chart 6.2)**

Renewable electricity capacity was 28.4 GW at the end of 2015 Q2, a 26 per cent increase (5.8 GW) on a year earlier, and a 2.2 per cent (0.6 GW) increase on the previous quarter, with high growth in solar photovoltaics and wind capacity (particularly offshore). **(Chart 6.3)**

By the end of 2015 Q2, 3,781 MW of capacity had been installed, and eligible for, the Feed in Tariff scheme, an increase of 29 per cent on a year earlier, constituting approximately 13 per cent of all renewable installed capacity. **(Chart 6.5)**

Liquid biofuels consumption fell by 24 per cent, from 464 million litres in 2014 Q2 to 355 million litres in 2015 Q2, with a 41 per cent decrease in biodiesel. In 2015 Q2, liquid biofuels represented 3.0 per cent of petrol and diesel consumed in road transport, down from 4.0 per cent a year earlier. **(Chart 6.6)**

Chart 6.1 Renewables' share of electricity generation



Renewables' share of electricity generation increased from 16.7 per cent in 2014 Q2 to 25.3 per cent in 2015 Q2, a record high.[1] Compared to 2015 Q1, renewables share was 2.7 percentage points higher.

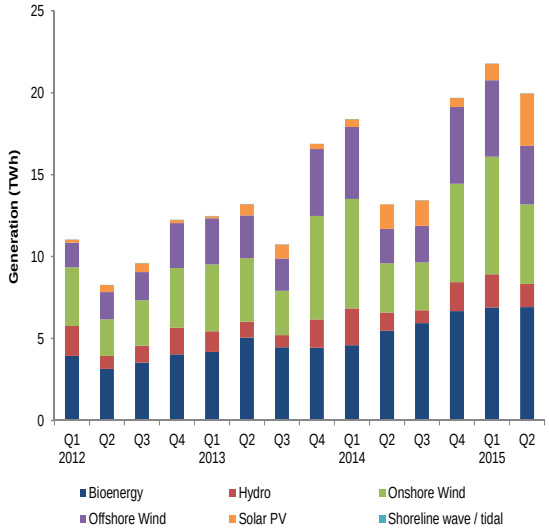
The increased share on a year earlier mostly reflects the increase in renewables generation.

Total electricity generated from renewables in 2015 Q2 was 19.9 TWh, an increase of 6.8 TWh (51 per cent) compared to 2014 Q2. This is 1.8 TWh (8.4 per cent) lower than the record of 21.8 TWh in 2015 Q1.

Overall electricity generation was unchanged from 2014 Q2 at 78.8 TWh, and therefore had no impact on the increase in the share of renewable generation.

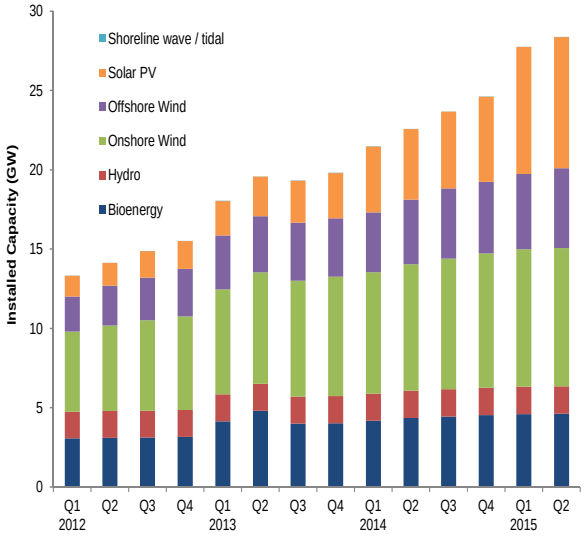
[1] Total electricity generation figures (all generating companies) can be found in table ET 5.1, at: www.gov.uk/government/publications/electricity-section-5-energy-trends

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 any 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)



Electricity generated from onshore wind increased by 1.8 TWh (62 per cent) between 2014 Q2 and 2015 Q2, from 3.0 TWh to 4.9 TWh, while generation from offshore wind increased by 70 per cent on a year earlier, from 2.1 TWh to 3.6 TWh. This is due to a combination of higher wind speeds compared to last year and also increased capacity, particularly for offshore wind.

Although average wind speeds in 2015 Q2 were only marginally higher than the ten year mean (8.6 knots and 8.4 knots respectively), wind speeds for 2014 Q2 were the second lowest for quarter two since 2010.[2]

Generation from solar PV more than doubled when compared to 2014 Q2, increasing by 1.7 TWh to 3.2 TWh. This is largely due to increased capacity, though average sun hours were also higher than the ten year mean.

In 2015 Q2, hydro generation rose by 28 per cent on a year earlier, from 1.1 TWh to 1.4 TWh, with rainfall (in the main hydro areas) up 19 per cent on a year earlier.

Generation from bioenergy [3] in 2015 Q2 increased by 26 per cent on a year earlier, from 5.5 TWh to, a record, 6.9 TWh. The main contributor to this was plant biomass, which increased from 3.1 TWh to 4.5 TWh, largely due to an increase in capacity.

In 2015 Q2, bioenergy had a 35 per cent share of generation, with 24 per cent from onshore wind, 18 per cent from offshore wind, and 16 per cent from solar.

At the end of 2015 Q2, the UK's renewable electricity capacity totalled 28.4 GW, an increase of 2.2 per cent (0.6 GW) on that installed at the end of 2015 Q1, and 26 per cent (5.8 GW) on that installed a year earlier.

Of the 0.6 GW increase in capacity during 2015 Q2, approximately half came from offshore wind with increases in capacity at the recent Westermost Rough and Humber Gateway sites.

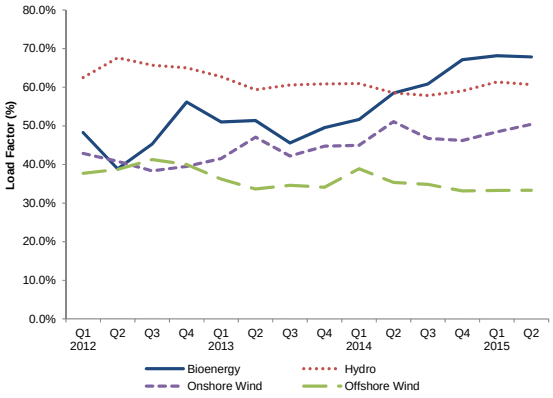
Solar photovoltaics (PV) capacity increased by 262 MW in 2015 Q2, with around 151 MW of this from Feed in Tariff eligible schemes, and 8 MW from small-scale Northern Irish schemes. At the end of 2015 Q2, solar PV, at 8.3 GW, was 29.2 per cent of all renewable capacity.

At the end of 2015 Q2, onshore wind had the largest share of capacity (31 per cent), followed by solar (29 per cent), offshore wind (18 per cent) and bioenergy (16 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/publications/energy-trends-section-7-weather

[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



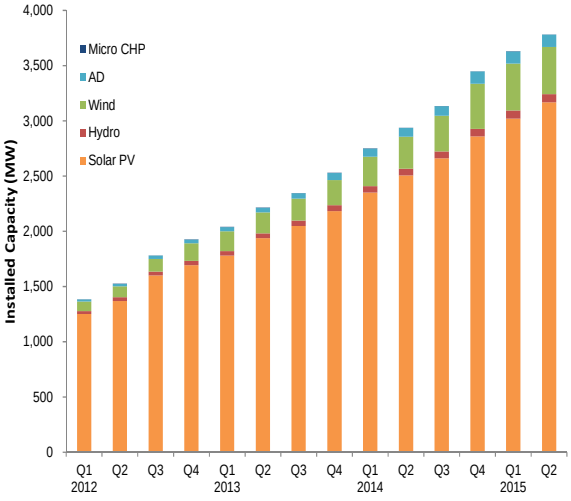
In 2015 Q2, onshore wind's load factor increased by 8.0 percentage points, from 17.6 per cent in 2014 Q2 to 25.6 per cent. Although average wind speeds in 2015 Q2 were in line with the ten year mean, in 2014 Q2 they were the second lowest since prior to 2001. Offshore wind's load factor increased by 9.0 percentage points, from 24.4 per cent in 2014 Q2 to 33.4 in 2015 Q". [4]

Compared with the record high levels [5] of 2014 Q1, onshore wind's load factor was down by 15 percentage points, while offshore wind's load factor was 21 percentage points lower, with wind speeds 2.4 knots lower.

Hydro's load factor in 2015 Q2 increased by 7.9 percentage points, from 29.7 per cent in 2014 Q2 to 37.7 per cent, due to higher rainfall in May and June. Compared with 2015 Q1, hydro's load factor in 2015 Q2 was 16.5 percentage points lower due to lower rainfall in the main hydro areas.

For bioenergy, the load factor in 2015 Q2, at 67.8 per cent, was up by 9.4 percentage points on a year earlier, and down by 0.3 percentage points on 2015 Q1, with the converted power stations achieving particularly higher load factors than previously.

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



At the end of 2015 Q2, 3,781 MW of capacity was installed and eligible for the GB Feed in Tariff (FiT) scheme[6]. This was a 29 per cent increase on that at the end of 2014 Q2. [7]

In terms of number of installations, at the end of 2015 Q2, there were over 720,000 installed and eligible for the FiT scheme, a 26 per cent increase on the number installed a year earlier.

Solar photovoltaics (PVs) represent the majority of both installations and installed capacity on FiTs, with, respectively, 99 per cent and 84 per cent of the total. The majority of PV installations are sub-4 kW retrofitted schemes, 1,979 MW in 2015 Q2.

Renewable installations eligible for FiTs (all except MicroCHP) represented 13 per cent of all renewable installed capacity.

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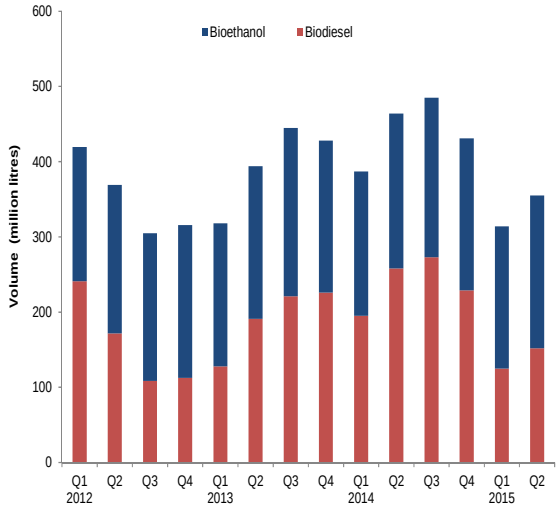
[4] Load Factors are calculated using an average of capacity at the start and end of the quarter. Therefore, they can be influenced by the time in the quarter when any new capacity came online.

[5] Quarterly load factors for renewables have been calculated since 2010 Q1.

[6] The data are taken from the MCS and ROOFIT database which is the first stage towards registering for the FIT scheme. Not all installations will eventually be confirmed onto the FIT scheme.

[7] Statistics on Feed in Tariffs can be found at: www.gov.uk/government/collections/feed-in-tariff-statistics

Chart 6.6 Liquid biofuels for transport consumption



In 2015 Q2, 355 million litres of liquid biofuels were consumed in transport, a fall of 24 per cent on the total in 2014 Q2 (464 million litres). This was mostly due to a fall in biodiesel.

In 2015 Q2, biodiesel accounted for 2.1 per cent of diesel, and bioethanol 4.6 per cent of motor spirit. The combined contribution of the two fuels was 3.0 per cent, 1.0 percentage points lower than 2014 Q2's share.

Bioethanol consumption fell by 1.5 per cent, from 206 million litres in 2014 Q2 to 203 million litres in 2015 Q2. Biodiesel consumption fell by 106 million litres (41 per cent), to 152 million litres in the same period but actually increased from 2015 Q1 by 27 million litres (22 per cent).

In 2015 Q2, bioethanol contributed the largest share of biofuels consumption, for the second successive quarter (following six successive quarters of biodiesel having the majority share), with 57 per cent. Biodiesel represented 43 per cent of biofuels consumption.

Relevant tables

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6 RENEWABLES

Table 6.1. Renewable electricity capacity and generation

	2013	2014	per cent change	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	per cent change [11]
Cumulative Installed Capacity[1]													
Onshore Wind	7,519	8,486	*+12.9*	7,025	7,309	7,519	7,655	7,977	8,236	8,486	8,654	8,723	*+9.4*
Offshore Wind	3,696	4,501	*+21.8*	3,544	3,657	3,696	3,764	4,084	4,420	4,501	4,750	5,025	*+23.0*
Shoreline wave / tidal	7	9	*+19.0*	6	7	7	8	9	9	9	10	10	*+11.5*
Solar photovoltaics	2,851	5,378	*+88.6*	2,496	2,642	2,851	4,160	4,441	4,842	5,378	8,015	8,277	*+86.4*
Small scale Hydro	231	246	*+6.7*	222	224	231	239	240	242	246	253	253	*+5.1*
Large scale Hydro	1,477	1,477	-	1,477	1,477	1,477	1,477	1,477	1,477	1,477	1,477	1,477	-
Landfill gas	1,043	1,051	*+0.8*	1,043	1,043	1,043	1,049	1,050	1,050	1,051	1,060	1,060	*+1.0*
Sewage sludge digestion	198	208	*+5.3*	197	198	198	204	205	205	208	209	209	*+2.3*
Energy from waste	550	696	*+26.7*	550	550	550	597	644	652	696	697	713	*+10.8*
Animal Biomass (non-AD)[2]	111	111	-	111	111	111	111	111	111	111	111	111	-
Anaerobic Digestion	164	216	*+31.5*	133	141	164	189	198	203	216	229	229	*+16.1*
Plant Biomass[3]	1,955	2,244	*+14.8*	2,773	1,955	1,955	2,029	2,144	2,224	2,244	2,295	2,295	*+7.1*
Total	19,801	24,623	*+24.4*	19,575	19,313	19,801	21,481	22,578	23,670	24,623	27,759	28,382	*+25.7*
Co-firing[4]	35	15	*-56.8*	35	35	35	15	15	15	15	11	11	*-30.6*
Generation[5]												**GWh**	
Onshore Wind[6]	16,950	18,611	*+9.8*	3,858	2,705	6,309	6,690	3,003	2,909	6,010	7,174	4,850	*+61.5*
Offshore Wind[6, 7]	11,472	13,404	*+16.8*	2,615	1,965	4,087	4,384	2,092	2,242	4,686	4,662	3,565	*+70.4*
Shoreline wave / tidal[6]	6	2	*-62.3*	2	1	1	0	1	0	1	1	1	*-42.1*
Solar photovoltaics[6]	1,989	4,050	*(+)*	691	849	310	474	1,486	1,550	540	1,004	3,191	*(+)*
Hydro[6]	4,702	5,885	*+25.2*	968	744	1,734	2,240	1,114	782	1,748	2,020	1,423	*+27.7*
Landfill gas[6]	5,160	5,045	*-2.2*	1,291	1,270	1,304	1,268	1,266	1,245	1,266	1,240	1,204	*-4.9*
Sewage sludge digestion[6]	761	846	*+11.1*	202	184	196	195	228	212	211	218	230	*+1.0*
Energy from waste[8]	1,649	1,950	*+18.2*	401	420	414	481	478	498	493	500	513	*+7.2*
Co-firing with fossil fuels	309	133	*-56.8*	49	39	50	25	37	37	34	35	11	*-70.3*
Animal Biomass (non-AD)[2, 6]	628	614	*-2.3*	167	144	151	159	161	132	162	169	170	*+5.8*
Anaerobic Digestion	722	1,009	*+39.7*	168	183	205	233	247	256	273	295	304	*+22.9*
Plant Biomass[3, 6]	8,930	13,105	*+46.8*	2,791	2,224	2,115	2,233	3,064	3,565	4,242	4,444	4,483	*+46.3*
Total	53,278	64,654	*+21.4*	13,203	10,729	16,876	18,384	13,177	13,426	19,667	21,763	19,945	*+51.4*
Non-biodegradable wastes[9]	1,481	1,951	*+31.7*	360	377	372	482	478	498	493	501	513	*+7.3*
Load Factors [10]													
Onshore Wind	28.8%	26.5%		25.9%	17.1%	38.5%	40.8%	17.6%	16.2%	32.6%	38.8%	25.6%	
Offshore Wind	39.1%	37.3%		34.6%	24.7%	50.3%	54.4%	24.4%	23.9%	47.6%	46.7%	33.4%	
Solar photovoltaics	9.9%	11.2%		13.5%	15.0%	5.1%	6.3%	15.8%	15.1%	4.8%	6.9%	17.9%	
Hydro	31.6%	39.2%		26.1%	19.8%	46.1%	60.6%	29.7%	20.6%	46.0%	54.2%	37.7%	
Landfill gas	56.6%	55.0%		56.7%	55.1%	56.6%	56.1%	55.2%	53.7%	54.6%	54.4%	52.0%	
Sewage sludge digestion	43.2%	47.5%		47.1%	42.2%	44.7%	44.9%	51.1%	46.7%	46.2%	48.4%	50.4%	
Energy from waste	35.3%	35.8%		33.6%	34.6%	34.1%	38.9%	35.3%	34.8%	33.1%	33.3%	33.3%	
Animal Biomass (non-AD)	64.9%	63.4%		69.3%	59.1%	61.9%	66.6%	66.7%	54.1%	66.4%	70.7%	70.5%	
Anaerobic Digestion	58.3%	60.5%		59.3%	60.6%	60.8%	60.9%	58.5%	57.8%	59.0%	61.4%	60.7%	
Plant Biomass	65.2%	71.2%		52.2%	42.6%	49.0%	51.9%	67.3%	73.9%	86.0%	90.7%	89.4%	
Total (excluding co-firing and non-biodegradable wastes)	34.2%	33.2%		32.0%	24.9%	39.0%	41.2%	27.3%	26.2%	36.8%	38.4%	32.5%	

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. Also includes enhanced co-firing (>85% biomass).
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, hosptal waste and general industrial waste.
10. Load factors are calculated based on installed capacity at the beginning and the end of the quarter/year. These can be influenced by the time in the period when new capacity came online.

Load factors on an *unchanged configuration* basis, which consider just those sites operational throughout the year, are available annually in table DUKES 6.5, at: www.gov.uk/government/publications/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes

11. Percentage change between the most recent quarter and the same quarter a year earlier.

6 RENEWABLES

Table 6.2. Liquid biofuels for transport consumption

	2013	2014	*per cent change*	2013 2nd quarter	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter p	*per cent change*[1]
Volume (million litres)													**Million litres**
Bioethanol	819	812	*-0.9*	203	224	202	192	206	212	202	189	203	*-1.5*
Biodiesel	766	955	*+24.7*	191	221	226	195	258	273	229	125	152	*-41.1*
Total biofuels for transport	1,585	1,767	*+11.5*	394	445	428	387	464	485	431	314	355	*-23.5*
Energy (thousand toe)													**Thousand tonnes of oil equivalent**
Bioethanol	462	458	*-0.9*	114	126	114	108	116	120	114	107	114	*-1.5*
Biodiesel	629	785	*+24.7*	157	182	186	160	212	224	188	103	125	*-41.1*
Total biofuels for transport	1,091	1,242	*+13.9*	271	308	300	268	328	344	302	209	239	*-27.1*
Shares of road fuels													
Bioethanol as per cent of Motor Spirit	4.5%	4.6%		4.3%	4.9%	4.5%	4.5%	4.5%	4.8%	4.6%	4.6%	4.6%	
Biodiesel as per cent of DERV	2.8%	3.4%		2.8%	3.2%	3.2%	3.0%	3.7%	3.9%	3.1%	1.8%	2.1%	
Total biofuels as per cent of road fuels	3.5%	3.9%		3.4%	3.9%	3.7%	3.6%	4.0%	4.2%	3.7%	2.9%	3.0%	

1. Percentage change between the most recent quarter and the same quarter a year earlier.

Source: HM Revenue and Customs Hydrocarbon Oils Bulletin, available a

www.uktradeinfo.com/Statistics/Pages/TaxAndDutybulletins.aspx

Renewable electricity in Scotland, Wales, Northern Ireland and the regions of England in 2014

Background

This article updates that published in the September 2014 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.

Figures in Tables 2 and 3 correspond to the totals shown in Table 6.4 of the Digest of United Kingdom Energy Statistics 2015 (DUKES). Thus the data in this article covers 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 connected[1].

For the first time this year, statistics are now available[2] at Local Authority level. These include a breakdown by number of sites, capacity and generation. Where disclosure of confidential generation data was likely at the site level, this has been addressed, where possible, by replacing commercially sensitive data with that from publicly available sources. Where this is not possible, the affected values have been set to zero and added to the unallocated row at the bottom of the Local Authority listings.

What the figures show

Table 1 and Chart 1 show that there were 4,468 non-PV sites in England generating electricity from renewable sources, with 3,207 non-PV sites in Scotland, 662 in Wales and 821 in Northern Ireland. In addition there were 496,086 PV sites reported for England, 39,582 for Scotland, 38,914 for Wales and 11,879 for Northern Ireland. No geographical information was available for a further 63,848 PV schemes, 561 wind schemes, 89 hydro schemes and 46 other bioenergy (including anaerobic digestion) schemes.

In capacity terms, including PV, England had almost twice (98 per cent higher) renewable electricity capacity than Scotland (Table 2 and Chart 3). This is mainly because of England's considerable bioenergy (90 per cent of the UK's bioenergy capacity) and PV capacity levels (83 per cent of the UK's PV capacity). Despite having the majority of the UK's solar PV (which accounted for almost nine per cent of English renewable generation), England's share of bioenergy capacity (typically used more intensively than other technologies), resulted in generation from renewable sources in England during 2014 being more than double that of Scotland.

