



Department  
of Energy &  
Climate Change



# Energy Trends December 2015

22 December 2015

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

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

Energy Trends includes information on energy as a whole and by individual fuels. The text and charts provide an analysis of the data in the tables. The tables are mainly in commodity balance format, as used in the annual Digest of UK Energy Statistics. The 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](http://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes)

The balance format shows the flow of a commodity from its sources of supply, through to its final use. The articles provide in-depth information on current issues within the energy sector.

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

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

Energy Trends does not contain information on Foreign Trade, Weather (temperature, wind speed, sun hours and rainfall) and Prices. Foreign Trade and Weather tables are, however, available on the DECC section of the GOV.UK website at:

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

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

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### **The main points for the third quarter of 2015:**

- Total energy production was 12 per cent higher than in the third quarter of 2014. This rise in output was due to strong growth in oil, gas, nuclear and renewables production more than offsetting the continued decline in UK coal production.
- Oil production rose by 27 per cent when compared with the third quarter of 2014. Refinery production in the third quarter of 2015 was up by 7½ per cent on the same quarter of last year, partially driven by low crude prices.
- Natural gas production was 10 per cent higher than the third quarter of 2014. Gas imports and exports increased by 13 per cent and 29 per cent respectively. Gas consumption was down by ½ per cent, with an increase in stocks.
- Coal production in the third quarter of 2015 was 52 per cent lower than the third quarter of 2014 due to mines closing and some other mines producing less coal as they are coming to the end of operation. Coal imports were 46 per cent lower with generators demand for coal down by 19 per cent.
- Total primary energy consumption for energy uses rose by ½ per cent. However, when adjusted to take account of weather differences between the third quarter of 2014 and the third quarter of 2015, primary energy consumption fell by ½ per cent.
- Temperatures in the quarter were on average 1.1 degrees cooler than a year earlier, with average temperatures in July and September 1.9 and 2.1 degrees cooler than a year earlier.
- Final consumption rose by 2½ per cent compared to the third quarter of 2014. Domestic consumption rose by 6 per cent reflecting the cooler weather in the quarter, service consumption rose by 6 per cent, transport consumption rose by 1½ per cent, whilst industrial consumption fell by 2½ per cent. On a seasonally and temperature adjusted basis, final energy consumption rose by 1 per cent.
- Electricity generated in the third quarter of 2015 fell by 0.5 per cent, from 76.4 TWh a year earlier to 75.9 TWh, with an increase in net imports leaving supply broadly unchanged.
- Of electricity generated in the third quarter of 2015, gas accounted for 35 per cent, down from 38 per cent in the third quarter of 2014, whilst coal accounted for 17 per cent, down from 21 per cent in the third quarter of 2014. Nuclear generation accounted for 22 per cent of total electricity generated in the third quarter of 2015, an increase from the 20½ per cent share in the third quarter of 2014.
- Renewables' share of electricity generation increased to 23½ per cent, up from the 17½ per cent share in the third quarter of 2014. Offshore wind generation increased by 52 per cent, and onshore wind generation increased by 30 per cent, whilst solar PV generation increased by 73 per cent due to increased capacity. Generation from bioenergy was up by 16 per cent, mainly due to the conversion of Drax to biomass. Hydro generation increased by 34 per cent. Overall renewable electricity generation was up 33 per cent compared to the same quarter in 2014.
- Low carbon electricity's share of generation increased from 38 per cent in the third quarter of 2014 to 45½ per cent in the third quarter of 2015, with the fall in coal and gas generation offset by an increase in generation from renewables and nuclear.
- In the third quarter of 2015, 197 MW of capacity joined the Feed in Tariff scheme, increasing the total to 4,160 MW, approximately 14 per cent of all renewable installed capacity.

## Section 1 - Total Energy

### Key results show:

Total energy production was 11.9 per cent higher than in the third quarter of 2014. **(Charts 1.1 & 1.2)**

Total primary energy consumption for energy uses rose by 0.5 per cent. However, when adjusted to take account of weather differences between the third quarter of 2014 and the third quarter of 2015, primary energy consumption fell by 0.6 per cent, largely due to decreased coal use in electricity generation. **(Chart 1.3)**

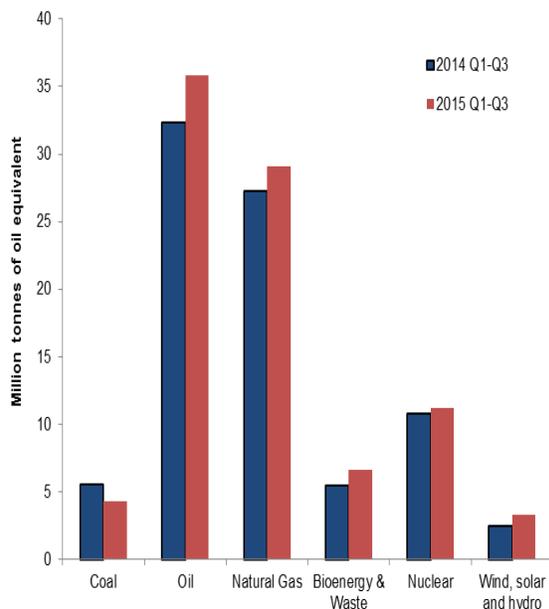
Final consumption rose by 2.6 per cent compared to the third quarter of 2014. Domestic consumption rose by 6.2 per cent reflecting the cooler weather in the quarter, service consumption rose by 6.1 per cent, transport consumption rose by 1.5 per cent, whilst industrial consumption fell by 2.4 per cent. **(Chart 1.4)**

On a seasonally and temperature adjusted basis, final energy consumption rose by 1.1 per cent. **(Chart 1.5)**

Net import dependency was 38.8 per cent, down 10.0 percentage points from the third quarter of 2014 reflecting increased indigenous production. **(Chart 1.6)**

Fossil fuel dependency fell to 81.2 per cent in the third quarter of 2015, a record low level. **(Chart 1.7)**

**Chart 1.1 Production of indigenous primary fuels**



Total production in the third quarter of 2015 at 27.5 million tonnes of oil equivalent was 11.9 per cent higher than in the third quarter of 2014.

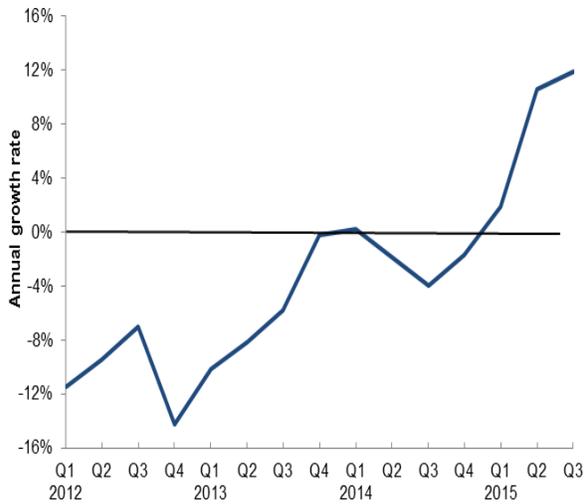
Production of oil rose by 27 per cent compared to the third quarter of 2014, due to very low crude oil production in August 2014, which was largely the result of planned maintenance at Buzzard, the UK's largest oil field. Production of gas rose by 9.9 per cent compared to the third quarter of 2014, when maintenance work affected production issues.

Primary electricity output in the third quarter of 2015 was 12.1 per cent higher than in the third quarter of 2014, within which nuclear electricity output was 5.8 per cent higher, whilst output from wind, solar and natural flow hydro was 46 per cent higher than the same period in 2014, due to higher wind speeds and increased wind and solar capacity, and a 18.4 per cent increase in rainfall levels (see sections 5&6).

In the third quarter of 2015 production of coal and other solid fuels was 52 per cent lower than the corresponding period of 2014. This was due to mines closing and some other mines producing less coal as they are coming to the end of operation.