[1] With the exception of Robin Rigg which comes ashore at Seaton, Cumbria but whose generation is associated with Scotland.
[2] Part of the tables published by DECC that show a range of renewable electricity data for the devolved administrations and the regions of England: www.gov.uk/government/statistics/regional-renewable-statistics

Table 1: Number of sites generating electricity from renewable sources, 2014[1]

	Hydro	Wind[2]	Wave and tidal	Landfill gas	Sewage gas	Other bioenergy[3]	Total excluding PV	Solar PV	**Total**
England	**241**	**3,400**	**2**	**360**	**163**	**302**	**4,468**	**496,086**	**500,554**
East Midlands	24	342	-	40	13	35	454	58,305	58,759
East of England	6	803	-	69	13	37	928	68,029	68,957
North East	9	230	-	19	8	10	276	29,295	29,571
North West	41	419	-	54	24	46	584	54,583	55,167
London	-	29	-	1	4	14	48	15,630	15,678
South East	15	102	-	70	35	31	253	77,998	78,251
South West	96	660	1	39	21	43	860	89,650	90,510
West Midlands	18	151	-	29	20	50	268	46,483	46,751
Yorkshire and the Humber	32	664	1	39	25	36	797	56,113	56,910
Wales	**142**	**468**	**-**	**24**	**16**	**12**	**662**	**38,914**	**39,576**
Scotland	**377**	**2,736**	**9**	**46**	**7**	**32**	**3,207**	**39,582**	**42,789**
Northern Ireland	**65**	**713**	**1**	**12**	**2**	**28**	**821**	**11,879**	**12,700**
Other Sites	89	561	-	-	-	46	696	63,848	64,544
UK Total	**914**	**7,878**	**12**	**442**	**188**	**420**	**9,854**	**650,309**	**660,163**

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, 2014[1]

	Hydro	Wind[2]	Wave and tidal	Landfill gas	Sewage gas	Other bioenergy	Solar PV	**MW Total**
England	**32.0**	**5,792.6**	**0.1**	**874.7**	**189.5**	**2,940.3**	**4,469.5**	**14,298.8**
East Midlands	4.6	723.8	-	68.5	17.5	121.9	471.1	**1,407.4**
East of England	0.1	1,401.5	-	201.6	26.3	153.0	896.6	**2,679.2**
North East	7.6	405.7	-	44.6	11.6	135.7	97.2	**702.4**
North West	6.2	1,392.3	-	149.6	27.0	135.5	202.1	**1,912.7**
London	-	11.2	-	0.3	23.4	172.4	60.7	**268.0**
South East	0.7	1,104.4	-	172.1	29.2	255.7	855.4	**2,417.5**
South West	9.7	230.4	-	96.1	15.1	45.7	1,419.4	**1,816.5**
West Midlands	0.8	4.7	-	60.3	23.1	501.7	230.1	**820.8**
Yorkshire and the Humber	2.3	518.6	0.1	81.5	16.2	1,418.7	236.9	**2,274.3**
Wales	**157.8**	**1,172.2**	**-**	**45.5**	**13.1**	**45.9**	**375.8**	**1,810.3**
Scotland	**1,507.6**	**5,215.8**	**7.4**	**116.3**	**5.6**	**226.1**	**155.6**	**7,234.3**
Northern Ireland	**8.5**	**689.0**	**1.2**	**14.3**	**0.2**	**20.6**	**62.2**	**796.0**
Other Sites	17.3	117.9	0.0	0.0	0.0	34.0	314.3	**483.5**
UK Total	**1,723.2**	**12,987.5**	**8.7**	**1,050.9**	**208.4**	**3,266.8**	**5,377.3**	**24,622.9**
Co-firing[4]						15.5	-	**15.5**

Components may not add exactly to totals because of rounding.

Table 3: Generation of electricity from renewable sources, 2014[1]

	Hydro	Wind[2]	Wave and tidal	Landfill gas	Sewage gas	Other bioenergy[5]	Solar PV	GWh Total
England	**98.8**	**16,429.1**	**0.1**	**4,256.7**	**773.4**	**15,080.3**	**3,447.1**	**40,085.4**
East Midlands	13.7	1,952.0	-	319.9	77.8	407.2	353.9	**3,124.5**
East of England	0.3	4,343.9	-	1,014.1	66.3	812.9	665.8	**6,903.3**
North East	32.9	875.5	-	163.6	53.2	576.1	78.6	**1,779.9**
North West	17.0	4,110.4	-	627.5	133.3	535.5	167.1	**5,590.8**
London	-	14.5	-	2.6	53.1	560.3	53.3	**683.8**
South East	1.8	3,547.0	-	958.6	125.4	718.7	611.1	**5,962.6**
South West	24.6	466.7	-	474.3	71.3	187.1	1,139.4	**2,363.4**
West Midlands	2.3	7.5	-	335.5	128.3	2,238.5	181.8	**2,893.9**
Yorkshire and the Humber	6.3	1,111.6	0.1	360.6	64.5	9,044.0	196.0	**10,783.1**
Wales	**275.7**	**2,331.6**	**-**	**193.5**	**43.6**	**330.5**	**234.3**	**3,409.3**
Scotland	**5,435.8**	**11,664.1**	**2.1**	**533.5**	**28.2**	**1,166.5**	**131.7**	**18,961.9**
Northern Ireland	**28.2**	**1,454.3**	**0.0**	**61.3**	**0.7**	**104.4**	**45.7**	**1,694.6**
Other Sites	46.4	136.5	-	-	-	129.1	191.0	**503.0**
UK Total	**5,884.9**	**32,015.7**	**2.2**	**5,045.0**	**845.9**	**16,810.8**	**4,049.7**	**64,654.1**

Components may not add exactly to totals because of rounding.

Notes to Tables 1 to 3
- Nil or less than half the final digit shown.
1 At the 31 December 2014.
2 Wind Offshore is allocated to regions/countries according to where the cabling comes ashore. Wave & Tidal has been separated out this year
3 Eight 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.
6 Generation data for wave and tidal schemes are from publically available monthly Renewables Obligation Certificates data (or DECC estimates where this is not available); therefore, where there are regions with less than three sites, no company data are being disclosed.

In England, the number of sites (excluding PV) in each region varies from 48 in London to 928 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 Yorkshire and the Humber (Table 2 and Chart 4). In the East of England, 52 per cent of capacity is from wind (most from offshore), 33 per cent is from PV and 8 per cent from landfill gas. In the South East, 46 per cent of capacity is from wind, 35 per cent from PV and 11 per cent from other biomass. In Yorkshire and the Humber, 23 per cent of capacity is from wind, 62 per cent from other biomass and 10 per cent from PV. The East of England has 19 per cent of the UK's landfill gas capacity, 13 per cent of the UK's sewage gas capacity and 12 per cent of the PV. 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 52 per cent of UK generation from landfill gas.

Chart 1: Number of sites by country[1]

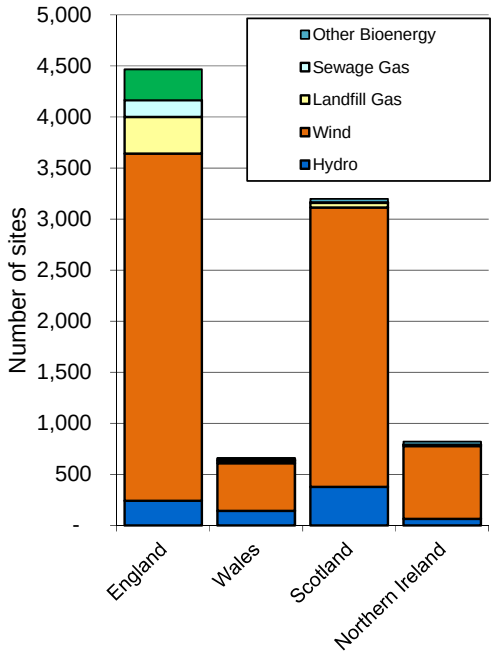
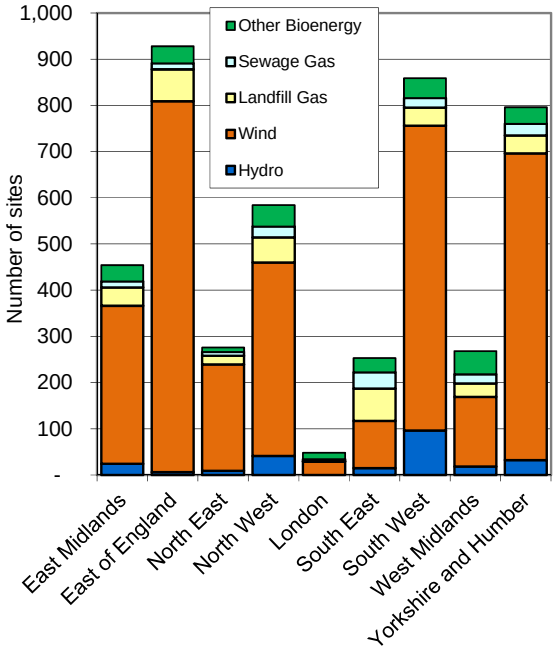


Chart 2: Number of sites by English region[1]



1. Excludes Solar PV schemes, due to the large numbers involved, and – given the size of these - would misrepresent its overall contribution to UK renewables.

In 2014, Scotland had 40 per cent of the UK's wind capacity and produced 36 per cent of the output (Tables 2 and 3; Charts 5 and 9). The East has the next largest wind share (10.8 per cent of capacity and 14 per cent of generation) followed closely by the North West (10.7 per cent of the capacity and 13 per cent of the output), then Wales (9 per cent of capacity and 7 per cent of generation) and the South East (8.5 per cent of capacity and 11 per cent of generation (Tables 2 and 3; Charts 3 to 10)[3]. England as a whole accounts for 45 per cent of wind capacity and 51 per cent of generation.

[3] A map of wind farm installed capacities in the UK at the end of 2014 was published in the renewables chapter of the 2015 edition of the Digest of UK Energy Statistics www.gov.uk/government/statistics/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes

Chart 3: Renewable capacity by country

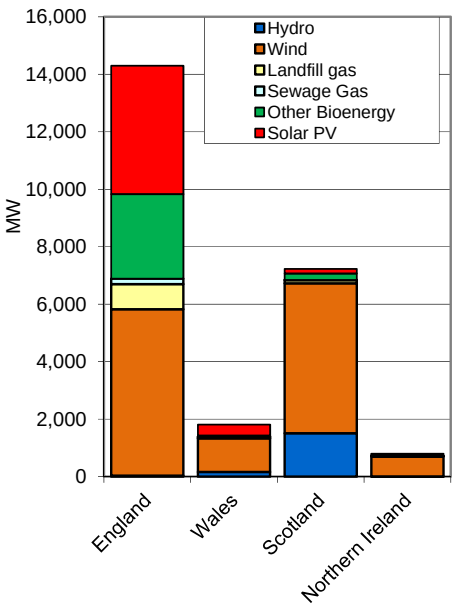


Chart 4: Renewable capacity by English region

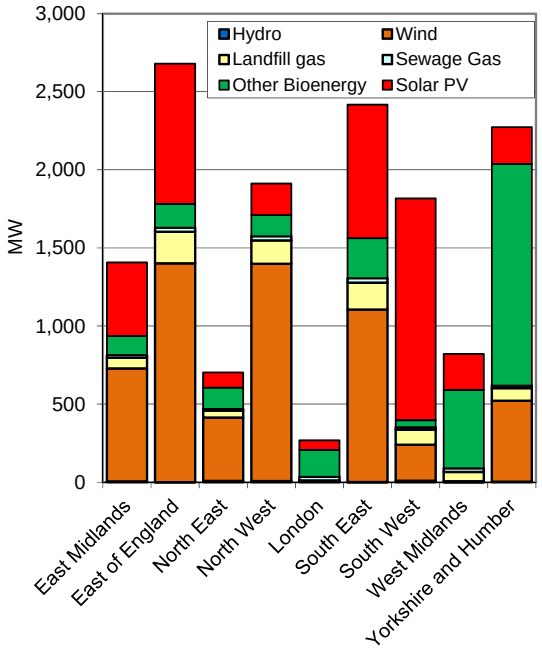


Chart 5: Wind capacity by country

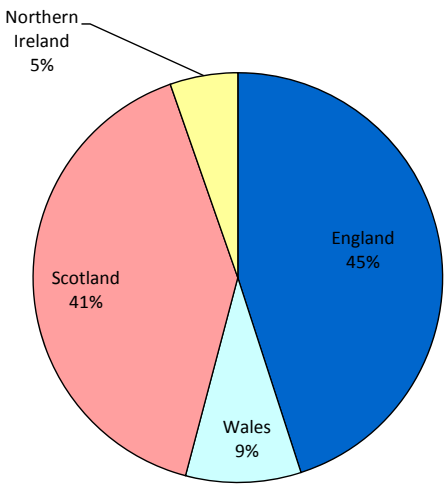


Chart 6: Wind capacity by English region

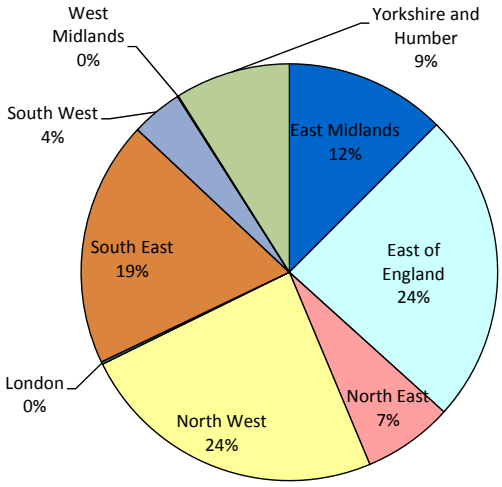


Chart 7: Renewable generation by country

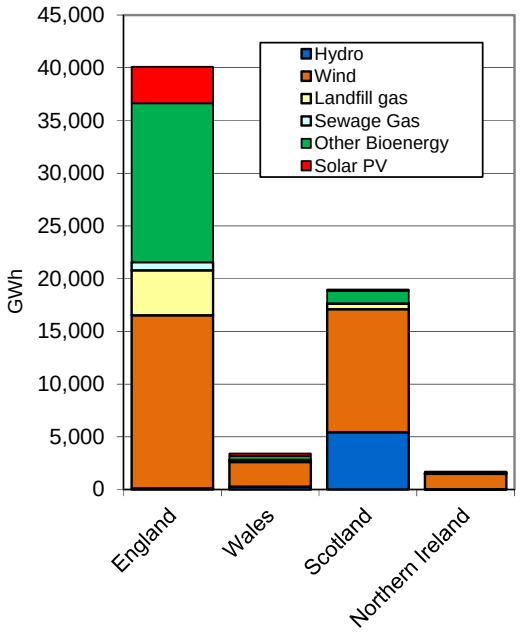


Chart 8: Renewable generation by English region

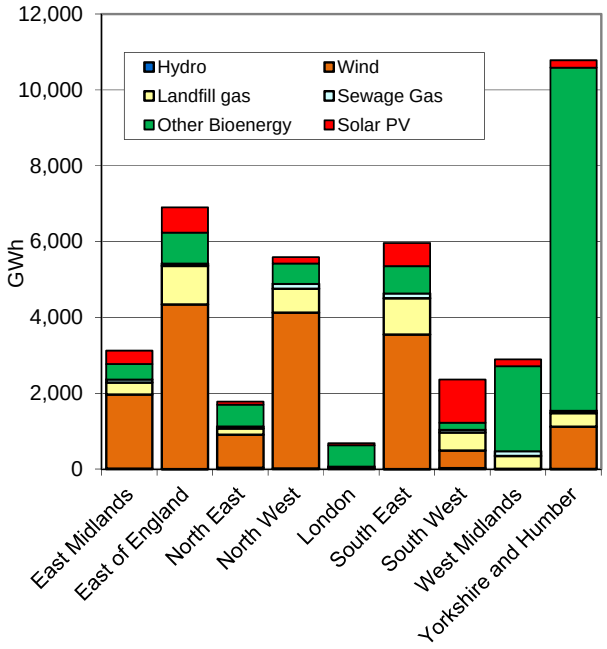


Chart 9: Wind generation by country

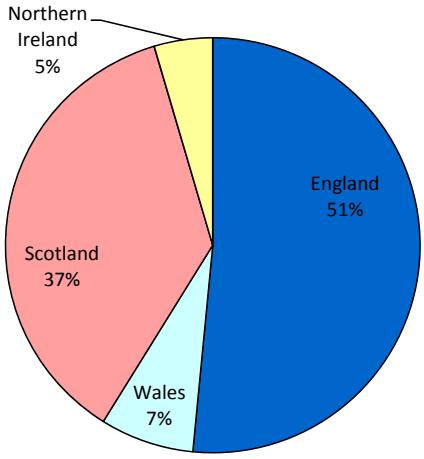
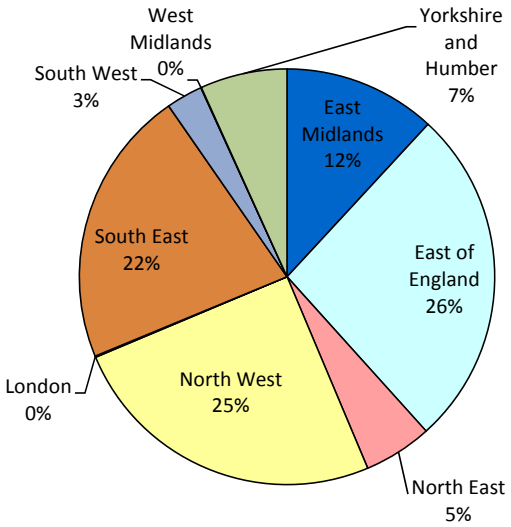


Chart 10: Wind generation by English region



Ninety one per cent of the generation from sewage and 90 per cent of the generation from other bioenergy (including that used for co-firing) took place in England. The North West (16 per cent), the South East jointly with the West Midlands (15 per cent each) and East Midlands (9 per cent) were the major sewage gas areas. In the other bioenergy category, Yorkshire and the Humber (54 per cent) had the largest share (mostly from Drax, where – in addition to a first unit converted in 2013 to biomass - a second 645 MW biomass unit became operational in 2014), followed by West Midlands (13 per cent) and Scotland (7 per cent).

Excluding bioenergy sources used for co-firing (which cannot be allocated to regions – see note 4 to Table 2), the Yorkshire and the Humber has the largest capacity to generate from bioenergy (43 per cent of the UK total), mostly from the two 645 MW converted units at Drax followed by West Midlands (15 per cent), mostly from the 360 MW Ironbridge biomass conversion, and the South East (8 per cent).

In terms of change to total renewables generating capacity, Yorkshire and the Humber (+874 MW), South West (+741 MW), Wales (+636 MW), Scotland (+626 MW), East of England (+618 MW), North West (+490 MW) and South East (+446 MW) have all shown considerable growth this year but the West Midlands shows a net decrease of 447 MW as a result of the reduction in capacity of the Ironbridge biomass conversion from 900 to 360 MW.

The growth in overall renewables capacity has primarily come from the following regions:

- Yorkshire and the Humber - biomass (+692 MW, mostly from the 645 MW second Drax unit conversion) and wind (+109 MW);
- South West - solar (+692 MW);
- Wales - wind (+401 MW – with 428 MW from the new Gwynt y Mor offshore site) and solar (229 MW);
- Scotland - wind (+512 MW, including the following new onshore wind sites: Harestanes (136 MW), Mid Hill (76 MW), 69 MW Lochluichart Windfarm, Berry Burn (67 MW) and Beinn an Tuirc 2 (44 MW);
- East of England - solar (+547 MW);
- North West - wind (+406 MW, mostly from the new 389 MW West of Duddon Sands offshore site);
- South East - solar (+420 MW).

The rapid uptake of solar has been a feature of the last four years, driven by the financial support being given to, and decreasing cost of, the technology.

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. Among the English regions, Yorkshire and the Humber is highest in generating capacity per unit of GVA terms followed by the East of England and the South West with the East Midlands and the North East very close behind. In terms of Generation/GVA, Yorkshire and the Humber is the highest followed by East of England and the North West.

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	**11.02**	**30,890**
East Midlands	15.84	35,172
East of England	20.55	52,948
North East	15.48	39,228
North West	13.51	39,478
London	0.79	2,020
South East	10.64	26,240
South West	15.96	20,767
West Midlands	7.45	26,249
Yorkshire and the Humber	22.36	106,027
Wales	**34.77**	**65,474**
Scotland	**61.77**	**161,907**
Northern Ireland	**24.24**	**51,600**
UK average	**15.83**	**42,058**

1. GVA is Gross Value Added as published as Total GVA in Regional Gross Value Added (Income Approach), December 2014 at: http://www.ons.gov.uk/ons/rel/regional-accounts/regional-gross-value-added--income-approach-/december-2014/index.html

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

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 as Excel spreadsheets at: www.gov.uk/government/statistics/regional-renewable-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 2014, there was a 510 per cent increase in generation from renewables in the UK, but faster rates of growth were recorded in Yorkshire and the Humber (1,556 per cent), Northern Ireland (1,525 per cent), South East (652 per cent), East Midlands (622 per cent), North East (591 per cent) and North West (551 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.

Within the England regions there are several notable spikes in the data. In East of England, generation in 2012 and 2013 increased by 121 per cent and 33 per cent respectively, before falling by 26 per cent in 2014. This is primarily due to the effects of Tilbury power station, which converted to biomass at the end of 2011, closing for a few months (due to a fire) in 2012, before closing in August 2013. In Yorkshire and the Humber, generation almost doubled in 2013, and more than doubled in 2014, due to the successive conversions of the two units at Drax to biomass. Meanwhile, generation in the South East increased by more than half in 2013, with the opening of London Array offshore wind farm

Chart 11: Trends in generation from renewables by country

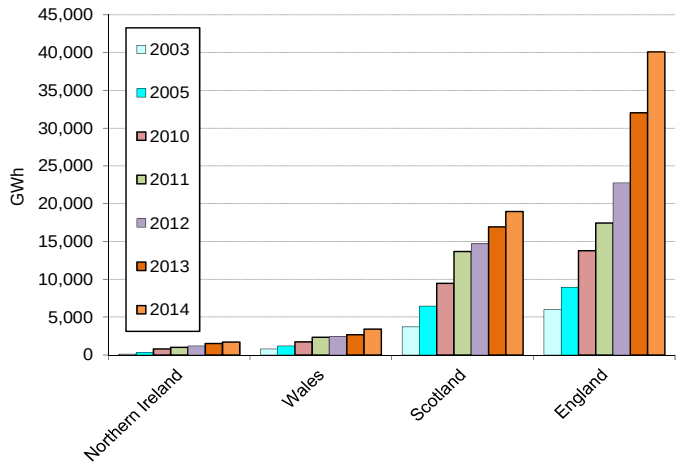
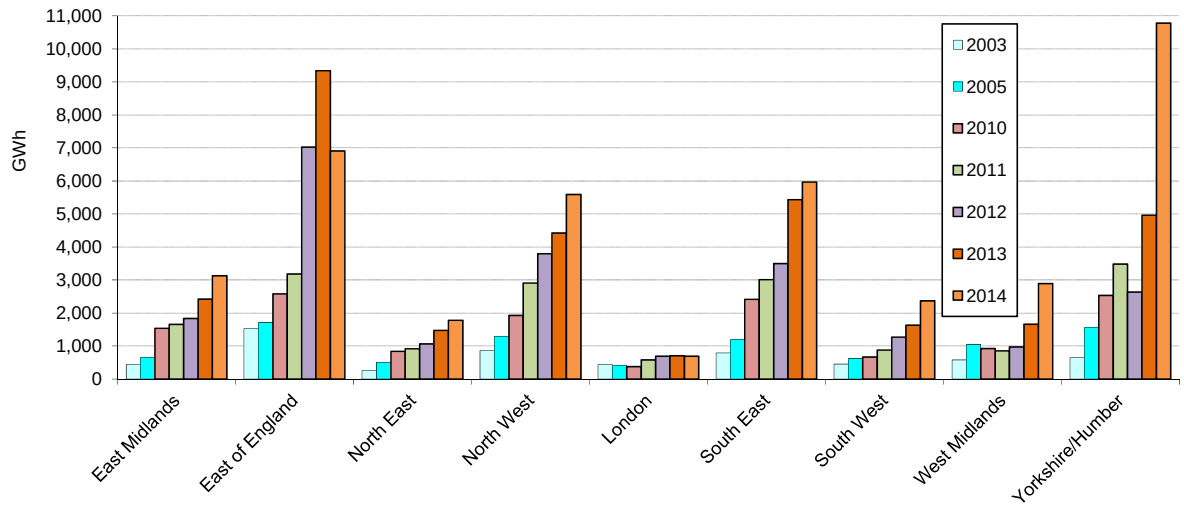


Chart 12: Trends in generation from renewables by English region



Load factors

Load factors for the various technologies are shown in Table 5 from data provided in Tables 2 and 3 of this article. These are presented on an unchanged configuration basis.