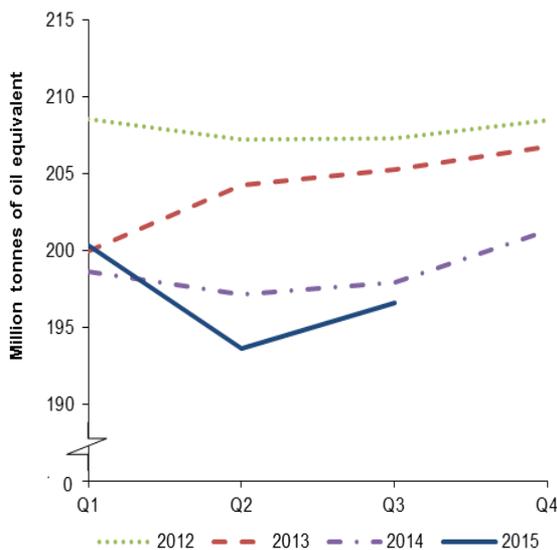
## Total Energy

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



In the third quarter of 2015, the annual growth rate of UK production was +11.9 per cent, with the growth in oil and gas and primary electricity production more than offsetting the continuing decline of UK coal production.

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



Total inland consumption on a primary fuel input basis (temperature corrected, seasonally adjusted annualised rate), was 196.6 million tonnes of oil equivalent in the third quarter of 2015, 0.6 per cent lower than in the third quarter of 2014. The average temperature in the third quarter of 2015 was 1.1 degree Celsius cooler than the same period a year earlier.

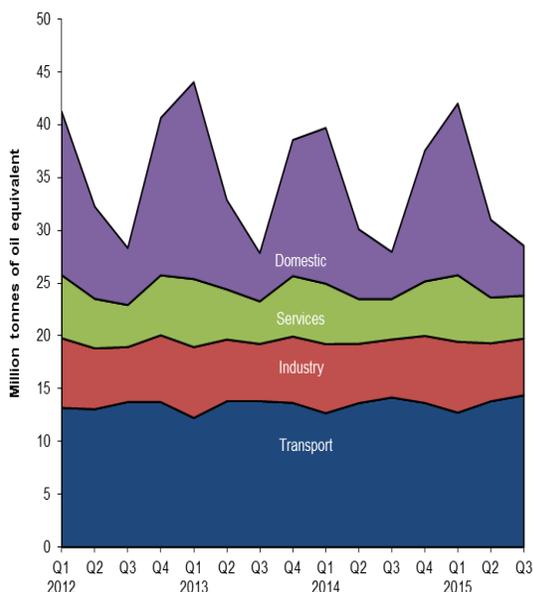
Between the third quarter of 2014 and the third quarter of 2015 (on a seasonally adjusted and temperature corrected basis) coal consumption fell by 21 per cent driven by decreased coal use in electricity generation.

On the same basis, oil consumption rose by 2.4 per cent, whilst gas consumption fell by 0.6 per cent.

Also on a seasonally adjusted and temperature corrected basis, there were rises in nuclear consumption of 4.7 per cent, and in bioenergy and waste consumption of 13.6 per cent.

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

**Chart 1.4 Final energy consumption by user**



Total final consumption rose by 2.6 per cent between the third quarter of 2014 and the third quarter of 2015.

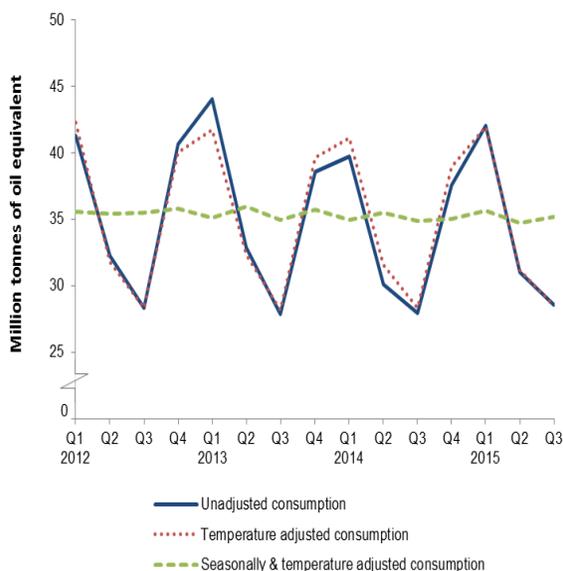
Domestic sector energy consumption rose by 6.2 per cent, reflecting the cooler weather compared to a year earlier.

Service sector energy consumption rose by 6.1 per cent.

Transport sector energy consumption rose by 1.5 per cent.

Industrial sector energy consumption fell by 2.4 per cent.

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



Total unadjusted final energy consumption (excluding non-energy use) rose by 2.1 per cent between the third quarter of 2014 and the third quarter of 2015.

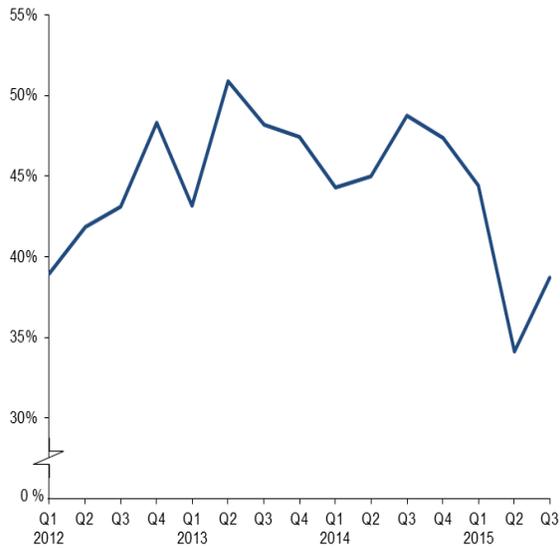
On a seasonally and temperature adjusted basis final energy consumption (excluding non-energy use) rose by 1.1 per cent between the third quarter of 2014 and the third quarter of 2015.

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

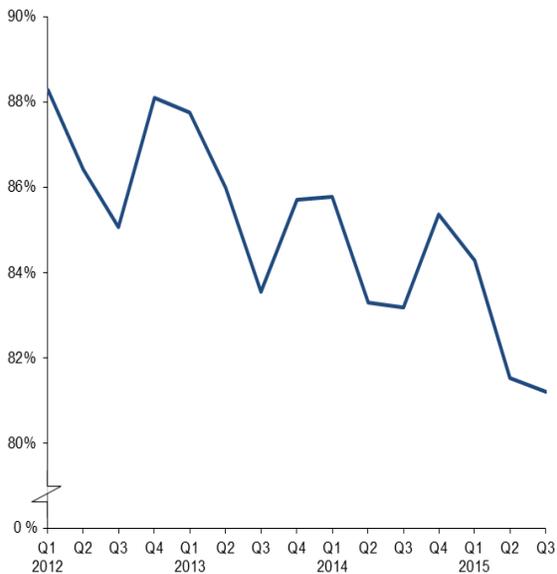
## Total Energy

### Chart 1.6 Net import dependency



In the third quarter of 2015 net import dependency was 38.8 per cent, down 10.0 percentage points from the third quarter of 2014, but up 4.6 percentage points from the second quarter of 2015.

### Chart 1.7 Fossil fuel dependency



In the third quarter of 2015 dependency on fossil fuels was 81.2 per cent, down 2.0 percentage points from the third quarter of 2014, and at a record low level.

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# 1 TOTAL ENERGY

TABLE 1.1. Indigenous production of primary fuels

Million tonnes of oil equivalent

		Primary electricity							
		Total	Coal <sup>1</sup>	Petroleum <sup>2</sup>	Natural gas <sup>3</sup>	Bioenergy & waste <sup>4,5</sup>	Nuclear	Wind, solar and hydro <sup>6</sup>	
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
<i>Per cent change</i>		-1.7	-8.6	-1.7	+0.2	+5.3	-10.3		+19.5
2014	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	11.5r	9.9	2.8r	3.9		1.27
	Quarter 2	31.6r	1.5r	12.9r	10.4r	2.0r	3.7		1.12
	Quarter 3 p	27.5r	0.9	11.4r	8.8	1.8r	3.6		0.94r
<i>Per cent change</i> <sup>7</sup>		+11.9	-52.1	+27.3	+9.9	+10.7	+5.8		+45.8