Previously, load factors were presented in terms of installed capacity and express the average hourly quantity of electricity generated as a percentage of the average capacity at the beginning and end of the year. These can still be found in the load factor time-series spreadsheets, available at: www.gov.uk/government/collections/renewables-statistics. However, this method does not take into account the impact of new schemes being constructed but not operating fully in the year. This can result in a distorted picture of the load factors being given, depending on the timing and magnitude of new capacity coming on stream, and can even result in values greater than 100 per cent. The unchanged configuration basis for load factor calculations has therefore been used in this article.

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:

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

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.

These data show that, for onshore wind, the unchanged configuration load factors range from 18.9 per cent in London, to 28.5 per cent in the North West, with Yorkshire and the Humber occupying the median position at 26.6 per cent [4]. For offshore wind, load factors varied from 22.5 per cent

[4] 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 2015, when 2014 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.

(largely due to problems at Blyth Offshore Wind Farm WTG 1 + WTG2) in the North East to 42.5 per cent in the North West.

Table 5: Regional load factors on an unchanged configuration basis, 2014

	Wind Offshore	Wind Onshore	Landfill gas	Sewage gas	Other bioenergy (ex cofiring, sewage, LFG)	Hydro (large scale)	Hydro (small scale)	Hydro
England	**38.2%**	**26.6%**	**55.6%**	**50.6%**	**69.8%**	**43.5%**	**35.6%**	**38.3%**
East Midlands	34.8%	25.9%	53.2%	50.1%	58.8%		40.1%	40.1%
East of England	38.6%	27.1%	57.5%	42.3%	73.5%			
North East	22.5%	25.4%	41.9%	52.7%	73.2%	43.5%	71.0%	47.5%
North West	42.5%	28.5%	47.7%	56.5%	55.1%		37.8%	37.8%
London		18.9%	89.6%	27.9%	73.1%			
South East	37.4%	27.9%	63.4%	49.0%	60.1%		5.9%	5.9%
South West		25.0%	56.9%	55.4%	47.4%		27.8%	27.8%
West Midlands			63.5%	63.5%	57.5%			
Yorkshire and the Humber		26.6%	52.5%	44.9%	75.8%		24.7%	24.7%
Wales	**32.2%**	**26.8%**	**48.5%**	**37.4%**	**64.8%**	**17.8%**	**32.4%**	**19.7%**
Scotland	**34.0%**	**26.2%**	**56.1%**	**58.0%**	**70.6%**	**40.8%**	**41.3%**	**40.8%**
Northern Ireland		**27.5%**	**52.7%**		**75.5%**		**40.1%**	**40.1%**
UK AVERAGE	**37.8%**	**26.4%**	**55.3%**	**49.9%**	**69.8%**	**38.8%**	**39.6%**	**38.8%**
MEDIAN	34.8%	26.6%	54.6%	50.1%	67.7%	40.8%	37.8%	37.8%

The load factors for hydro range from 43.5 per cent in the North East to 17.8 per cent in Wales, with UK average (mean) and median values for the UK overall of 38.8 and 40.8 per cent, respectively. For landfill gas, the load factors vary from 89.6 per cent for London to 41.9 per cent in the North East, with UK mean and median values of 55.3 and 54.6 per cent, respectively.

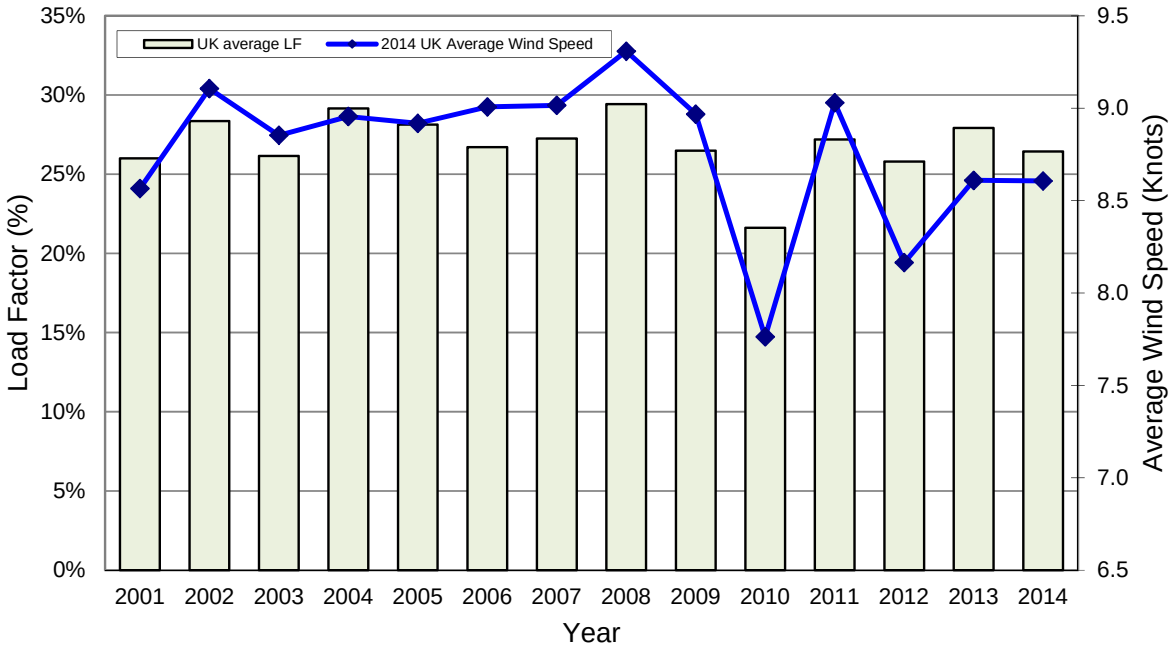
Chart 13 also shows the annual variation in onshore wind load factor and wind speed. This uses a wind speed index[5] that provides an indication of the mean wind speed relative to that of the long-term average across the UK.

Over the 14-year period from 2001 to 2014, 2008 was the windiest year, with 2010 being the least windy year. Average wind speeds remained virtually unchanged in 2014 compared with the previous year, making it the fourth windiest year in the period, together with 2013.

[5] Based on data provided by the Meteorological Office:
www.gov.uk/government/uploads/system/uploads/attachment_data/file/437814/et7_2.xls

Regional wind speed data are aggregated according to wind electricity generating capacity. Further information on the methodology used is given in Energy Trends Special feature article, March 2006, page 28.

Chart 13: Annual variation in onshore wind 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 2014

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 2015. This article updates statistics published in the September 2014 edition of Energy Trends and provides a breakdown of CHP in the Devolved Administrations and English regions in 2014[1].

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. Another source of data is the sales databases of the Association for Decentralised Energy (ADE). Data from CHP schemes not covered by the above sources are extrapolated from historic data. There is an ongoing data quality assurance exercise in respect of these schemes.

Between 2013 and 2014 there was a net increase of 12 in the number of CHP schemes in the database (54 new schemes and the removal of 42 schemes), but a net decrease of 72 MWe in capacity. Good Quality CHP[2] capacity in the UK fell from 6,190 MWe (revised 2013 figure) to 6,118 MWe in 2014.

Regional Trends[3]

Tables 1 and 1B show a comparison of the number of schemes, electrical capacity, electricity generated and heat generated in the regions[4] for the period 2012 to 2014. During this time, the total number of schemes increased from 1,955 to 2,066, however the capacity decreased from 6,175 MWe to 6,118 MWe. With the exception of the South East region, the number of schemes increased in all regions over the period 2012 to 2014. Over this period, the electrical capacity increased in all regions except in the East Midlands, North East, North West and Wales regions. The largest falls in capacity in the period 2012-2014 were in East Midlands and North East regions. In the East Midlands there was a significant decrease in capacity due largely to the closure of one scheme serving the Chemicals sector. In the North East one scheme ceased to operate as CHP in the period 2012-2014 and so is no longer counted in the statistics.

[1] Similar articles on CHP have appeared in previous Energy Trends publications from 2001 to 2014. 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.

[4] These regions are the Government Office Regions of England and Devolved Administrations of Scotland, Wales and Northern Ireland.

Table 1: Trend in number of CHP schemes and their electrical capacity over the period 2012-2014

	Number of Schemes			Electrical Capacity (MWe)		
	2012	**2013**	**2014**	**2012**	**2013**	**2014**
England	**1,658**	**1,733**	**1,743**	**5,405**	**5,405**	**5,312**
East Midlands	102	110	112	209	138	144
Eastern	158	170	164	299	291	302
London	273	279	291	172	179	195
North East	108	113	111	852	844	745
North West	266	271	276	787	797	768
South East	283	297	293	940	969	969
South West	129	139	142	82	86	82
West Midlands	163	170	171	100	107	110
Yorkshire/Humberside	176	184	183	1,965	1,995	1,998
Scotland	119	130	132	496	512	538
Wales	117	122	119	219	214	208
Northern Ireland	61	69	72	55	59	60
UK Total	**1,955**	**2,054**	**2,066**	**6,175**	**6,190**	**6,118**

Table 1B: Trend in CHP electricity and heat generated over the period 2012-2014

	Electricity Generated (GWh)			Heat Generated (GWh)		
	2012	**2013**	**2014**	**2012**	**2013**	**2014**
England	**19,584**	**16,951**	**16,831**	**39,023**	**37,194**	**34,618**
East Midlands	946	579	571	1,949	1,391	1,347
Eastern	1,222	1,227	1,323	1,848	1,983	2,005
London	476	494	533	1,184	1,190	1,201
North East	2,450	1,800	2,001	7,130	6,594	6,265
North West	3,440	3,227	2,663	9,671	9,020	7,772
South East	4,007	3,403	3,239	7,711	7,409	6,839
South West	358	365	364	620	638	449
West Midlands	403	414	433	714	731	753
Yorkshire/Humberside	6,283	5,442	5,703	8,197	8,239	7,988
Scotland	2,274	2,357	2,487	6,000	5,802	5,811
Wales	873	882	747	2,720	2,571	2,366
Northern Ireland	220	210	216	500	508	512
UK Total	**22,950**	**20,400**	**20,281**	**48,244**	**46,076**	**43,306**

The region with the highest proportion of the UK's electrical capacity was the Yorkshire and Humberside region with a 33 per cent share. The average capacity of CHP schemes in this region was higher than in any other region.

Chart 1 shows the distribution of electricity and heat generation from CHP in 2014 across the English regions and the Devolved Administrations. The largest contribution to electricity generation comes from the Yorkshire and the Humber region (28 per cent), followed by the South East (16 per cent), the North West (13 per cent), Scotland (12 per cent) and the North East (9.9 per cent). This ranking is the same as in 2013. However, while there was an increase in the proportion of total electricity generated in the North West in the years to 2013, this proportion declined in 2014.

The regions of Yorkshire and Humberside and the North West each represented 18 per cent of the heat generated, followed by the South East (16 per cent) and the North East (14 per cent). In 2013 the North West had the greatest share of heat generation, consequently there has been a greater fall in power and heat generation in the North West compared to the other regions. The overwhelming majority of this decrease has been within the Chemical sector.

Chart 1: CHP generation by area in 2014

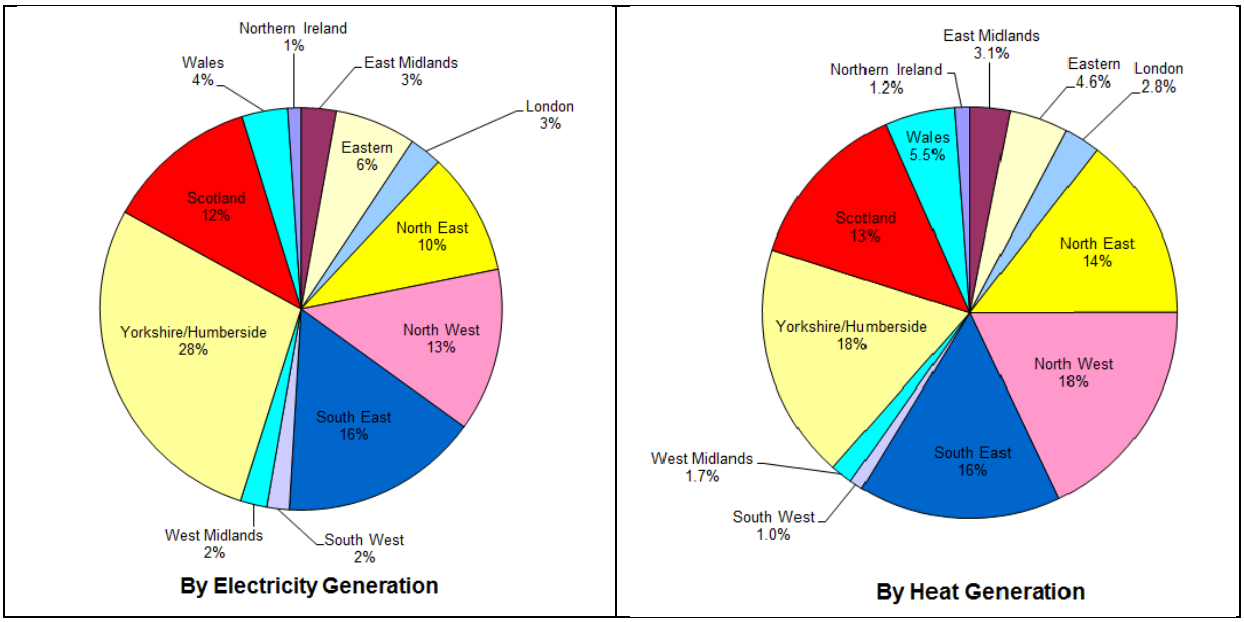


Table 2 shows an overview of CHP plant data broken down between the English regions and devolved administrations. CHP capacity utilisation can be expressed by the Load Factor (LF). LF is the actual generation as a proportion of the theoretical maximum power that can be generated for a given total installed capacity (TPC). The power output that is actually generated is the total power output (TPO). For 2014, the TPC was 8,906 MWe and the TPO was 40,213 GWh, giving a LF of 52 per cent, which is one percentage point lower than in 2013 (revised).

Higher LF 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).

Table 2: Overview of CHP schemes in 2014

	Number of Schemes	Electrical Capacity (QPC)* MWe	Electrical Capacity (TPC) MWe	Heat Capacity MWth	Fuel Used* GWh	Electricity Generated (QPO)* GWh	Electricity Generated (TPO) GWh	Heat Generated GWh	Load Factor** (%)
England	**1,743**	**5,312**	**7,855**	**18,608**	**73,430**	**16,831**	**34,789**	**34,618**	50.6%
East Midlands	112	144	175	495	2,821	571	614	1,347	40.1%
Eastern	164	302	302	860	5,779	1,323	1,355	2,005	51.2%
London	291	195	196	850	2,407	533	621	1,201	36.2%
North East	111	745	839	1,876	12,261	2,001	3,076	6,265	41.9%
North West	276	768	872	4,049	13,463	2,663	3,555	7,772	46.6%
South East	293	969	2,197	5,219	14,059	3,239	9,381	6,839	48.7%
South West	142	82	82	186	1,212	364	384	449	53.6%
West Midlands	171	110	177	585	1,859	433	576	753	37.2%
Yorkshire/Humberside	183	1,998	3,016	4,488	19,569	5,703	15,227	7,988	57.6%
Scotland	132	538	692	2,859	11,597	2,487	3,502	5,811	57.8%
Wales	119	208	300	917	4,650	747	1,695	2,366	64.6%
Northern Ireland	72	60	60	154	1,030	216	227	512	43.5%
UK Total	**2,066**	**6,118**	**8,906**	**22,539**	**90,707**	**20,281**	**40,213**	**43,306**	**51.5%**

∗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.

Importance of CHP in the Regional Economies

Chart 1 shows the CHP outputs of each region and is derived from the data contained in Table 1B. It portrays only a limited picture as it does not account for the varying size of each region's economy. 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.

CHP continues to be a very important part of the economies of the Yorkshire/Humber, North East, 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 industries in these regions, which are heat intensive sectors.

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

	Heat capacity per unit GVA kWt/ (£million)*	Electrical capacity per unit GVA kWe/ (£million)*
Yorkshire/Humberside	44.13	19.65
North East	41.34	16.43
North West	28.59	5.42
Scotland	**24.41**	**4.59**
South East	22.97	4.26
Wales	**17.62**	**4.00**
England	**14.34**	**4.09**
Eastern	6.59	2.32
East Midlands	5.57	1.62
West Midlands	5.31	1.00
Northern Ireland	**4.70**	**1.81**
London	2.51	0.58
South West	1.64	0.72
UK total	**14.78**	**4.01**

*GVA is provisional gross value added in 2014 (income approach)[5]

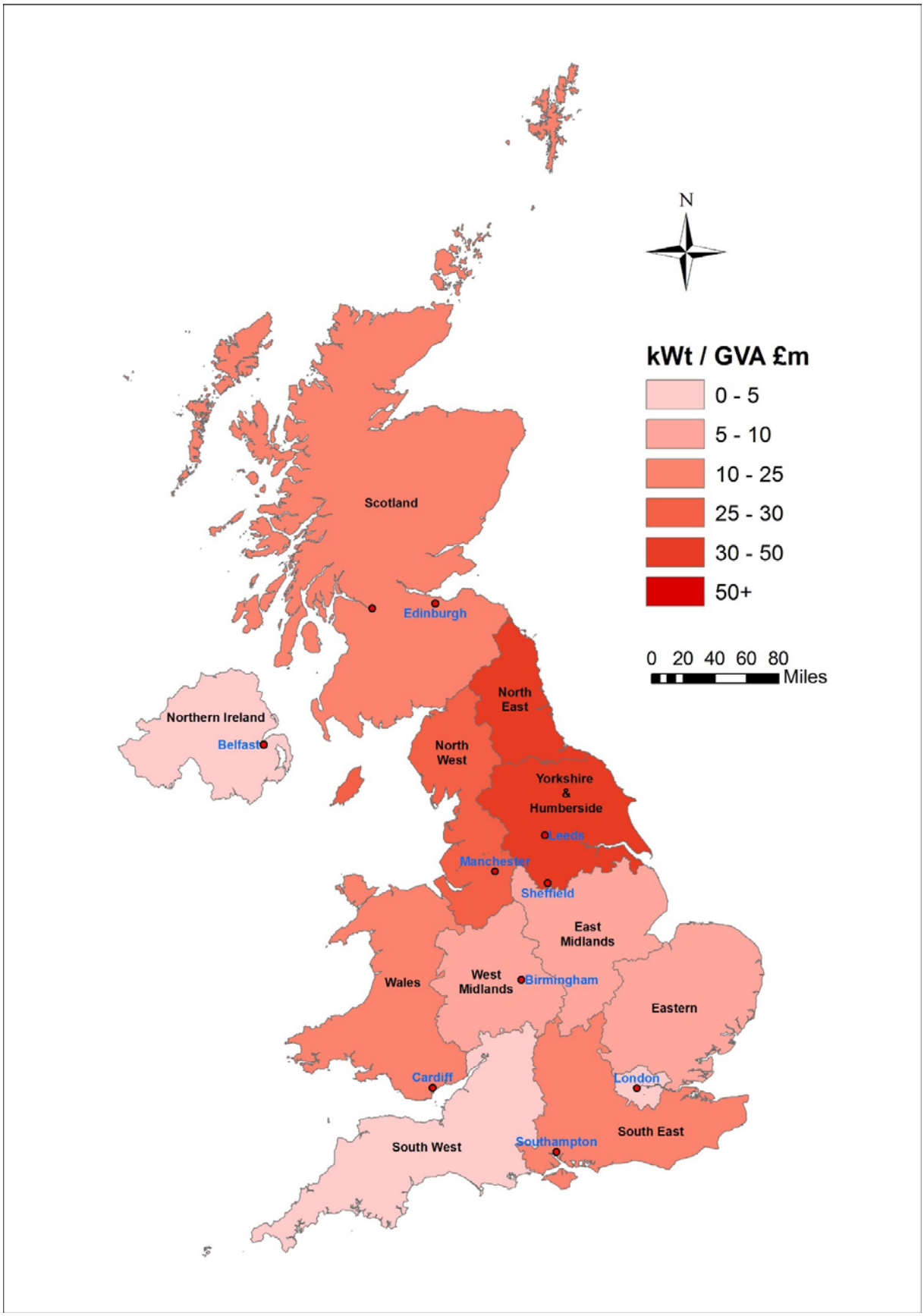
The distribution of CHP capacity across the regions and economic sectors is summarised in Table 4, which shows the proportion of total CHP capacity in a particular economic sector in each region. Over 60 per cent of all CHP capacity in the oil refineries and oil and gas terminals sector can be found in the Yorkshire and Humber region and 85 per cent of capacity in the chemicals sector is to be found in three regions: North East, Yorkshire/Humber and the North West. Over half of the capacity in the Paper, Publishing and Printing sector is located in the South East region. The Eastern region is the single largest region for CHP capacity in the Food, Beverages and Tobacco sector (45 per cent), which is substantially explained by the heavy concentration of the heat intensive sugar beet industry in this region.