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

6. Includes solar PV and natural flow hydro.

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*

										<i>Million tonnes of oil equivalent</i>								
			Natural gas <sup>3</sup>	Bioenergy & waste <sup>4,5</sup>	Primary electricity			Natural gas	Bioenergy & waste	Primary electricity								
	Total	Coal <sup>1</sup>			Petroleum <sup>2</sup>	Wind, solar and hydro <sup>6</sup>	Net imports			Wind, solar and hydro	Net imports							
	<i>Unadjusted<sup>7</sup></i>									<i>Seasonally adjusted and temperature corrected<sup>8,9</sup> (annualised rates)</i>								
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		
<i>Per cent change</i>	-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 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	58.3r	9.1r	16.2r	23.8	3.5r	3.9	1.27	0.42	200.3r	30.9r	64.8r	69.4	14.1r	15.0	4.23r	1.69r	
	Quarter 2	44.2r	5.7r	16.5r	13.9r	2.9r	3.7	1.12	0.48	193.6r	27.0r	65.8r	67.2r	11.6r	14.5	5.52r	1.91r	
	Quarter 3 p	41.3r	4.7r	17.2r	11.6	2.7r	3.6	0.94r	0.51	196.6r	23.3r	69.0r	71.8r	10.9r	14.5	5.11r	2.03	
<i>Per cent change<sup>10</sup></i>		+0.5	-18.4	+2.4	+0.3	+13.6	+5.8	+45.8	+8.5	-0.6	-20.9	+2.4	-0.6	+13.6	+4.7	+45.0	+8.5	

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

6. Includes natural flow hydro, but 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](http://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		2013		2014		2014		2014		2015		2015		2015	
	2013	2014	per cent change <sup>1</sup>	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	per cent change <sup>1</sup>	
<b>SUPPLY</b>																		
Indigenous production	114,908	112,910	-1.7	25,567	29,545	30,719	28,592	24,546	29,052	31,285r	31,609r	27,470					+11.9	
Imports	178,596	164,770	-7.7	40,120	44,983	43,792	39,202	38,187	43,589	43,393r	35,621r	37,494					-1.8	
Exports	-76,129	-70,704	-7.1	-18,312	-17,903	-17,971	-18,289	-16,968	-17,476	-16,352r	-19,585r	-20,433					+20.4	
Marine bunkers	-2,691	-2,484	-7.7	-684	-629	-636	-599	-618	-630	-506r	-659r	-685					+10.8	
Stock change <sup>2</sup>	+32	-3,525		-2,129	+467	+1,761	-2,998	-2,239	-49	2,519r	-701r	-531						
<b>Primary supply</b>	<b>214,716</b>	<b>200,967</b>	<b>-6.4</b>	<b>44,563</b>	<b>56,462</b>	<b>57,666</b>	<b>45,908</b>	<b>42,907</b>	<b>54,486</b>	<b>60,340r</b>	<b>46,285r</b>	<b>43,315</b>					<b>+1.0</b>	
Statistical difference <sup>3</sup>	-298	-448		-25	-33	-34	-161	-267	15	24r	-39r	9						
<b>Primary demand</b>	<b>215,014</b>	<b>201,415</b>	<b>-6.3</b>	<b>44,588</b>	<b>56,495</b>	<b>57,700</b>	<b>46,069</b>	<b>43,174</b>	<b>54,471</b>	<b>60,316r</b>	<b>46,324r</b>	<b>43,306</b>					<b>+0.3</b>	
Transfers <sup>4</sup>	-5	-3		-7	7	-1	-5	6	-2	28r	0r	4						
<b>TRANSFORMATION</b>																		
Electricity generation	-44,071	-39,429	-10.5	-9,994	-11,272	-10,969	-9,358	-8,857	-10,244	-10,961r	-8,603r	-8,322					-6.0	
Heat generation	-1,153	-1,132	-1.8	-218	-302	-343	-251	-225	-313	-343	-251	-225					-0.0	
Petroleum refineries	-67	-349	(+)	-33	-89	-86	-128	-137	3	-15r	-10r	-19					-86.2	
Coke manufacture	-446	-334	-25.1	-146	-113	-86	-77	-85	-86	-48r	-24r	-46					-46.3	
Blast furnaces	-2,376	-2,379	+0.1	-601	-606	-644	-573	-626	-537	-665r	-647r	-485					-22.5	
Patent fuel manufacture	-40	-66	+66.7	-9	-11	-17	-17	-18	-15	-10	-22r	-17					-7.8	
Energy industry use	12,539	11,619	-7.3	3,047	2,972	3,047	2,877	2,755	2,940	3,197r	3,097r	2,990					+8.5	
Losses	3,242	3,262	+0.6	673	826	933	713	704	913	993r	651r	659					-6.3	
<b>FINAL CONSUMPTION</b>																		
Iron & steel	1,348	1,357	+0.7	331	348	356	347	340	314	369r	354r	315					-7.5	
Other industries	22,888	22,629	-1.1	5,084	5,926	6,185	5,265	5,150	6,029	6,342r	5,135r	5,045					-2.0	
Transport	53,563	54,177	+1.1	13,832	13,669	12,692	13,646	14,176	13,663	12,738r	13,819r	14,382					+1.5	
Domestic	44,578	38,162	-14.4	4,570	12,881	14,739	6,606	4,449	12,368	16,254r	7,367r	4,726					+6.2	
Other Final Users	20,949	18,957	-9.5	4,028	5,733	5,721	4,234	3,838	5,164	6,306r	4,325r	4,073					+6.1	
Non energy use	7,749	7,561	-2.4	2,027	1,775	1,860	1,989	1,830	1,882	2,079r	2,037r	2,016					+10.1	
<b>DEPENDENCY<sup>5</sup></b>																		
Net import dependency	47.1%	46.2%		48.2%	47.4%	44.3%	45.0%	48.7%	47.4%	44.4%r	34.2%r	38.8%						
Fossil fuel dependency	85.9%	84.5%		83.5%	85.7%	85.8%	83.3%	83.2%	85.4%	84.3%r	81.5%	81.2%						
Low carbon share	13.1%	14.2%		15.1%	13.5%	13.1%	15.3%	15.2%	13.5%	14.7%r	17.0%r	17.1%						