[5] www.ons.gov.uk/ons/rel/regional-accounts/regional-gross-value-added--income-approach-/december-2014/index.html

Table 4: Distribution of CHP capacity across the regions and economic sectors in 2014

Region	Sector									
	Iron and Steel and Non-ferrous Metals	Chemicals	Oil Refineries and Oil and Gas Terminals	Paper, Publishing and Printing	Food, Beverages and Tobacco	Metal Products, Machinery and Equipment	Mineral Products	Other Industrial Branches	Transport, Commerce and Administration	Other
England	80.2%	92.4%	84.4%	78.7%	88.8%	88.2%	100.0%	76.8%	84.6%	92.4%
East Midlands	0.0%	0.9%	0.0%	0.0%	6.8%	42.3%	6.5%	3.7%	5.8%	7.5%
Eastern	7.2%	0.7%	0.0%	0.0%	45.0%	0.0%	0.0%	11.4%	5.5%	8.5%
London	3.6%	0.7%	0.0%	0.0%	6.3%	8.9%	0.0%	9.5%	16.3%	12.9%
North East	50.5%	38.5%	0.0%	0.0%	0.0%	0.0%	23.6%	5.4%	8.4%	2.1%
North West	0.0%	21.0%	4.8%	23.8%	18.2%	3.5%	46.2%	11.4%	11.0%	4.4%
South East	0.0%	4.5%	18.9%	51.3%	5.1%	4.0%	0.0%	13.0%	13.3%	27.1%
South West	0.0%	0.5%	0.0%	0.0%	1.9%	4.1%	13.5%	5.0%	5.0%	5.4%
West Midlands	0.0%	0.0%	0.0%	2.0%	0.1%	25.4%	0.0%	13.2%	9.2%	2.9%
Yorkshire and Humber	18.9%	25.6%	60.7%	1.5%	5.5%	0.0%	10.1%	4.2%	10.0%	21.6%
Scotland	0.0%	4.8%	12.5%	14.8%	4.8%	0.3%	0.0%	11.5%	9.1%	4.3%
Wales	18.0%	2.2%	3.1%	6.5%	1.0%	5.7%	0.0%	11.5%	4.2%	1.1%
Northern Ireland	1.7%	0.7%	0.0%	0.0%	5.3%	5.8%	0.0%	0.1%	2.2%	2.1%
UK Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

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, either on their own or as part of Combined Cycle Gas Turbines (CCGT), continue to dominate the CHP market. In 2014, CCGT accounted for about 70 per cent of total CHP capacity but only about 6 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.

- Reciprocating Engines constitute the vast majority of all CHP schemes (92 per cent). The region with the highest proportion of Reciprocating Engines is the West Midlands (nearly 98 per cent of all schemes in that region) and the region with the lowest proportion is Yorkshire/Humberside (87 per cent).

Table 5: CHP electrical capacity (MWe) by area and prime mover in 2014

	Gas Turbines*	Steam Turbines	Gas and Steam Turbines Subtotal	Reciprocating Engines	Total
England	**3,776**	**609**	**4,385**	**927**	**5,312**
East Midlands	-	-	90	54	144
East of England	-	-	195	107	302
London	-	-	51	144	195
North East	-	-	683	62	745
North West	466	178	644	123	768
South East	-	-	774	195	969
South West	18	0	18	64	82
West Midlands	-	-	27	83	110
Yorkshire and The Humber	1,840	63	1,903	95	1,998
Scotland	401	81	482	56	**538**
Wales	130	36	166	42	**208**
Northern Ireland	-	-	15	45	**60**
Grand Total	**-**	**-**	**5,048**	**1,070**	**6,118**

*Includes Combined Cycle Gas Turbines (CCGT)

The CHP market continues to be dominated by large-scale (>10MWe) plant, with 79 per cent of all installed capacity being in this size range. The regional distribution of CHP by capacity tranche is given in Table 6.

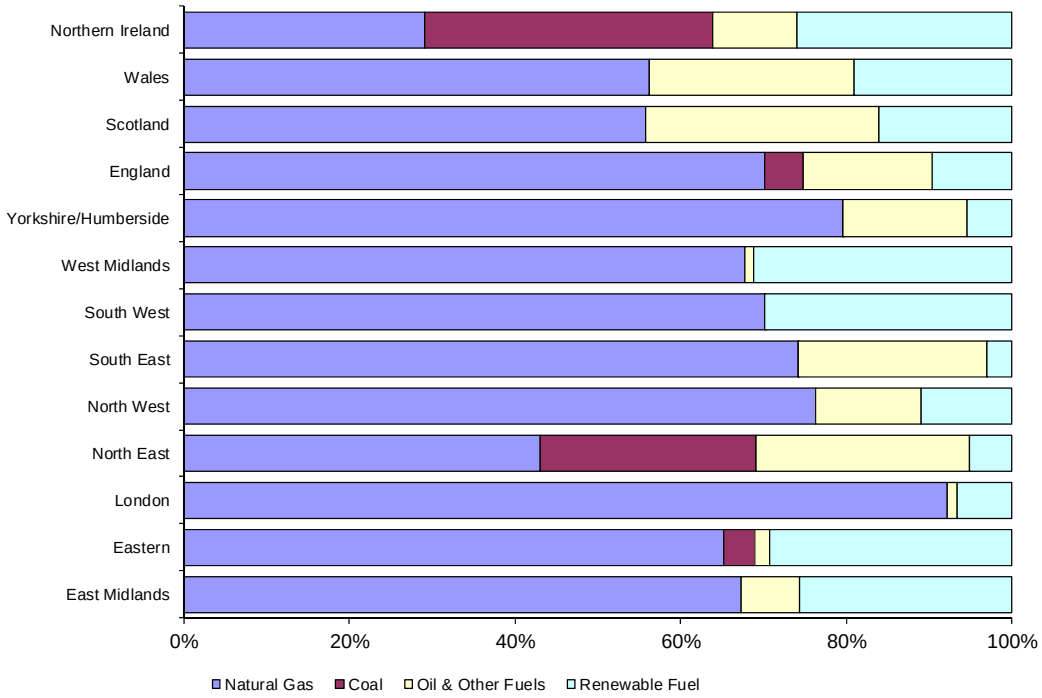
Table 6: CHP electrical capacity (MWe) by area and size in 2014

	<= 100 kWe	> 100 kWe to 1 MWe	>1 MWe to 2 MWe	> 2 MWe to 10 MWe	> 10 MWe +	Total
England	**33**	**232**	**160**	**666**	**4,222**	**5,312**
East Midlands	2	15	10	-	-	144
East of England	2	25	20	-	-	302
London	6	42	12	-	-	195
North East	3	9	8	49	677	745
North West	4	36	32	103	592	768
South East	5	41	32	134	758	969
South West	3	23	9	47	0	82
West Midlands	3	22	16	69	0	110
Yorkshire and The Humber	4	20	21	71	1,882	1,998
Scotland	2	16	14	62	444	538
Wales	3	15	-	-	148	208
Northern Ireland	1	14	-	-	-	60
Grand Total	**39**	**277**	**179**	**783**	**4,841**	**6,118**

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 2014 for each region



Natural gas represented 67 per cent of all fuel burned in CHP in 2014, which is lower than in 2013 when the share was 69 per cent (revised). Natural gas continues to make up more than half of fuel burned in every sector except Northern Ireland and the North East. With the exception of Northern Ireland, natural gas was the fuel accounting for the largest proportion of overall fuel consumption in all regions. In Northern Ireland, coal accounted for the largest proportion of overall fuel consumption (35 per cent) followed by natural gas (29 per cent). Northern Ireland continues to be the region with the lowest share of total fuel consumed in the form of natural gas. This reflects the relatively low penetration of the natural gas network in Northern Ireland.

In 2014, coal consumption was absent in all but five regions, with two of the five consuming significantly less than 1 per cent. The largest users of coal were Northern Ireland (35 per cent) followed by the North East (26 per cent). The number of schemes burning coal in 2014 was very small (<10 schemes).

The share of total renewable fuel use in CHP plant rose from 9.5 per cent in 2012 (revised) to 11 per cent. In 2013 the region with the largest absolute quantity of renewable fuel consumption continued to be Scotland, followed by the Eastern and North West regions. The region with renewables making up the greatest share of fuel was the West Midlands (31 per cent), followed by the South West (30 per cent) and then the Eastern region (29 per cent).

Summary

The Yorkshire and the Humberside region continues to be the region of the UK with the greatest level of installed CHP capacity and CHP electricity generation, accounting for 33 per cent of all capacity and 28 per cent of all electricity generated. Other regions with high levels of CHP capacity are the South East, North West and the North East regions. This is substantially explained by the significant presence of heat intensive industries, such as oil refining, chemicals production and paper and printing in these regions.

The largest share of CHP capacity in the UK (about 37 per cent) is found at oil refineries, oil terminals and gas terminals. Capacity in this sector occurs in just five of the twelve UK regions. About 92 percent of all capacity in this sector is located in three regions: Yorkshire and Humber, South East and Scotland.

The second largest share of CHP capacity in the UK (about 27 per cent) is found in the chemicals sector and 85 per cent of this capacity is found in just three regions: North East, Yorkshire and the Humber and North West.

About 90% of the paper and printing CHP capacity is to be found in just three regions: South East, North West and Scotland. Forty-five per cent of capacity in the Food and Drink sector is in the Eastern region, which is substantially explained by a very high concentration of heat intensive sugar from sugar beet production in this region.

The continuing importance of the heat-intensive oil refining and the chemicals sectors in the Yorkshire and Humber, North East and North West regions explain the higher values of CHP heat and electrical capacities per unit of GVA in these regions than any of the other regions.

The region consuming the largest quantity of renewable fuel for CHP generation in 2014 was Scotland and the region with renewable fuel making up the largest proportion of CHP fuel input was the West Midlands.

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Large Combustion Plant Directive (LCPD): Running hours during winter 2014/15 and capacity for 2015/16

This article updates the September 2014 article *Running hours during winter 2014/15 for plants opted-out of the Large Combustion Plant Directive (LCPD)*[1] and provides analysis of the capacity available for winter 2015/16 as the LCPD enters its final year (ending 31st December 2015) and is replaced by the Industrial Emission Directive (IED, starting 1st January 2016). The article looks solely at capacity in Great Britain.

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 opted out, along with the three oil fired stations. A list of these plants and a summary of their current operational status is given in table 1. The total capacity of the coal plants originally opted-out totalled 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. Tilbury closed in August 2013 but Ironbridge must still close once it's hours have been run.

[1] www.gov.uk/government/statistics/energy-trends-september-2014-special-feature-articles

Table 1: 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]	Closed April 2014
Ironbridge	940[4]	Unit 1 closed February 2014 Unit 2 open
Kingsnorth	1,940	Closed December 2012
Tilbury (7 & 8)	750	Closed August 2013
Tilbury (9 &10)		
Total (coal)	**7,720**	
Fawley*	1,036	Closed March 2013
Grain*	1,300	Closed December 2012
Littlebrook*	1,370	Closed March 2015
Total (oil)	**3,706**	

* 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.

Winter 2014/15

Table 2 shows the hours run during winter 2014/15 by the remaining plants which chose to opt-out of the LCPD (winter is defined as beginning October 2014 – end March 2015). The data are also shown in chart 1. Of the plants that opted out of the LCPD, only Ironbridge (Unit 2) and Littlebrook were operational during winter 2014/15.

Table 2: Hours run during winter 2013/14 and winter 2014/15 by plants opted-out of LCPD

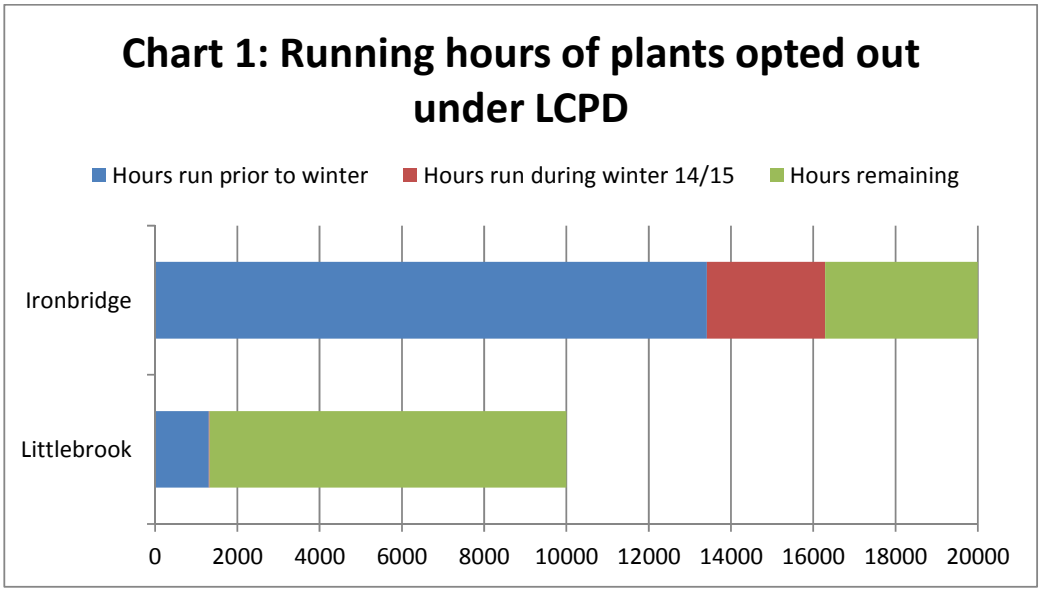
Plant	Hours run during winter 13/14	Hours run during winter 14/15	Hours remaining (as at end of winter 14/15)	Hours remaining (as at end of June 2015)	Hours remaining (as at end of June 2015 - %)
Ferrybridge (1&2)	2,292	0	0	0	0%
Ironbridge	1,242	2,879	3,707	2,234	11%
Total (coal)[5]	**3,229**	**2,879**	**3,707**	**2,234**	**11%**
Littlebrook*	2	18	CLOSED (8,675)	CLOSED (8,675)	87%
Total (oil)	**2**	**18**	**CLOSED (8,675)**	**CLOSED (8,675)**	**87%**
Total (coal and oil)	**3,231**	**2,897**	**3,707**	**2,234**	**11%**

[2] DUKES 2015, table 5.10, 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.

[4] Converted from coal to dedicated biomass in 2013 (at 900 MW), before reducing to 360 MW in April 2014 following the fire which closed unit 1 in February.

[5] Coal total includes Ironbridge, which converted from coal to biomass during 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 2,897 hours during winter 2014/15. This compares to 3,231 hours during the winter of 2013/14.

Ironbridge is now the only coal fired station that opted out of the LCPD still operational, with 19 per cent of its allowance remaining. However, this will have to close by the end of 2015, whether it has used its allowance or not.

Industrial Emissions Directive

The Industrial Emission Directive supersedes the LCPD from 1st January 2016. This places more stringent emissions requirements on power plants between 1st January 2016 and 31st December 2020, and affects all coal and oil plants (including those that opted in to the LCPD)), as well as other combustion plants, such as gas and biomass. Again, plants have three options:

1) Opt in to the IED and meet the emissions requirements from 1 January 2016.
2) Opt in via the Transitional National Plan (TNP), which allows a gradual adjustment to the new emission requirements. Plants will be subject to an emissions allocation between 2016 and 2020. At the end of the transitional period, plants can decide to opt in to the IED or to cap their operating hours to 1,500 hours a year (i.e. 17% annual load factor).
3) Opt out from the IED, which means that these plants will be subject to a Limited Lifetime Derogation (LLD) of 17,500 running hours between 2016 and 2023 and must close when the hours are exhausted or by the end of 2023, whichever is reached first.

Operators wishing to opt-out under the Directive were required to give notice of their intentions by 1 January 2014. However, plants can withdraw their opt-out decision until 1 January 2016. Plants that did not make an opt-out declaration cannot now change their decision. More information on the IED can be found on the European Comission's website at http://ec.europa.eu/environment/industry/stationary/ied/legislation.htm.

Of the 12 coal fired power stations due to be operating in Great Britain at the beginning of 2016, seven have opted out of the IED, although the current situation is not clear as they are able to withdraw their opt-out decision until 1 January 2016. A list of these plants is given in table 3. The total capacity of the coal plants originally opted-out totalled 9 GW, just under half of the expected coal capacity in Great Britain from January 2016. There were also three large scale CCGT gas plants, with a combined capacity of 2.5 GW, that have chosen to opt out of the IED. Around 10 GW of coal capacity and 12 GW of gas capacity have opted in via the TNP. More information on the plants that have opted in and opted in via the TNP is available in the Excel file at: https://circabc.europa.eu/webdav/CircaBC/env/ied/Library/TNPs/UK/NEW%20TNP.

Table 3: Capacity and current operating status of plants opted-out of IED

Plant	Capacity[6] (MW)
Aberthaw	1,586
Cottam	2,008
Eggborough	1,960
Ferrybridge C (one unit)	487
Lynemouth	420
Uskmouth*	363
West Burton A	2,012
Total (coal)	**8,836**
Didcot B	1,470
Corby	401
Peterhead Block 2**	660
Total (gas)	**2,531**
Total (coal and gas)	**11,367**

* Not currently operational
** Currently mothballed, due to close on or before 31st December 2015

[6] DUKES 2015, table 5.10, at: www.gov.uk/government/publications/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes

Forward look to winter 2015/16

After the closure of Littlebrook in March 2015 Ironbridge remains the only operational plant in Great Britain that opted out of the LCPD directive, but will have to close at the end of 2015. If it runs at hours similar to 2014 Ironbridge would be expected to close in early December 2015.

Table 4 shows total installed capacity (IC) connected to the High Voltage (HV) transmission network and interconnector capacity in Great Britain as at the year-end for 2012 to 2014. Also included is maximum demand in each year to for the winter periods to 14/15.

Table 4: Total installed capacity and maximum demand in Great Britain, 2012 to 2014

MW

	end December		
	2012	2013	2014
Installed capacity of GB transmission network[7]	79,514	73,998	72,213
Of which:			
Combustion (coal, gas, oil, biomass)	62,040	55,150	52,496
Nuclear	9,231	9,373	9,408
Renewables	5,415	6,647	7,480
- Renewables – de-rated for intermittency	*2,250*	*2,779*	*3,137*
Pumped Storage	2,828	2,828	2,828
Interconnector capacity:			
England - France	2,000	2,000	2,000
England - Netherlands	1,000	1,000	1,000
Scotland - Northern Ireland	500	500	500
Wales - Irish Republic	500	500	500
Maximum demand[8] (for winter ending March)	55,765	51,811	52,516
Maximum demand as a percentage of de-rated GB capacity	73.0%	73.9%	77.4%

The IC in GB as at the end of December 2014 was 72,213 MW, while maximum demand for 2014 was 52,516 MW. At 72.7 per cent of installed capacity, maximum demand was slightly higher than in previous years.

When looking forward to potential maximum demand for winter 15/16, "firm" capacity should be considered, i.e. taking into account total combustion, nuclear and pumped storage capacity and de-rating renewables capacity to account for intermittency.

Combustion capacity was 52,496 at the end of December 2014 – with the closures of Littlebrook and Ironbridge this will fall to 50,766 MW in 2015.

[7] Table 5.12 of the Digest of United Kingdom Energy Statistics (DUKES), available at: www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes.

[8] Table 5.9 of the Digest of United Kingdom Energy Statistics (DUKES), available from the same link as above.

Most renewables technology is run intermittently due to the required conditions for generation and so capacity must be de-rated to take this into account. Biomass, which is non-intermittent, is classed as full capacity, while wind capacity is multiplied by a factor of 0.43, small scale hydro by 0.365 and solar by 0.17[9]. Taking this into account, along with the closures of Littlebrook and Ironbridge but excluding any new HV capacity (e.g. from offshore wind), "firm" capacity at the end of December 2015 may be around 66,140 MW.

Assuming a similar maximum demand figure as that in winter 14/15, maximum demand as a percentage of "firm" capacity in 2015 would be around 79.4 per cent, a margin of 26 per cent (or 13.6 GW). This compares to the 2012 margin of 37 per cent (20.6 GW). Although this represents a drop in margin, this is still significantly above maximum demand.

In addition to this, GB now has access to around 4 GW of interconnector capacity with continental Europe and Ireland, which may be available depending on relative market conditions.

While table 4 looks at supply to the transmission network, there is also increasing generation capacity on the Low Voltage (LV) distribution networks, particularly from renewables, which will reduce demand on the transmission network during their generation period. Solar capacity, which made up 29 per cent of overall renewables capacity as of the end of June 2015, has increased by over 300 times since the end of 2009 but is typically connected to the LV network, and would not be expected to reduce demand on the HV network at peak demand time as this usually occurs on winter evenings when solar flux is low.

User feedback

We welcome all feedback from users; therefore, if you have any comments or queries regarding this analysis, please contact either Sophie Brough or Stephen Ashcroft using the contact details below.

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[9] Paragraph 5.80 of the Digest of United Kingdom Energy Statistics (DUKES), available from the same link as above.

Diversity of supply for oil and oil products in OECD countries in 2014

Introduction and summary

Countries meet their oil needs through a combination of indigenous production and trade. This article is a comparative assessment of how OECD countries manage their crude oil and transport fuel demand, using data from the IEA database[1]. The aim 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 in 2014: Norway (producing over 5 times its indigenous demand), Mexico, Canada and Denmark. All other OECD countries had to meet their demand through imports with some 10 countries producing no crude oil indigenously.

The majority of OECD countries met their motor gasoline (petrol) demand through indigenous production, with much of Western Europe being net exporters. Despite motor gasoline having the second 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. Denmark and the United Kingdom were the top two scorers for diversity of imports within the OECD, with Mexico, Finland and Canada all scoring the lowest for diversity of imports.

Most OECD countries were not able to support their diesel consumption by indigenous production alone. Greece and the Netherlands scored highest for indigenous production within the OECD with Spain and Turkey being able to cover the least of their demand by indigenous production.

The UK was able to meet over half of its demand for crude oil through indigenous production; the UK also ranked sixth overall for security of supply with regards to crude oil. The UK was able to meet its demand for motor gasoline through indigenous production but still ranked fourth for diversity of import sources. For jet and diesel, the UK scored below average for indigenous production for both of these oil products, but scored in the top half overall for respective diversity of imports compared to the OECD average.

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 2014 for each OECD country.

[1] **http://data.iea.org/IEASTORE/DEFAULT.ASP**

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 the coloured part of the chart) 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 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.

Choropleth Map

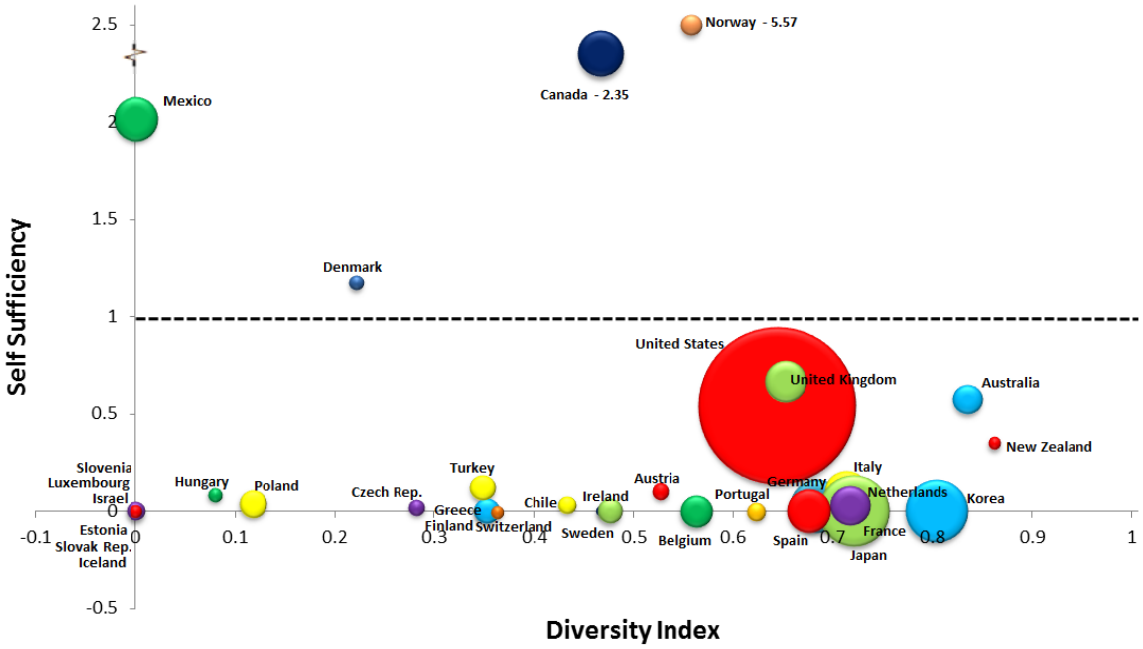
These maps indicate a visual representation of where and how much of each fuel has been initially imported from. The darker shades of colour show a high proportion of World imports originating from a particular country and as shades get lighter, the proportion shrinks indicating that very few, or none of the Worlds imports originated from that country. Appendix 1 shows the underlying data.

Results

Crude

Only four OECD countries were self-sufficient for crude oil in 2014 (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 0.67, the UK was above the OECD average of 0.41. Similarly, the UK's diversity score of 0.65 was above the average score of 0.42.

Chart 1: Diversity and self-sufficiency of crude oil for OECD countries, 2014



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 only a few countries with significant oil production.

Chart 2: Security of supply of crude oil for OECD countries, 2014

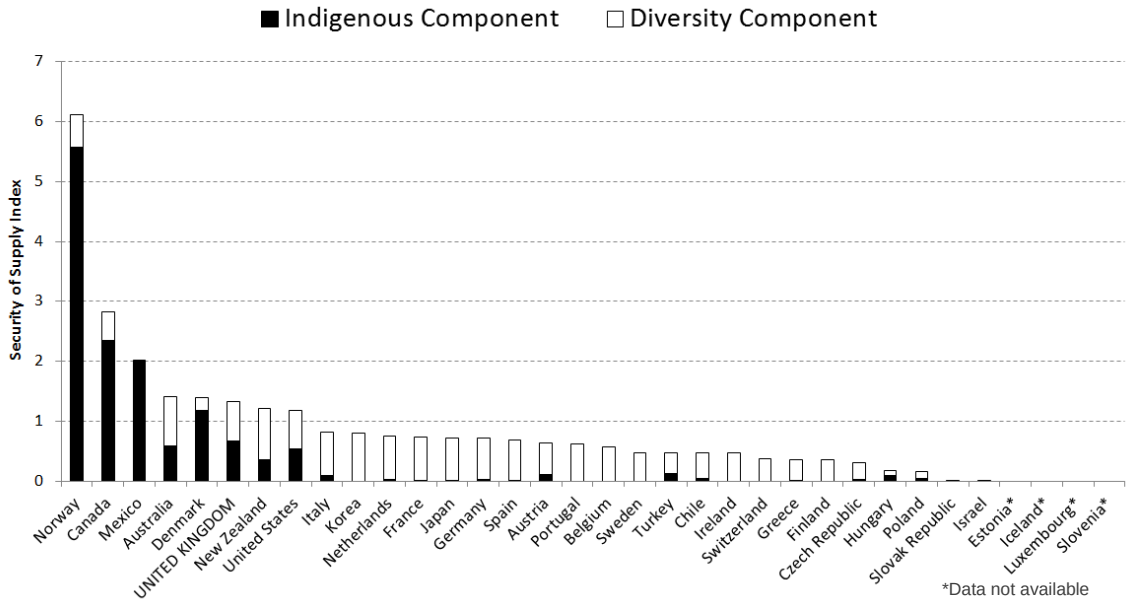
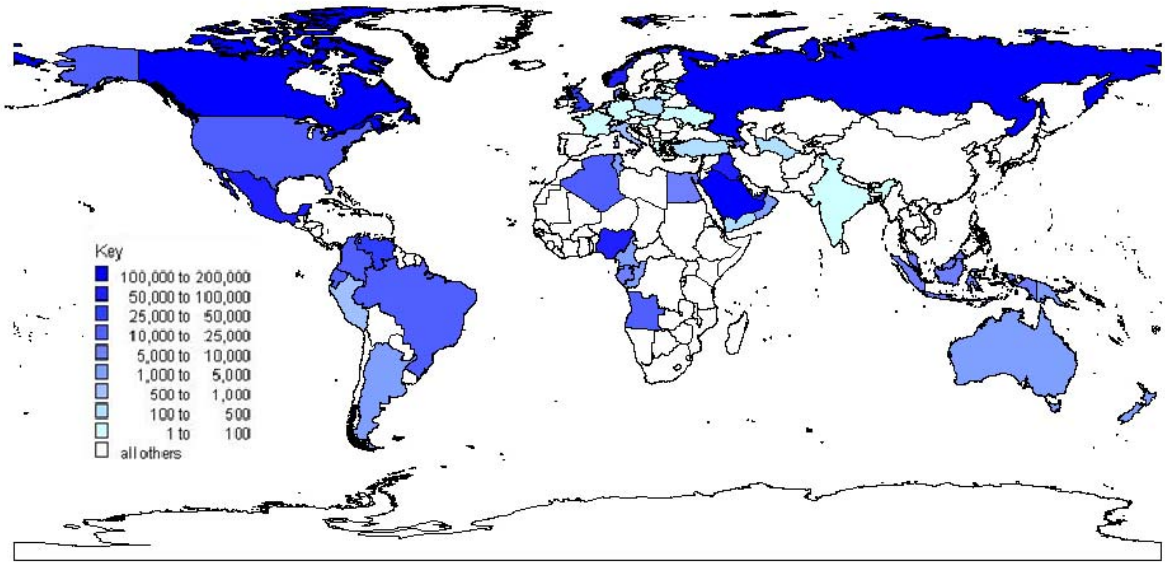


Chart 3 is an illustration of where crude oil originated in 2014. Currently, Saudi Arabia, Russia and Canada are by far the biggest exporters of crude in the world. However, though the United States produced over twice as much as any other OECD country, they exported relatively little. Norway exported the most crude of all European nations though the UK was not far behind on the edge of the top ten exporters in the world.

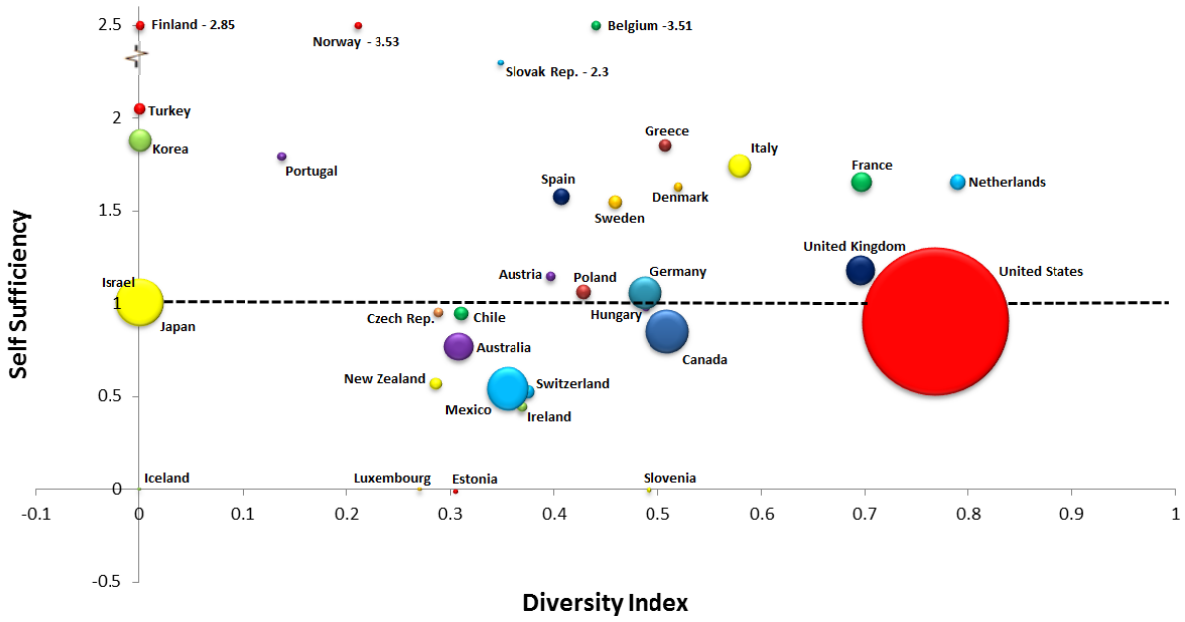
Chart 3: Worldwide Crude Oil Exports (kt), 2014



Motor Gasoline

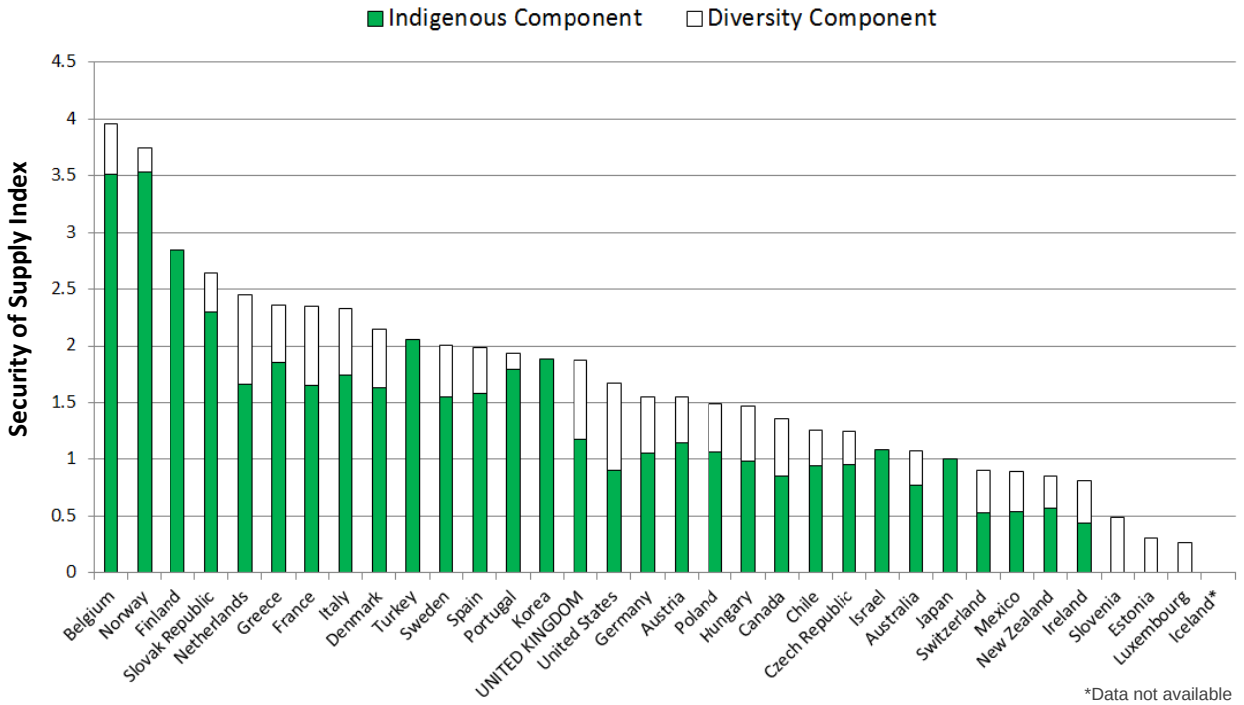
The profiles for motor gasoline are considerably different to that of crude. Over 50 per cent of the 34 OECD countries were self-sufficient in 2014 (Chart 4). Consumption in the US dwarfs that of other OECD countries; equal to 63% of the world total. The UK had a self-sufficiency score of 1.18, which was slightly below than the average across all OECD countries of 1.28. The UK's diversity score of 0.70 was higher than the average of 0.36 however.

Chart 4: Diversity and self-sufficiency of motor gasoline for OECD countries, 2014



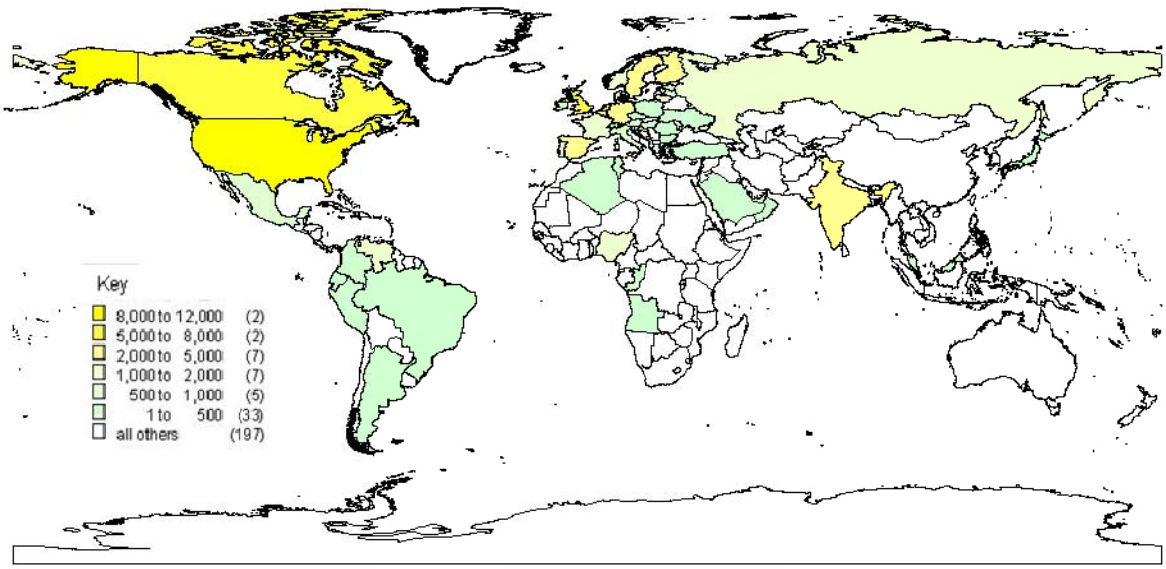
Our simplified security of supply index (Chart 5) shows how the vast majority of countries produce enough petrol to meet their needs and how much trade there is in motor gasoline amongst the OECD countries. The UK ranks in the top half out of all OECD countries.

Chart 5: Security of supply of motor gasoline for OECD countries, 2014



The main area of exports for motor gasoline around the world is North America, with the United States the largest exporter in the world. Europe is also shown on the map to be a very significant exporter of motor gasoline to the rest of the world with the United Kingdom, Netherlands and Belgium of particular note. However, many large economies such as Australia, Japan and China hardly export any motor gasoline at all.

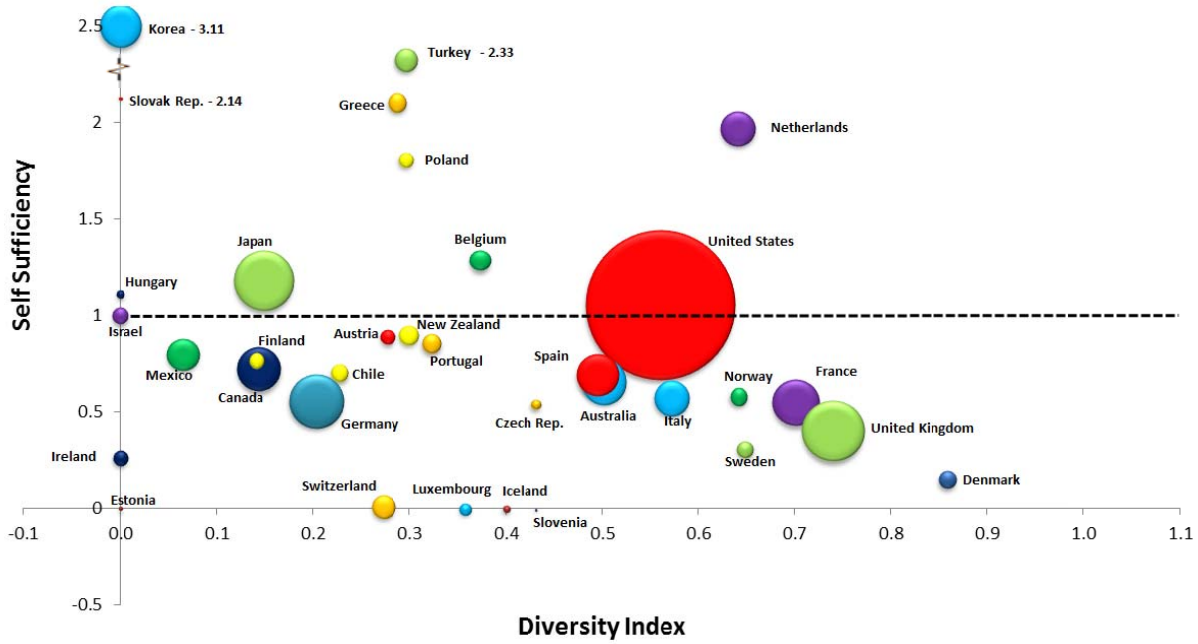
Chart 6: Worldwide Motor Gasoline Exports (kt), 2014



Jet Fuel

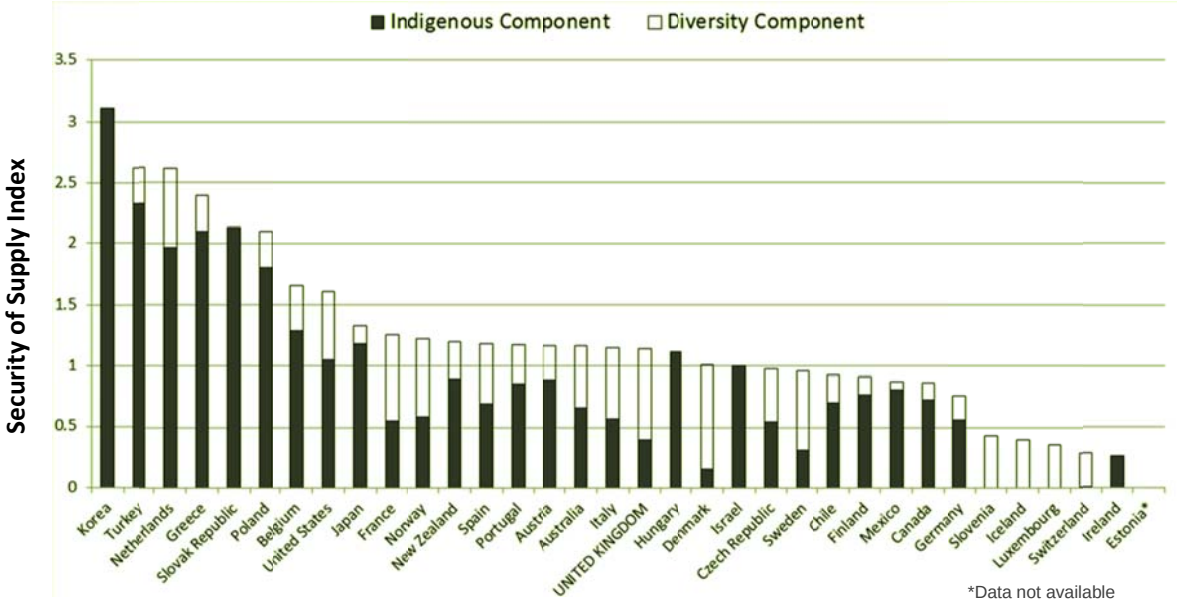
Chart 7 shows that, with a self-sufficiency score of 0.40, the UK was below both the self-sufficient threshold of 1 and the OECD average 0.88 for jet fuel. However, the UK's import diversity score of 0.74 was more than double the average for all OECD countries (0.33) and was the second highest of all OECD countries after Denmark.