1. Percentage change between the most recent quarter and the same quarter a year earlier; (+) represents a positive percentage change greater than 100%.

2. Stock change + = stock draw, - = stock build.

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 3									2015 Quarter 3 p								
	Coal	Manufactured fuels <sup>4</sup>	Primary oil	Petroleum Products	Natural gas <sup>5</sup>	Bioenergy & waste <sup>6</sup>	Primary electricity	Electricity	Heat sold	Coal	Manufactured fuels <sup>4</sup>	Primary oil	Petroleum Products	Natural gas <sup>5</sup>	Bioenergy & waste <sup>6</sup>	Primary electricity	Electricity	Heat sold
<b>SUPPLY</b>																		
Indigenous production	1,896	-	8,968	-	8,013	1,624	4,045	-	-	907	-	11,418	-	8,810	1,798	4,537	-	-
Imports	5,320	201	15,292	8,295	7,687	872	-	519	-	2,891	153	14,994	9,211	8,672	1,044	-	529	-
Exports	-84	-20	-7,576	-5,688	-3,448	-100	-	-52	-	-78	-49	-9,017	-6,711	-4,435	-121	-	-22	-
Marine bunkers	-	-	-	-618	-	-	-	-	-	-	-	-	-685	-	-	-	-	-
Stock change <sup>1</sup>	-1,437	-54	+218	-360	-607	-	-	-	-	+908	+16	+598	-685	-1,369	-	-	-	-
<b>Primary supply</b>	5,695	127	16,902	1,629	11,645	2,396	4,045	467	-	4,629	120	17,994	1,130	11,678	2,722	4,537	507	-
Statistical difference <sup>2</sup>	-58	-2	-36	-118	-59	+19	-	-13	-	-16	-1	-3	+1	+57	-	-	-28	-
<b>Primary demand</b>	5,753	129	16,938	1,747	11,704	2,378	4,045	480	-	4,645	121	17,997	1,129	11,621	2,722	4,537	535	-
Transfers <sup>3</sup>	-	10	-357	+357	-3	-	-643	+643	-	-	+9	-290	+294	-9	-	-938	+938	-
<b>TRANSFORMATION</b>	-5,307	371	-16,581	16,286	-5,798	-1,708	-3,402	5,868	323	-4,210	274	-17,707	17,514	-5,170	-2,083	-3,598	5,543	323
Electricity generation	-3,911	-233	-	-123	-5,361	-1,695	-3,402	5,868	-	-3,170	-156	-	-138	-4,732	-2,071	-3,598	5,543	-
Heat generation	-67	-13	-	-18	-438	-13	-	-	323	-67	-13	-	-18	-438	-13	-	-	323
Petroleum refineries	-	-	-16,581	16,444	-	-	-	-	-	-	-	-17,707	17,688	-	-	-	-	-
Coke manufacture	-961	876	-	-	-	-	-	-	-	-677	631	-	-	-	-	-	-	-
Blast furnaces	-317	-309	-	-	-	-	-	-	-	-251	-234	-	-	-	-	-	-	-
Patent fuel manufacture	-51	50	-	-17	-	-	-	-	-	-45	46	-	-18	-	-	-	-	-
Energy industry use	0	205	-	1,042	939	-	-	498	71	-	163	-	1,192	1,065	-	-	498	71
Losses	-	80	-	-	142	-	-	482	-	-	63	-	-	162	-	-	434	-
<b>FINAL CONSUMPTION</b>	446	226	-	17,347	4,821	670	-	6,011	263	435	178	-	17,745	5,215	638	-	6,083	263
Iron & steel	10	136	-	2	112	-	-	81	-	10	109	-	4	113	-	-	78	-
Other industries	338	11	-	1,044	1,470	140	-	1,925	224	327	4	-	955	1,490	142	-	1,902	224
Transport	2	-	-	13,738	-	344	-	92	-	3	-	-	14,027	-	261	-	92	-
Domestic	90	46	-	456	1,791	126	-	1,936	4	87	42	-	427	2,070	161	-	1,936	4
Other final users	6	-	-	427	1,332	60	-	1,978	35	8	-	-	454	1,425	75	-	2,075	35
Non energy use	-	33	-	1,681	117	-	-	-	-	-	22	-	1,877	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. Includes colliery methane.