Chart 7: Diversity and self-sufficiency of jet fuel for OECD countries, 2014



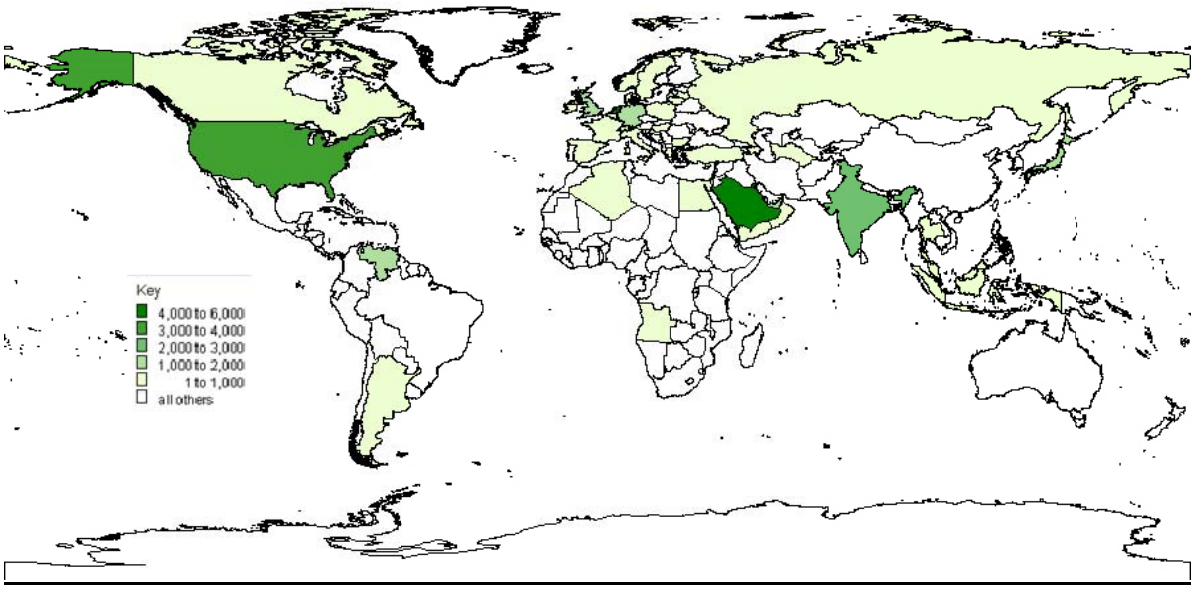
Many OECD countries have significant production capacity of jet fuel. For instance, Korea produces some three times its demand and doesn't require any imports. The UK's capacity to meet its demand through indigenous production is low: in 2014 the UK met only around half its demand; one of the largest deficits in the OECD. However, this was compensated by having one of the most diverse and stable import sources within the OECD.

Chart 8: Security of supply of jet fuel for OECD countries, 2014



Jet fuel is only produced in significant quantities in a few countries around the world. Korea, Saudi Arabia, Kuwait and the United States produce the most which is shown on the map. Europe exports relatively small amounts of jet fuel as does Japan, Russia and North Africa.

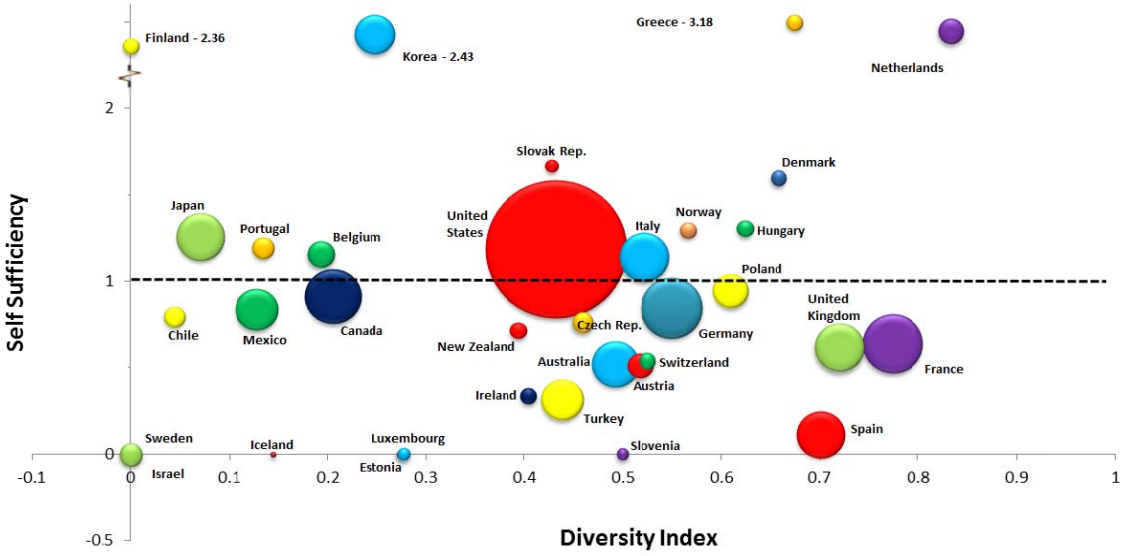
Chart 9: Worldwide Jet Fuel Exports (kt), 2014



Diesel Road Fuel

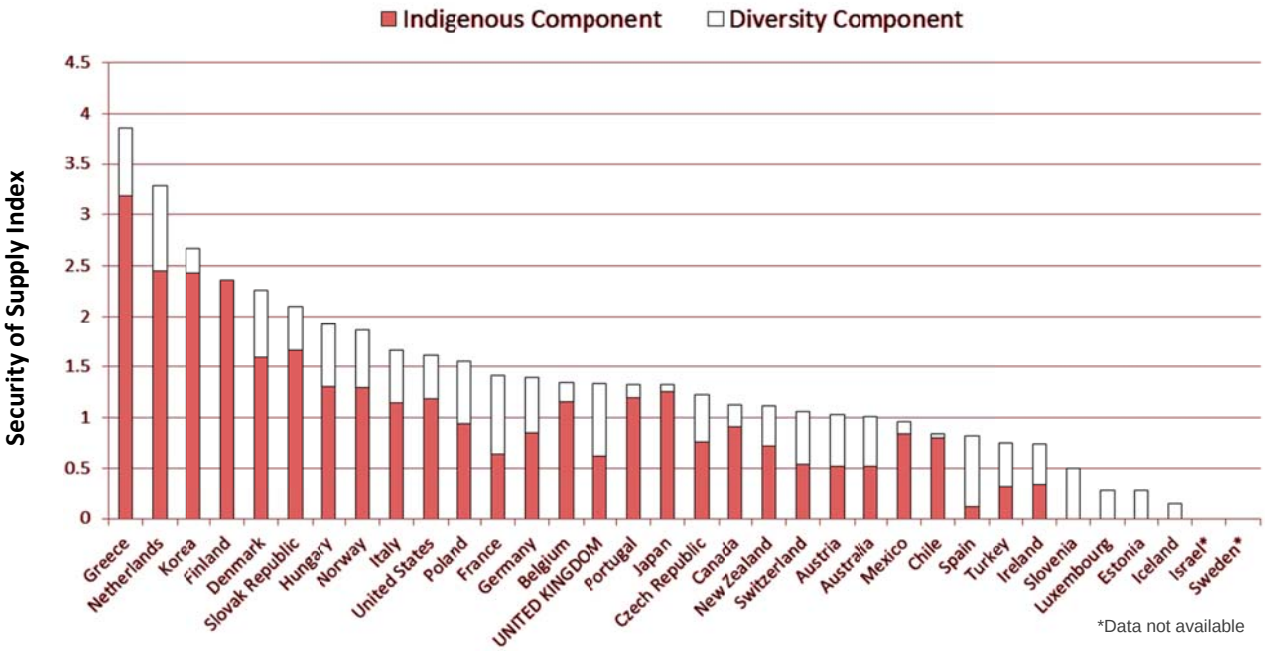
At 0.62 on the self-sufficiency axis, the UK produces just under 2/3rds of the diesel it consumes. The UK was below the average OECD self-sufficiency score of 0.93 in 2014. However, the UK is in a favourable position in terms of diversity and political stability of imports; the UK's diversity score of 0.72 was higher than the OECD average of 0.40 (Chart 10).

Chart 10: Diversity and self-sufficiency of diesel for OECD countries, 2014



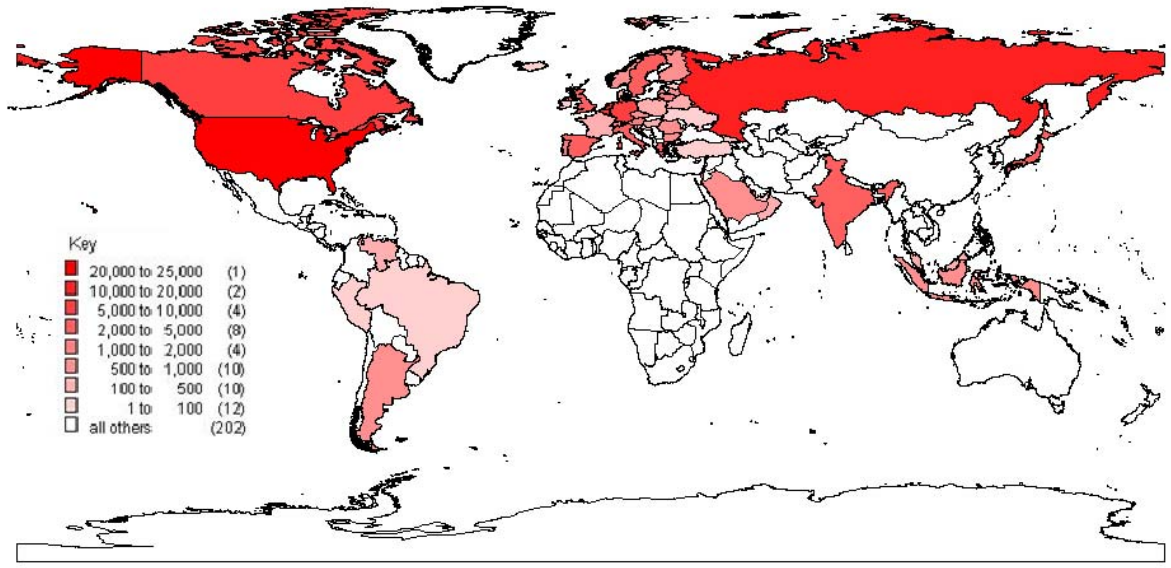
The majority of countries either met demand through indigenous production or by a combination of production and diverse imports. The profile depicts how the UK was close to the median of all other OECD countries (Chart 11).

Chart 11: Security of supply of diesel for OECD countries, 2014



The map shows that only two countries in the world export a significant amount of diesel, United States and Russia. There is limited production throughout Asia and South America with Europe producing diesel in moderate quantities. The United Kingdom met just over half of its demand through indigenous production (Chart 12).

Chart 12: Worldwide Diesel Exports (kt), 2014



Summary

Self-Sufficiency and Import Diversity of OECD Countries in 2014

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 of 0.41, OECD countries are highly dependent on imports of crude oil to meet refinery demand, compared to average scores of 1.43, 0.88 and 0.93 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 outstrips demand significantly, 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 and need to export in excess.

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 amongst oil products of approximately 0.40, jet fuel imports had an average score similar to that of motor gasoline, at approximately 0.33. 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 suggesting that 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 in 2014

The UK compares well with other OECD countries for both self-sufficiency and diversity; scoring slightly better for diversity by ranking in the top ten for crude oil and all major oil products. The UK could meet around two thirds of its crude oil consumption via indigenous production, putting it fifth 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 meets 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.

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Appendix 1 – Provisional Data for 2014

	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	0.84	0.58	27001	0.31	0.77	13863	0.5	0.66	6040	0.49	0.52	19954
Austria	0.53	0.11	8443	0.4	**1.15**	1624	0.28	0.89	654	0.52	0.52	6352
Belgium	0.56	0	32123	0.44	**3.51**	1297	0.37	**1.29**	1294	0.19	**1.16**	7008
Canada	0.47	**2.35**	63655	0.51	0.85	33602	0.14	0.72	5655	0.21	0.91	27183
Chile	0.43	0.03	9377	0.31	0.95	2947	0.23	0.7	892	0.04	0.8	3980
Czech Republic	0.28	0.02	7496	0.29	0.96	1575	0.43	0.54	295	0.46	0.76	4260
Denmark	0.22	**1.18**	6910	0.52	**1.63**	1273	0.86	0.15	922	0.66	**1.6**	2411
Estonia	0	-	0	0.3	0	252	0	0	48	0.27	0	511
Finland	0.35	0	11221	0	**2.85**	1520	0.14	0.77	701	0	**2.36**	2424
France	0.72	0.01	54585	0.7	**1.66**	6920	0.7	0.55	6702	0.77	0.64	34043
Germany	0.68	0.03	90832	0.49	**1.06**	18860	0.2	0.56	8705	0.55	0.85	35793
Greece	0.35	0	20695	0.51	**1.86**	2540	0.29	**2.1**	1070	0.67	**3.18**	2485
Hungary	0.08	0.09	6519	0.49	0.99	1146	0	**1.11**	177	0.62	**1.31**	2669
Iceland	0	-	0	0	0	135	0.4	0	155	0.14	0	301
Ireland	0.47	0	2752	0.37	0.44	1107	0	0	710	0.4	0.34	2456
Israel	0	0	12303	0	**1.09**	2844	0	**1**	818	0	-	*0*
Italy	0.71	0.1	58987	0.58	**1.75**	8493	0.57	0.57	3763	0.52	**1.14**	24329
Japan	0.72	0	153397	0	**1.01**	38998	0.15	**1.18**	10211	0.07	**1.25**	19553
Korea	0.8	0	124667	0	**1.88**	8677	0	**3.11**	5484	0.25	**2.43**	15574
Luxembourg	0	-	0	0.27	0	318	0.36	0	394	0.28	0	1744
Mexico	0	**2.02**	62162	0.35	0.54	32436	0.07	0.8	3035	0.13	0.84	16872
Netherlands	0.72	0.03	49803	0.79	**1.66**	3852	0.64	**1.97**	3523	0.83	**2.45**	6364
New Zealand	0.86	0.35	5037	0.29	0.57	2271	0.3	0.9	1077	0.39	0.72	2605
Norway	0.56	**5.57**	13662	0.21	**3.53**	942	0.64	0.58	938	0.57	**1.3**	2500
Poland	0.12	0.04	24196	0.43	**1.06**	3596	0.3	**1.81**	625	0.61	0.95	11090
Portugal	0.62	0	10805	0.14	**1.79**	1113	0.32	0.85	1097	0.13	**1.19**	4275
Slovak Republic	0	0	5250	0.35	**2.3**	574	0	**2.14**	37	0.43	**1.67**	1627
Slovenia	0	-	0	0.49	0	451	0.43	0	25	0.5	0	1385
Spain	0.68	0.01	59031	0.41	**1.58**	4616	0.49	0.69	5267	0.7	0.12	20945
Sweden	0.48	0	18965	0.46	**1.55**	2788	0.65	0.31	803	0	0	4857
Switzerland	0.36	0	4889	0.37	0.53	2696	0.27	0.01	1582	0.52	0.54	2697
Turkey	0.35	0.12	19996	0	**2.05**	1908	0.3	**2.33**	1526	0.44	0.32	16454
United Kingdom	0.65	0.67	55341	0.7	**1.18**	12971	0.74	0.4	11468	0.72	0.62	23525
United States	0.64	0.54	781515	0.77	0.9	388922	0.56	**1.05**	67795	0.43	**1.18**	184969
OECD Average	0.42	0.46	52989	0.36	**1.28**	17857	0.33	0.87	4514	0.40	0.96	15094

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

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

Appendix 2 – Methodology

Data for 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. Jet fuel production figures have in some cases been adjusted to account for transfers from other Kerosene. 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 ith 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.
Source: World Bank (http://info.worldbank.org/governance/wgi/index.aspx#home)

Once Shannon-Wiener and political stability indices were determined, these were multiplied and summed:

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

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.

Coal in 2014

Introduction

This article gives an overview of UK coal production and consumption. In 2014 UK coal production fell to an all-time low of 12 million tonnes. In 2014, demand for coal decreased by 20 per cent compared to 2013, as demand for coal for electricity generation fell. In 2014, UK imports were 42 million tonnes, a decrease of 15 per cent on 2013

Background

Until the late 1960s, coal was the main source of energy produced in the UK, peaking at 228 million tonnes in 1952. Ninety-five per cent of this came from around 1,334 deep-mines that were operational at the time, with the rest from around 92 surface mines. As UK energy started to become more[1] diverse from the early 1970s (initially, through primary electricity via hydro schemes followed by natural gas and crude oil and renewable & waste in later years), production of home-produced coal has significantly declined. However, there was (and still is) a significant demand for coal in this country. Before 1970, it was used as a fuel source in the industrial sector, for fuelling trains and used within households for cooking and heating. Since then, it has mainly been used by electricity generators, who on average consume around 80 per cent of total UK coal supply[1] each year. Therefore, to meet this demand during the last 40 years the UK has become increasingly reliant on coal imported from other countries, more specifically, steam coal, which is used at coal-fired power stations to generate electricity.

Deep mined production

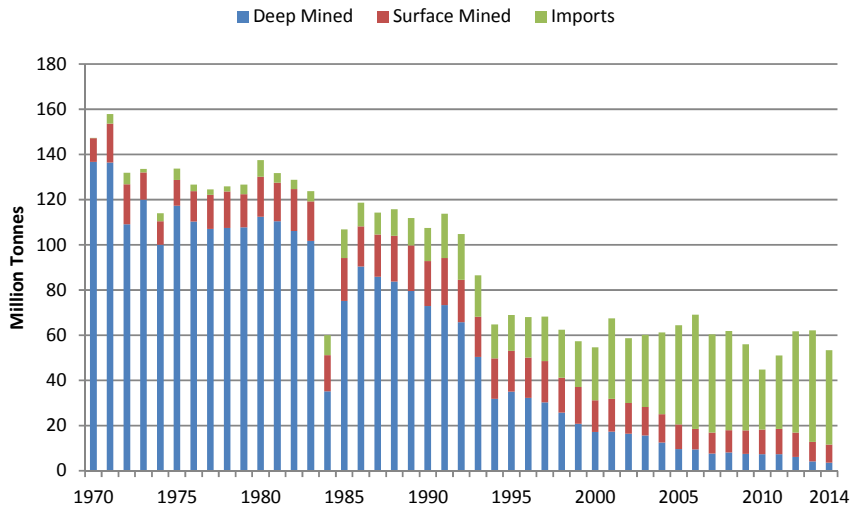
Generally, since the peak levels reported in 1954 (217 million tonnes), deep mined production has fallen by an average of 2.6 per cent each year between 1954 and 1983 (102 million tonnes)[2][2]. Although the 1984 miners' strike had a substantial effect on the amount of coal produced in the UK, which saw deep-mined production falling by 66 million tonnes (65 per cent) between 1983 and 1984, the UK coal industry recovered and returned to the long term trend in 1985 producing more than double the levels of 1984 (an increase of 40 million tonnes). Thereafter, deep-mined production decreased on average by 10 per cent a year with figures in 2014, showing a record low of 3.7 million tonnes, 98 per cent less than the post-war peak during 1954 and a 9.9 per cent decrease on 2013 (4.1 million tonnes). This was due to the closure of a number of mines in 2013 including Maltby, Daw Mill and Unity and geological conditions at some of the remaining mines. **(Chart 1)**

Surface mine production

Surface mine production (including recovered coal) increased on average by 3 per cent a year between the late 1940s and late 1980s, with production peaking in 1991, to stand at 21 million tonnes. Thereafter, although surface mine production declined by an average of 4 per cent between 1991 and 2005, it exceeded deep-mined production for the first time in 2005, accounting for 53 per cent of total production (21 million tonnes). This share continues to grow as deep mined production has been steadily declining. Surface mine production fell by 7.2 per cent in 2014 compared to a year earlier due to Scottish Coal Company going into liquidation in April 2013 and geological conditions at some mines. However, its share of all coal production was unchanged compared to 2013 at 68 per cent. **(Chart 1)**

[1] Coal Supply is calculated as sum of production, net imports and stock
[2] Between 1972 and 1974, deep mined production on average decreased by 9 per cent a year as a result of miner's striking over pay

Chart 1: UK Coal Supply, 1970 to 2014



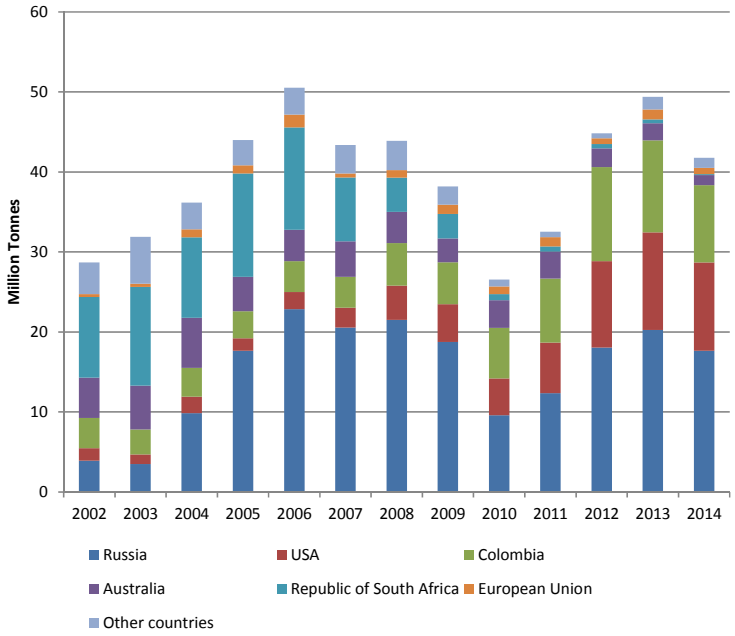
Coal Imports

Imports, initially of coal types in short supply in this country, started in 1970 and grew steadily to reach 20 million tonnes a year by the late 1990s. The very rapid expansion of imports in 2001 meant that imports exceeded the level of UK production in that year for the first time. As annual levels of UK coal production continued to fall, imports continued to grow rapidly and in 2006 reached a new record of 51 million tonnes, representing 75 per cent of total UK coal supply. From this point on, UK imports fell, mainly as a result of less demand by electricity generators, rather than higher indigenous production. However, in 2012, due to a greater demand by electricity generators and with UK production at an all-time low, imports increased by 38 per cent (+12 million tonnes) from the levels reported in 2011 (33 million tonnes). Imports continued to rise in 2013, before falling again in 2014 to 42 million tonnes due to lower demand from generators. **(Chart 2)**

Steam coal (used mainly by electricity generators) represents on average around 80 per cent of total UK imports each year and represented 85 per cent of total imports in 2014 (35 million tonnes). Russia has long been the UK's main source of imports, contributing 46 per cent of steam coal imports in 2014. In more recent years, steam coal has also been imported from Colombia and the USA, together contributing 50 per cent of total steam coal imported in 2014.

Fifteen per cent of coal imported during 2014 was coking coal (6 million tonnes), which has been used in coke ovens and similar carbonising processes within the industrial sector. Eighty-nine per cent of this total, originated from three countries alone, USA (48 per cent), Russia (22 per cent) and Australia (20 per cent). Imports of anthracite (mainly used in the domestic sector) are negligible, in comparison to steam and coking coal.

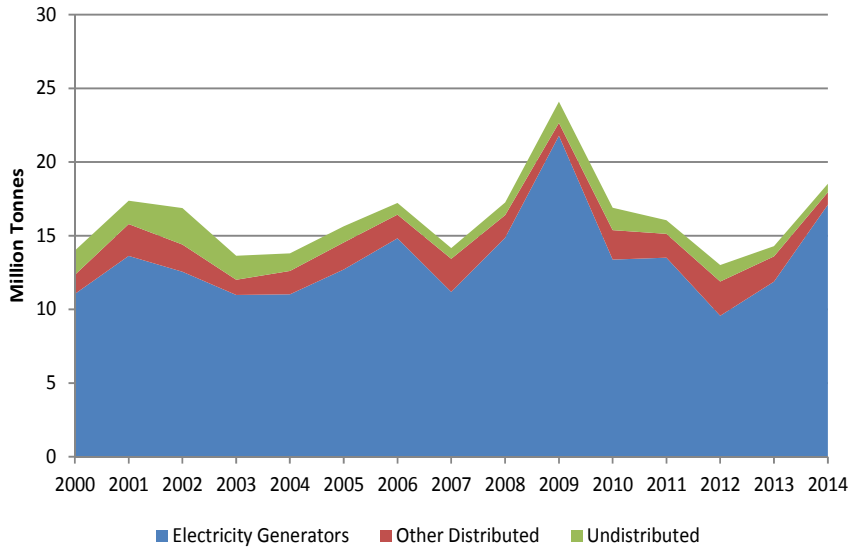
Chart 2: Total UK coal imports by country of origin, 2002 to 2014



Coal Stocks

Most coal stocks in the UK are those held by electricity generators since this sector represents the largest share of the total demand for coal in the UK. Coal stocks have generally fluctuated between 2000 and 2008, between 13 and 18 million tonnes. However, in 2009, coal stocks increased by 7 million tonnes (largest year-on-year increase) on 2008 to reach a record high of 24 million tonnes. In contrast, stocks decreased during 2010 by 7 million tonnes to 17 million tonnes as generators used their stocks as opposed to importing coal. This fall continued into 2012, where total coal stocks decreased to 13 million tonnes, the lowest level on record, of which 10 million tonnes were held by generators. In 2013 coal stocks rose again due to less consumption from generators and were at 19 million tonnes in 2014 as consumption fell further. **(Chart 3)**

Chart 3: Total UK Coal Stocks 2000 to 2014



Coal Consumption

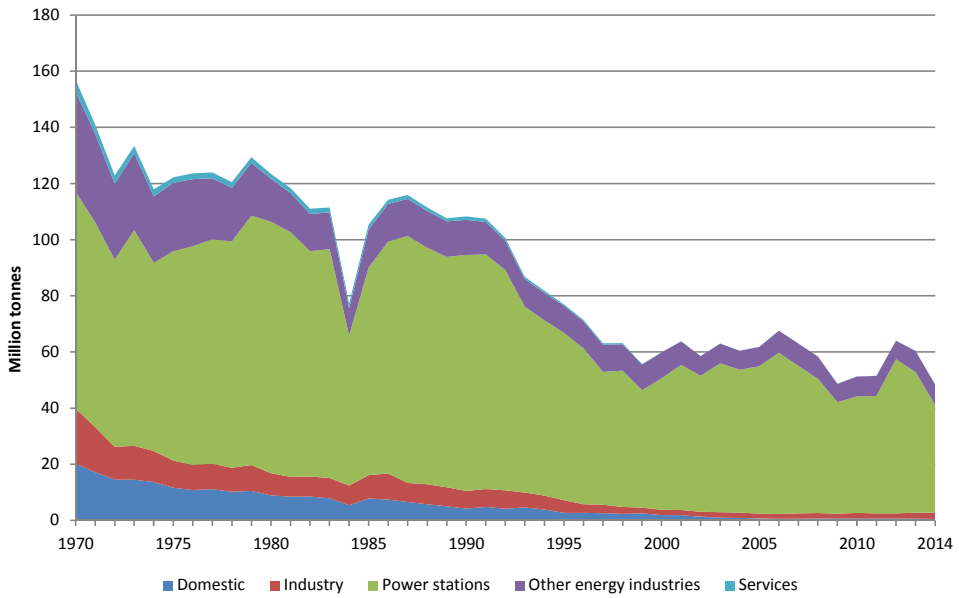
Coal consumption fell gradually from 157 million tonnes in 1970. There was a large fall in 1984 due to the miners' strike. Consumption quickly rose again to pre-1984 levels before gradually falling again. In 2014, consumption of coal was 49 million tonnes, 69 per cent lower than in 1970 and 20 per cent lower than in 2013 (60 million tonnes). **(Chart 4)**

Consumption by electricity generators increased from 77 million tonnes in 1970 to a peak of 90 million tonnes in 1980 and continued in the 80 to 90 million tonnes range until 1991, with the exception of the miners' strike years. Coal consumed by generators fell steadily after 1991 until 1999, as the UK's energy mix became more diverse, environmental regulations and high coal prices made natural gas more attractive to purchase for generation use. Coal consumption by generators broadly rose again after 1999 to 2006 as the price of gas encouraged generation from coal. From 2006 to 2010 the fall in consumption resumed. In the next three years, there was higher coal use due to higher gas prices making generation from coal more attractive. However, in 2014, the demand for coal decreased by 20 per cent compared to 2013. Consumption by electricity generators was down by 23 per cent to 38 million tonnes (a new record low). The decline was due to a number of reasons: outages at several power stations, the closure of Uskmouth power station and the partial closure of Ferrybridge C during 2014, a second unit of Drax being converted to biomass, lower demand for electricity overall and changes in the relative prices of coal and gas.

Other energy industries consumption has also fallen gradually from 1970, with the exception of 1984 when there was a miners' strike. Consumption increased by 15 per cent in 2013 compared with 2012 mainly due to coking coal in blast furnaces increasing by 43 per cent from 1.0 million tonnes in 2012 to 1.4 million tonnes in 2013. This increase was due to the re-opening of Teesside steelworks in April 2012, which gradually increased operations over the next year and the newly opened blast furnace at Port Talbot in February 2013. In 2014, however, the earlier decreasing trend resumed, and other energy industries consumption fell by 4.0 per cent.

Final consumption has fallen continuously from 1970, with the exception of an increase for two years following the 1984 strike, as gas has taken over as the main heating fuel in the UK, and the demand from industry has also declined (particularly from 1986). Domestic's share has fallen from 46 per cent to 19 per cent. As a result of this and despite coal consumption falling, industry's share of final consumption has risen from 45 per cent in 1970 to 79 per cent in 2014. The service sector's share of final consumption has fallen from 9 per cent in 1970 to under 2 per cent in 2014.

Chart 4: Coal consumption 1970 to 2014



Manufactured Solid Fuels

In 2014, around 92 per cent of manufactured solid fuel production was coke oven coke, a proportion that has remained the same for the past 15 years.

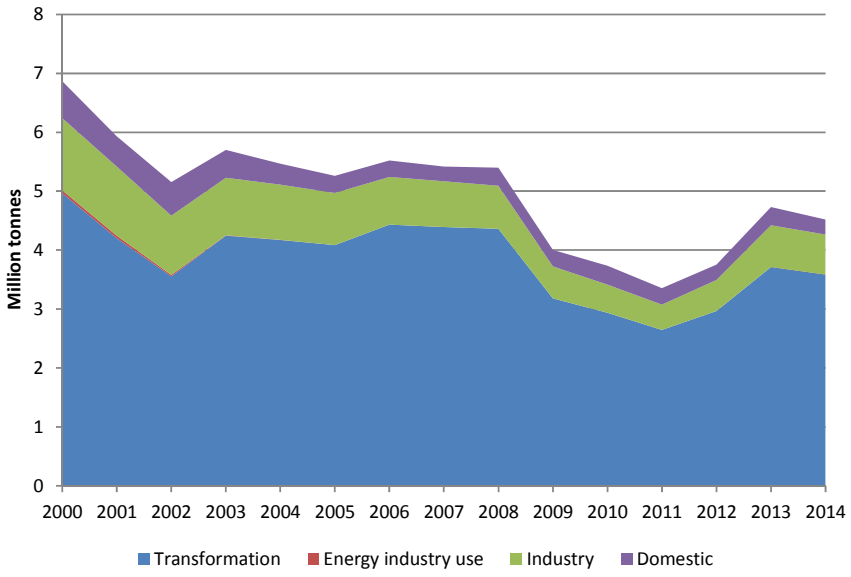
The main purpose of coke oven coke is for use in blast furnaces in the UK iron and steel industry. Between 1970 and 2013 there was an overall decline in coke oven coke production. However, in 2013 there was a 22 per cent increase in blast furnace consumption, which rose to 3.3 million tonnes from 2.7 million tonnes in 2012. This was due to the re-opening of Teesside steelworks in April 2012 which gradually increased operations over the next year, and the newly opened furnace at Port Talbot in February 2013. Demand fell in 2014 due to the reduced demand for coke oven coke. Blast furnace use represented 98 per cent of total demand (3.2 million tonnes), and was 3.9 per cent lower than in 2013.

Demand for coke oven coke fell by 4.7 per cent (3.2 million tonnes) in 2014. Monckton Coke and Chemicals, the only dedicated coke plant in the UK closed in December 2014. However, coke is still being produced and used at steelworks, mainly Port Talbot, SSI and Scunthorpe.

Most of the supply of coke breeze is from re-screened coke oven coke, with direct production accounting for only 2.9 per cent of total supply in 2014. In 2014, 41 per cent of coke breeze was used in blast furnaces (0.4 million tonnes) for transformation and 59 per cent used for final consumption (Table 2.5).

Other manufactured solid fuels (patent fuels) are manufactured smokeless fuels, produced mainly for the domestic market. A small amount of these fuels (only 5.8 per cent of total supply in 2014) was imported, but exports generally exceed this. **(Chart 5)**

Chart 5: Total Manufactured Solid Fuels Consumption in the UK 2000 to 2014

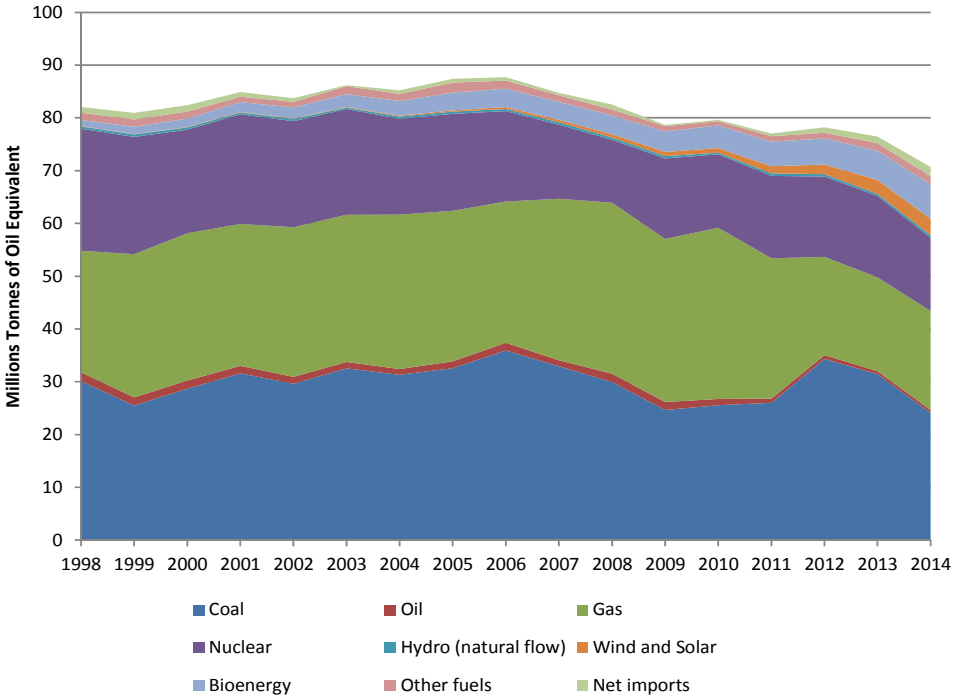


Coal used for electricity generation

Coal use has remained significant in the electricity generation sector due to fluctuations in gas prices; where these fell coal-fired stations generated electricity at a lower cost than some gas-fired stations. In 2006, coal use by electricity generators peaked at 57 million tonnes, representing 85 per cent of total coal demand. Coal use gradually fell between 2007 and 2011 before increasing again in 2012 to 55 million tonnes. Since then coal used for electricity generation fell again and was 38 million tonnes in 2014 (a new record low). The decline in 2014 was due to a number of reasons: the closure of Uskmouth, outages at some power stations, the partial closure of Ferrybridge C during

2014, a second unit of Drax being converted to biomass and changes in the relative prices of coal and gas. Electricity generation represented 79 per cent of total coal demand in 2014. **(Chart 6)**

Chart 6: Fuel used in electricity generation



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UK and EU trade of wood pellets

Introduction

In July 2015, DECC published for the first time a table detailing UK imports and exports of wood pellets between 2008 and 2014, with imports being disaggregated by country of origin, available at: www.gov.uk/government/statistics/digest-of-united-kingdom-energy-statistics-2015-internet-content-only (see Annex G: Foreign trade).

Wood pellets have in the past few years become an increasingly important fuel source for large-scale biomass plants in the UK. In 2014, the use of wood pellets by the UK's major power stations accounted for more than 22 per cent of all renewable energy sources and 36 per cent of all bioenergy fuels used to generate electricity.[1] Both of these figures stood at less than half of one per cent in 2008. As such, this fuel source has become a central component of the UK's renewable energy mix.

This article provides an overview of the UK's volume of imports and exports of wood pellets since 2008. It compares this against the European Union (EU)'s own trade volumes, and shows how the EU wood pellet market has changed over the past seven years. Finally, the article examines how the UK's trade in this fuel source impacts its renewable electricity generation, using data on fuel use from the country's major biomass plants.

UK trade of wood pellets

UK imports of wood pellets reached a record high in 2014, with nearly 4.8 million tonnes being imported over the course of the year. This represents an almost 15-fold increase on 2008 imports, which amounted to some 323 thousand tonnes. **(Table 1)** In comparison, the UK's exports of wood pellets remained negligible throughout this period, growing from 23 thousand tonnes in 2008 to just over 98 thousand tonnes in 2014.

Table 1: UK imports and exports of wood pellets 2008 to 2015 Q2 (thousand tonnes)

	2008	2009	2010	2011	2012	2013	2014	2015 (up to Q2)
Imports	323	45	551	1,015	1,487	3,432	4,757	2,891
Average monthly imports	27	4	46	85	124	286	396	482
Exports	23	12	60	41	53	105	98	50
Average monthly exports	2	1	5	3	4	9	8	8

Source: H. M. Revenue and Customs Overseas Trade Statistics database[2]

To note there were changes to the commodity codes for wood pellets between 2008 and 2009, and 2011 and 2012, which may have impacted on these figures, particularly the first of these periods.[3]

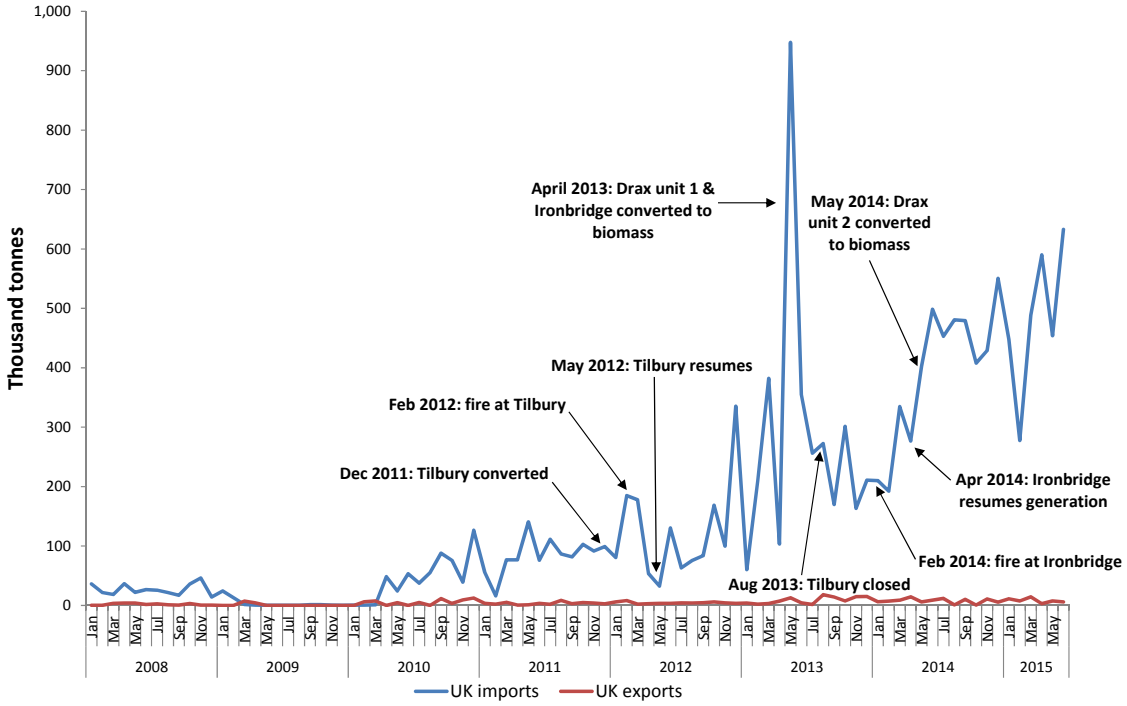
The pattern of wood pellet imports broadly matches the activities of the UK's major biomass stations. **(Chart 1)** Total wood pellet imports remained at modest levels between 2008 and 2011. During this period, wood pellets were normally co-fired with coal at power stations in relatively small quantities, with less than 100 thousand tonnes imported per month on average. The first significant increases came in 2012, when average monthly imports for the year exceeded the figure of 100 thousand tonnes for the first time. This was in part due to the conversion of Tilbury B (previously coal-fired) power station to a dedicated biomass plant, which became operational

[1] 'Bioenergy' includes the following categories of generators: landfill gas, sewage sludge digestion, biodegradable energy from waste, co-firing with fossil fuels, animal biomass, anaerobic digestion and plant biomass. Wood pellets fall under the 'plant biomass' category.
[2] Data available at: www.uktradeinfo.com/Statistics/BuildYourOwnTables/Pages/Table.aspx
[3] Commodity levels HS 2, 4, 6 and CN 8 were used. Commodity codes used may vary by year due to periodic revisions. For 2008 data, the commodity code used was HS 44013090 ("Wood waste and scrap, whether or not agglomerated in logs, briquettes, pellets or similar forms, excl. sawdust"). Due to changes made by Eurostat, data between 2009 and 2011 uses the commodity code 44013020 ("Sawdust and wood waste and scrap, agglomerated in pellets"). For 2012 and onwards, wood pellets were reclassified into commodity code HS 44013100 ("Wood pellets"), which has been used in all subsequent periods.

towards the end of 2011. A fire in February 2012 put the biomass plant at Tilbury out of operation for four months, and had a noticeable impact on the volume of imports during this period. However, Tilbury's reopening in May 2012 helped to stabilise demand for imports for the rest of the year.

Imports rose substantially in the few months prior to the completion of two new conversions of coal power stations to biomass in April 2013 – one unit at Drax and Ironbridge. In December 2012, imports were 335 thousand tonnes, increasing to a new record of 382 thousand tonnes in March 2013. In May 2013 – one month after the Ironbridge and Drax conversions became fully operational – 947 thousand tonnes of pellets were imported into the UK, a record that has yet to be surpassed. However, imports fell significantly towards the latter half of 2013 and the beginning of 2014, coinciding with the final closure of Tilbury in August 2013 after exhausting its hours under the Large Combustion Plant Directive (LCPD), and a fire at the Ironbridge unit in February 2014 that left the station dormant for three months. A significant rise in imports in the second half of 2014 and the first half of 2015 came ahead of the resumption of generation at Ironbridge in April 2014 and the conversion of a second unit at Drax one month later. Average imports reached their highest ever level in the first half of 2015, which now stand at 482 thousand tonnes per month.

Chart 1: UK monthly imports and exports of wood pellets



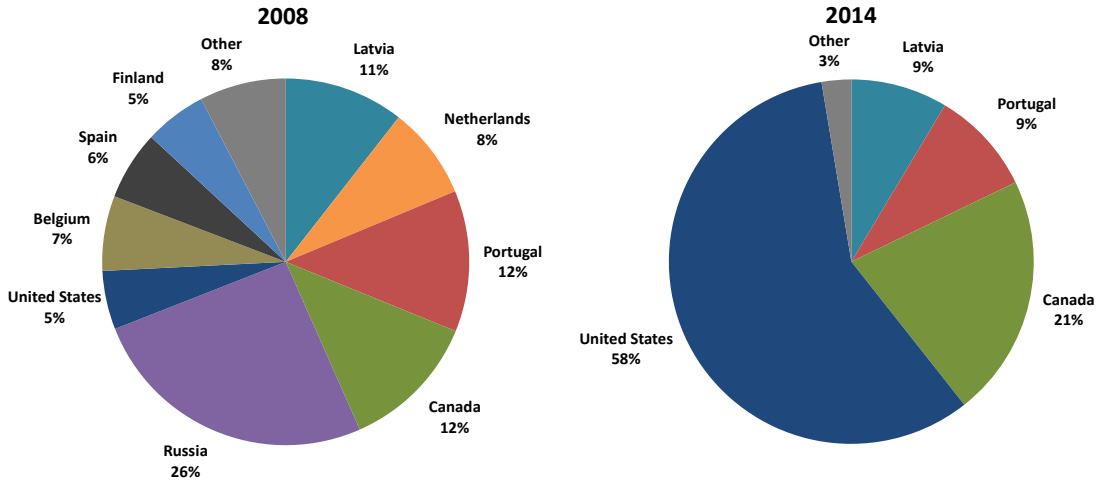
Source: H. M. Revenue and Customs Overseas Trade Statistics database

UK sources of wood pellet imports

Between 2008 and 2014, not only did the UK's imports of wood pellets grow substantially, but there were also substantial changes in the composition of the UK's main trade partners in the wood pellet market. EU countries accounted for over 56 per cent of the UK's total imports in 2008, but by 2014 this figure fell to 20 per cent.