6. Includes geothermal, solar heat and biofuels for transport; wind and wave electricity included in primary electricity figures.

## Section 2 - Solid Fuels and Derived Gases

### Key results show:

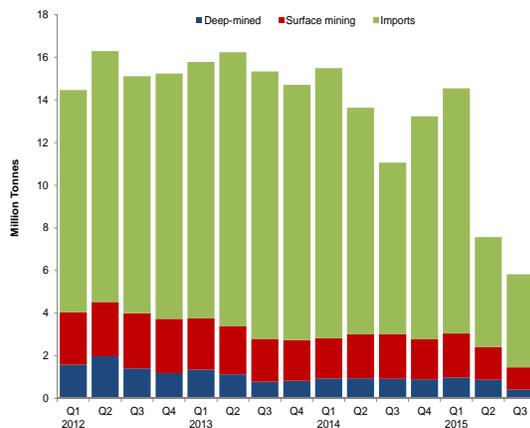
Overall coal production of 1.5 million tonnes was down 52 per cent (-1.6 million tonnes) compared to the third quarter of 2014 with record lows in deep-mined (down 54 per cent, -0.5 million tonnes) and surface mining output (down 51 per cent, -1.1 million tonnes). **(Chart 2.1)**

Coal imports were down 46 per cent (-3.7 million tonnes) on levels shown in the third quarter of 2014, as demand for coal fell. **(Charts 2.1 and 2.2)**

Demand for coal by electricity generators in the third quarter of 2015 fell to a new record low and was 18.9 per cent (-1.2 million tonnes) lower than demand in the third quarter of 2014. **(Chart 2.3)**

Total stock levels were 17.0 million tonnes, down 8.6 per cent (-1.6 million tonnes) compared to third quarter of 2014, and 1.4 million tonnes lower than in the second quarter of 2015. **(Chart 2.4)**

### Chart 2.1 Coal supply



Provisional figures for the third quarter of 2015 show that coal production at 1.5 million tonnes (a new record low) was 52 per cent lower than the third quarter of 2014. This was due to mines closing and some other mines producing less coal as they are coming to the end of operation. See tables 2B and 2C for a list of remaining operating mines.

Imports of coal in the third quarter of 2015 were 46 per cent lower than in the third quarter of 2014 at 4.4 million tonnes. This was the lowest value for over 17 years.