In 2008, Russia was the UK's largest single trading partner in wood pellets, with some 26 per cent of all UK imports; by 2014, these were almost negligible. Russian imports and those of several EU countries (notably the Netherlands, Belgium and Spain) have been completely displaced by a large increase in wood pellet imports from the United States, whose share of total UK imports increased from five to 58 per cent between 2008 and 2014. The United States is now the largest exporter of wood pellets to the UK, ahead of Canada's 21 per cent share of the market. Portugal and Latvia are the only other countries that have maintained their share of total UK imports, at around nine per cent each in 2014; this was still a decrease in their shares of total UK imports of three and two percentage points respectively, on 2008. **(Chart 2)**

Chart 2: UK wood pellet imports, by country of origin

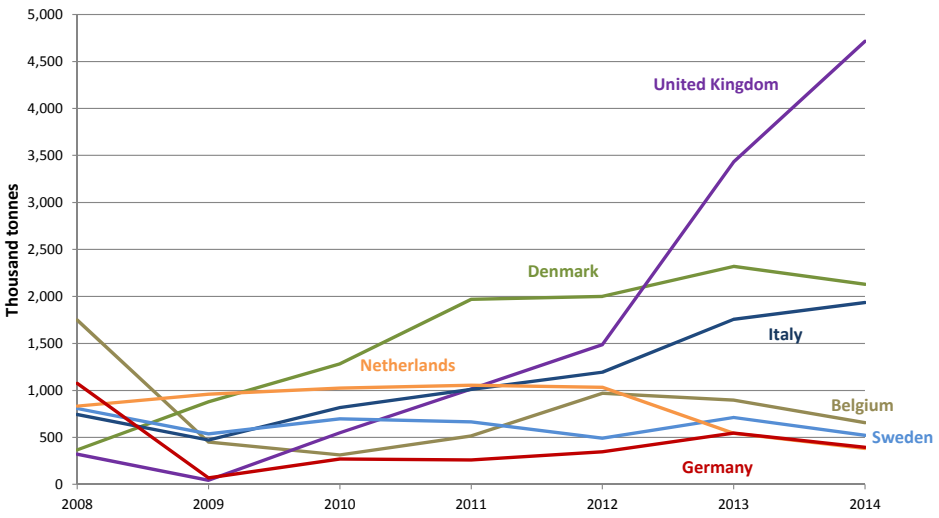


Source: H. M. Revenue and Customs Overseas Trade Statistics database

European Union trade in wood pellets

EU trade in wood pellets also changed significantly between 2008 and 2014. In 2008, the UK was one of the smallest importers in the EU, with the largest importer being Belgium, followed by Germany. By 2014, the UK's imports of 4,757 thousand tonnes were double that of the second highest EU importer, Denmark, which stood at 2,219 thousand tonnes. **(Chart 3)** Starting from a similarly low position in 2008, Italy was the EU's third largest importer of wood pellets in 2014, at 1,936 thousand tonnes. Denmark and Italy are the only EU states besides the UK to have steadily increased their annual wood pellet imports over this period, reflecting the increasingly significant role of biomass in these countries' energy mix.

Chart 3: Main EU importers of wood pellets 2008 to 2014



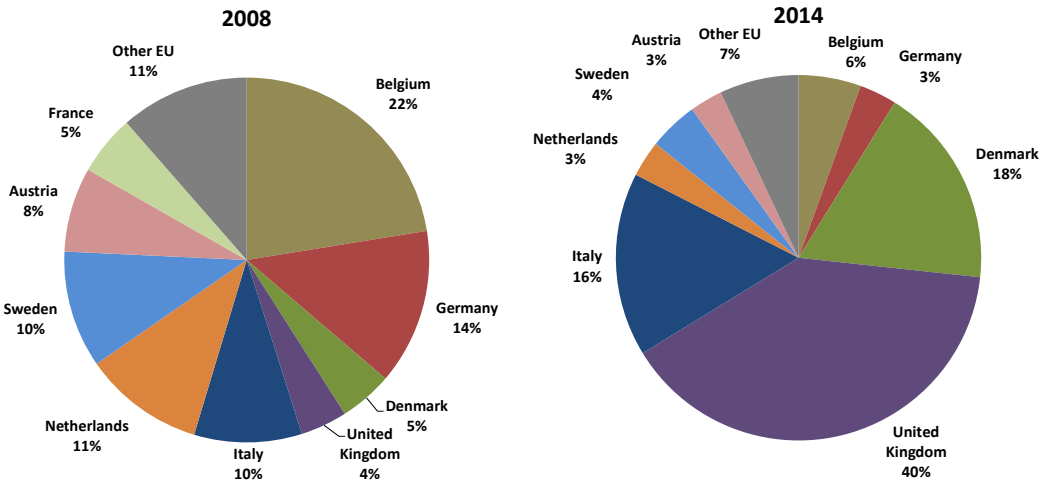
Source: Eurostat International Trade Database[4]

Between 2008 and 2014, the UK increased its share of total EU imports of wood pellets by almost tenfold, from 4 per cent in 2008 to 40 per cent 2014. **(Chart 4)** In the same period, Denmark's share of EU imports more than trebled from 5 to 18 per cent, while Italy's share grew from 10 to 16

[4] Data available at: http://ec.europa.eu/eurostat/data/database Figures were obtained from the dataset 'EU trade since 1988 by HS 2, 4, 6 and CN8.' Commodity codes used may vary by year due to periodic revisions. For more details, see footnote 3.

per cent. Although Belgium's 22 per cent share of EU wood pellet imports was the largest in the entire EU in 2008, by 2014 it had fallen to 6 per cent. Meanwhile, Germany's share of EU wood pellet imports fell from 14 per cent in 2008 to three per cent in 2014, becoming one of the smallest importers of wood pellets in the entire EU.[5]

Chart 4: Member states' shares of total EU imports of wood pellets



Source: Eurostat International Trade Database

The EU has, as a whole, remained a net importer of wood pellets throughout the years 2008 to 2014. Although its tonnage of wood pellet exports did increase in this period – predominantly due to the large volumes of intra-European trade in this fuel source – it was far outstripped by the growth in imports, especially from the United States. In 2008, the EU's net imports[6] of wood pellets amounted to some 2,818 thousand tonnes, but by 2014 this figure had almost doubled to 5,475 thousand tonnes.

EU exporters

Over the 2008 to 2014 period, the UK has remained one of the smallest exporters of wood pellets in the EU, with exports below 100 thousand tonnes. **(Chart 5)** The UK's share of the EU wood pellet export market was negligible in 2008, at less than half a per cent. Despite, exports increasing in 2013 and 2014, the UK's share of exports remained at just 1.4 per cent in 2014. **(Chart 6)**

Reflecting their natural resources, the Baltic states (Latvia, Lithuania and Estonia) have become some of the largest exporters of wood pellets in the EU, accounting for 35 per cent of total EU exports at the end of last year. In 2014, Latvia was the EU's leading exporter, with exports trebling from 433 thousand tonnes in 2008 to a record 1,277 thousand tonnes. Latvia's exports exceeded that of Germany – the EU's largest wood pellet exporter between 2008 and 2011 – for the first time in 2012.

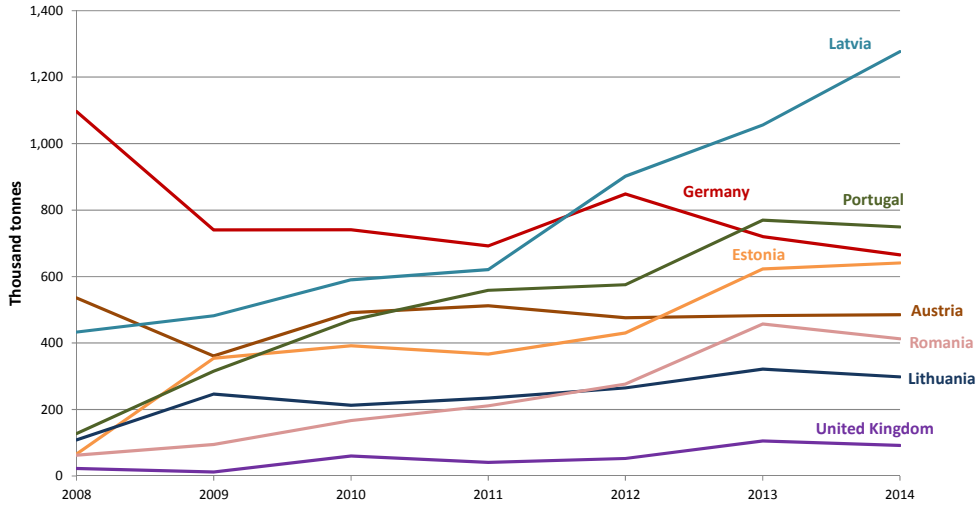
This increase more than doubled Latvia's share of total EU wood pellet exports, from nine to 20 per cent. Estonia's share of exports increased from one to ten per cent, due to exports increasing almost tenfold, from 66 to 641 thousand tonnes.

Portugal also significantly increased its exports of wood pellets over the period, becoming the second largest exporter in the EU with a share of 12 per cent. Germany was the third largest exporter of wood pellets at the end of 2014, ahead of Estonia. However, its share of EU exports had decreased significantly over the seven year period, from 22 to ten per cent.

[5] Although Germany was the EU's second largest importer of wood pellets in 2008, it was the largest exporter in the same year as well. Germany has been a net exporter of wood pellets during the entirety of the period between 2008 and 2014, a reflection of its position as an important trade and transit hub for wood pellets. This caveat doesn't apply to Belgium: it was the largest net importer of wood pellets in 2008, and continued to be a net importer throughout the entirety of the seven year period.

[6] Net imports = total imports minus total exports.

Chart 5: UK and main EU wood pellet exporters 2008 to 2014

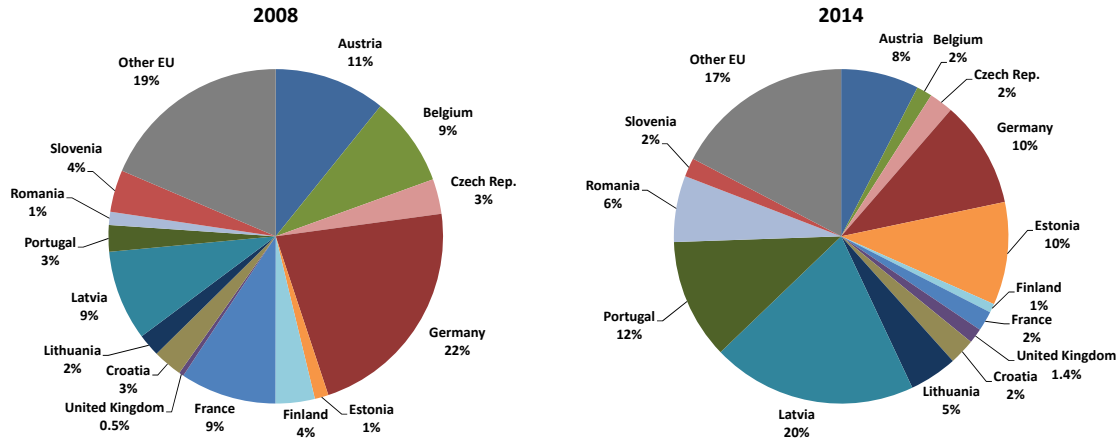


Source: Eurostat International Trade Database

Compared to its imports market – where three countries comprise 74 per cent of the total – the EU's wood pellet export market remains diverse. As evidenced by the changes in the country shares of total EU exports of wood pellets, the EU's export market has adapted to the increase of imports from the US, with increasing exports coming from the Baltic states, Romania and Portugal. **(Chart 6)**

Much of the EU trade is within the EU, rather than international, reflecting the lack of trade barriers, and the increased competition from large non-EU exporters (such as the US) in supplying the remainder of the world.

Chart 6: Member states' shares of total EU exports of wood pellets

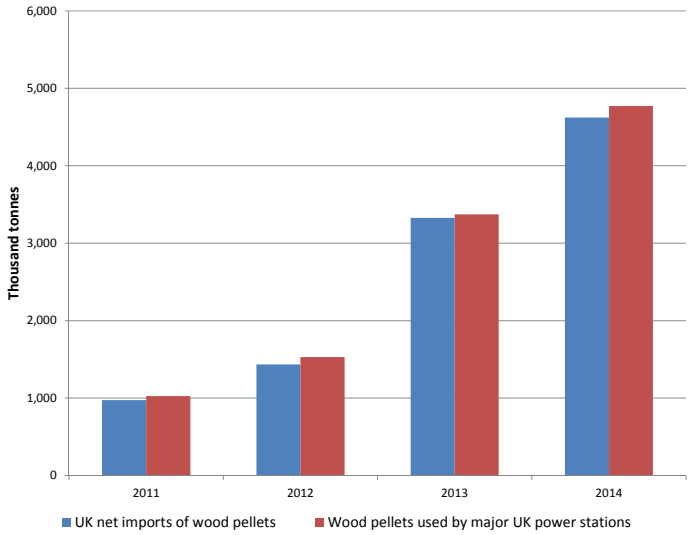


Source: Eurostat International Trade Database

The growing role of wood pellets in the UK energy system

The vast majority of the imports are burned in large power stations for electricity generation, either exclusively or co-fired with coal. **(Chart 7)** On average, UK net imports supplied more than 95 per cent of the wood pellets used by the main power stations between 2011 and 2014. As such, UK domestic production accounts for a negligible proportion of wood pellets used in generation.

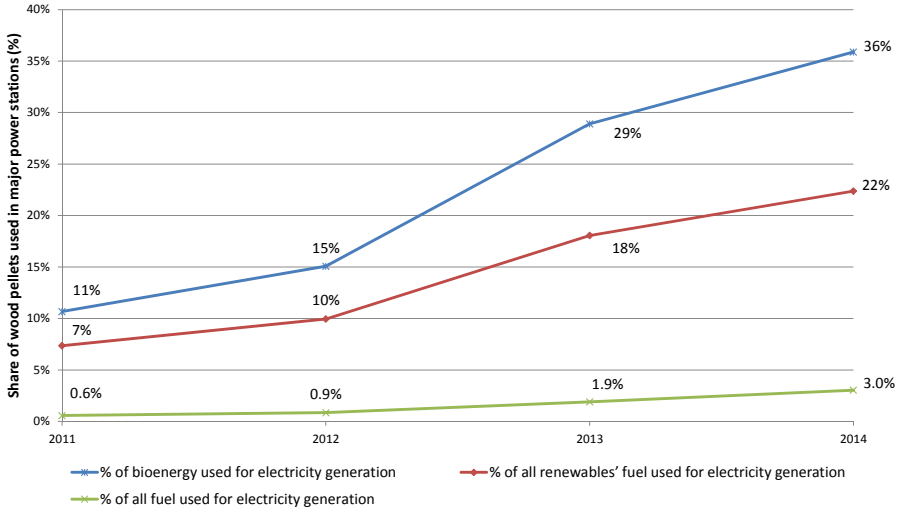
Chart 7: UK net imports and use of wood pellets by major UK power stations



Sources: Eurostat International Trade Database & DECC Major Power Producers data

Imported wood pellets have come to play an increasingly important role in the UK's energy mix. In 2014, wood pellets used by the UK's major power stations accounted for 36 per cent of all bioenergy fuels used to generate electricity, an increase of 25 percentage points compared to 2011. **(Chart 8)** In terms of all renewable sources, the share of wood pellets in fuel used for renewable electricity generation increased from seven per cent in 2011 to over 22 per cent in 2014. Wood pellets have also significantly increased their share of fuel used for total UK electricity generation, from less than one per cent in 2011 to over three per cent by 2014.

Chart 8: Share of wood pellets used by major UK power stations for electricity generation



Sources: DECC Major Power Producers data & table 5.3, Digest of UK Energy Statistics 2015[7]

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[7] Data for electricity from bioenergy and renewable sources used figures from table 6.6 of the Digest of UK Energy Statistics, which can be found here: www.gov.uk/government/statistics/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes
Data for fuel used in electricity generation can be found in table 5.3 of the Digest of UK Energy Statistics, available at: www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes

Recent and forthcoming publications of interest to users of energy statistics

Smart Meters quarterly statistics

This quarterly publication provides estimates of the number of Smart Meters installed and operating in homes and businesses in Great Britain. The latest release, covering estimates of the number of Smart Meters deployed up to the end of June 2015, was published on 10 September 2015 at: www.gov.uk/government/collections/smart-meters-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 17 September 2015 at:
www.gov.uk/government/collections/green-deal-and-energy-company-obligation-eco-statistics

Estimates of Home Insulation Levels in Great Britain

This quarterly publication, released alongside the quarterly Green Deal and ECO statistics, 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: June 2015, was published on 17 September 2015 at:
www.gov.uk/government/collections/green-deal-and-energy-company-obligation-eco-statistics

Sub-national consumption of other fuels, 2013

This dataset presents residual fuels sub–national energy consumption data in the UK for the period covering 1 January to 31 December 2013. Other 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 release was published on 24 September 2015 at:
www.gov.uk/government/collections/sub-national-consumption-of-other-fuels

Sub-national total final energy consumption, 2013

This dataset presents the findings of the sub–national energy consumption analysis in the UK for all fuels during 2013. The release was published on 24 September 2015 at:
www.gov.uk/government/collections/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 2015 edition will be released at 9.30am on Thursday 29 October 2015 at: www.gov.uk/government/collections/uk-energy-sector-indicators

Sub-national electricity consumption in Northern Ireland, 2012 and 2013

This publication presents estimates of the latest analysis of electricity consumption in Northern Ireland at District Council level. Domestic electricity and non-domestic electricity consumption data for 2012 and 2013 (originally scheduled for publication on 24 September 2015), will now be published on 22 December 2015 at:
www.gov.uk/government/collections/sub-national-electricity-consumption-in-northern-ireland.
The publication has been delayed due to quality issues with the time series data which are currently being investigated with Northern Ireland Electricity (NIE).

Energy Trends and Energy Prices: December 2015

Energy Trends and Energy Prices are normally released concurrently on the last Thursday of March, June, September and December. Given that the last Thursday of December 2015 will be New Year's Eve (31 December) it has been decided that the release date for the December 2015 editions will be brought forward to Tuesday 22 December 2015.

Sub-national electricity consumption, 2014

This factsheet looks at electricity consumption by consuming sector for Great Britain, and Regional/devolved administration areas, together with some commentary relating to local authority trends. The data analysed in this factsheet are based on the aggregation of Meter Point Administration Number (MPAN) readings throughout Great Britain as part of DECC's annual meter point electricity data exercise. The data cover the electricity year between 26 January 2014 and 25 January 2015. These data follow on from the results produced from similar exercises carried out for 2005 to 2013. The latest release will be published on 22 December 2015, at:
www.gov.uk/government/collections/sub-national-electricity-consumption-data.

Sub-national gas consumption, 2014

This factsheet looks at gas consumption by consuming sector for Great Britain, and Regional/devolved administration areas, together with some commentary relating to local authority trends. The data analysed in this factsheet are based on the aggregation of Meter Point Reference Number (MPRN) readings throughout Great Britain as part of DECC's annual meter point gas data exercise. The data cover the gas year between 1 October 2013 and 30 September 2014 and are subject to a weather correction factor. In the domestic sector, gas consumption is predominately used for heating purposes and as a result usage is driven by external temperatures and weather conditions. The weather correction factor enables comparisons of gas use over time, controlling for weather changes. These data follow on from the results produced from similar exercises carried out for 2005 to 2013. The latest release will be published on 22 December 2015, at:
www.gov.uk/government/collections/sub-national-gas-consumption-data.

List of special feature articles published in Energy Trends between September 2014 and June 2015

Energy

September 2014	Running hours during winter 2013/14 for plants opted-out of the Large Combustion Plant Directive (LCPD)
	Energy Trends revisions policy
	Future of Energy Trends and Quarterly Energy Prices: printed publications
December 2014	Estimates of heat use in the United Kingdom in 2013
	Renewable Heat Premium Payment scheme
	DECC report on surveys of businesses, local authorities and households - 2013/14
March 2015	Non-domestic Renewable Heat Incentive

Coal

September 2014	Coal in 2013
December 2014	Global coal trade

Combined Heat and Power (CHP)

September 2014	Combined Heat and Power in Scotland, Wales, Northern Ireland and the regions of England in 2013

Electricity

September 2014	Imports, exports and transfers of electricity
December 2014	Electricity generation and supply figures for Scotland, Wales, Northern Ireland and England, 2010 to 2013

Energy efficiency

December 2014	Energy usage in households with Solar PV installations
	Smart Meter Energy Demand Research Project: anonymised data release
March 2015	International comparisons of energy efficiency indicators
	Non-domestic National Energy Efficiency Data Framework – new publication

Energy prices

March 2015	Domestic energy bills in 2014: The impact of variable consumption
	Variation in tariff types and energy bills

Feed-in Tariffs

September 2014	Analysis of Feed-in Tariff generation data
December 2014	Feed-in Tariff load factor analysis

Fuel Poverty

June 2015	Fuel Poverty levels in England, 2013

Gas

December 2014	Physical gas flows across the EU-28 and diversity of gas supply in 2013

Petroleum (oil and oil products)

December 2014 Diversity of supply for oil and oil products in OECD countries

Renewables

September 2014 Renewable electricity in Scotland, Wales, Northern Ireland and the regions of England in 2012

June 2015 Renewable energy in 2014

Sub-national energy consumption

March 2015 Visualising non-gas grid households in Great Britain
Sub-national consumption statistics: Data at postcode level

June 2015 Energy Consumption in the United Kingdom: publication of data

UK Continental Shelf (UKCS)

March 2015 UKCS capital expenditure survey 2014

PDF versions of the special feature articles appearing in Energy Trends since 2012 can be accessed on the DECC section of the GOV.UK website at:
www.gov.uk/government/collections/energy-trends-articles

Articles published before 2012 can be accessed via the National Archives version of the DECC website at:
http://webarchive.nationalarchives.gov.uk/20130109092117/http:/decc.gov.uk/en/content/cms/statistics/publications/trends/articles_issue/articles_issue.aspx

Explanatory notes

General

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

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

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.

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

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

Abbreviations

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

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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