The decrease reflects the fact that consumption by electricity generators was down. The decline was due to the temporary closure of some plants due to market conditions, along with an increase in the carbon price floor from April 2015, and a third unit of Drax being converted to biomass in July 2015.

### Table 2A Coal imports by origin

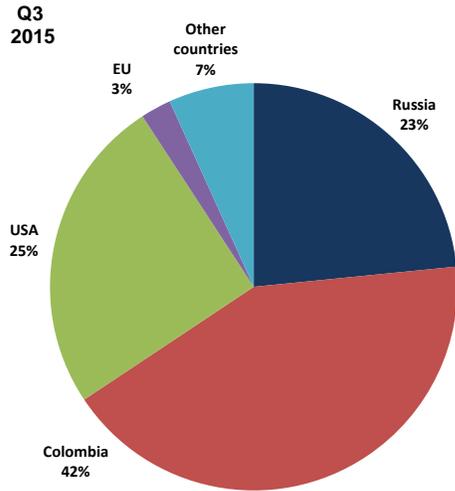
	Thousand Tonnes			
	2013	2014	2014 Q3	2015 Q3p
European Union	693	1,228	230	98
Russia	18,053	20,250	3,199	1,144
Colombia	10,790	12,196	2,006	1,206
USA	11,749	11,494	1,703	1,429
Australia	2,360	2,147	430	141
Other Countries	1,170	2,087	458	347
<b>Total imports</b>	<b>44,815</b>	<b>49,402</b>	<b>8,026</b>	<b>4,366</b>

In the third quarter of 2015, USA and Colombia overtook Russia as the largest suppliers of UK coal imports, providing 33 per cent and 28 per cent of total imports respectively.

Steam coal imports at 3.4 million tonnes accounted for 77 per cent of total coal imports.

Coking coal imports at 1.0 million tonnes accounted for 22 per cent of total coal imports.

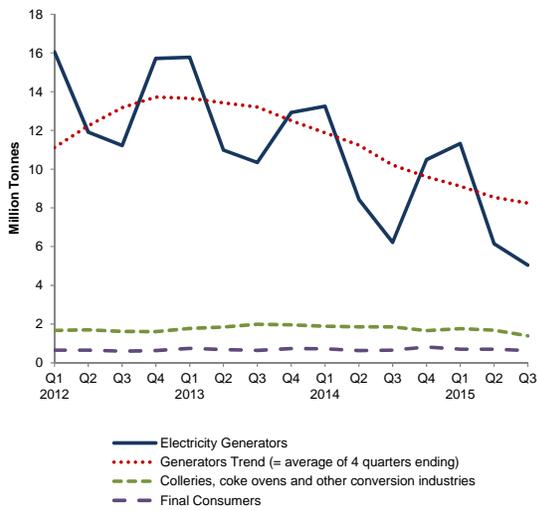
**Chart 2.2 Steam coal imports by origin**



All but ten per cent of UK steam coal imports came from just three countries: Colombia (42 per cent), USA (25 per cent), and Russia (23 per cent).

Imports of steam coal from Russia have fallen by 49 per cent since the second quarter of 2015 and 71 per cent since the third quarter of 2014.

**Chart 2.3 Coal consumption**



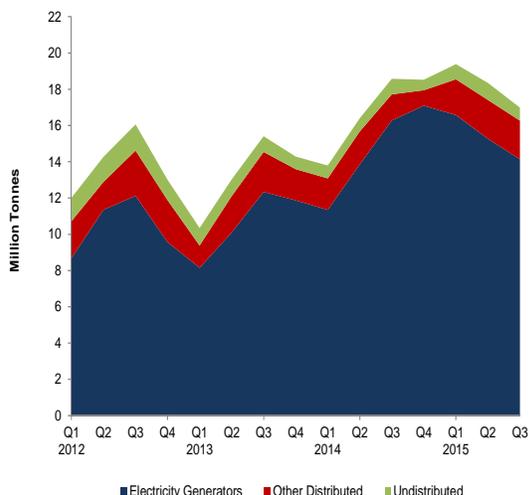
Total demand for coal in the third quarter of 2015, fell to a new record low of 7.1 million tonnes and was 19.2 per cent lower than in the third quarter of 2014. Consumption by electricity generators was down by 18.9 per cent to 5.0 million tonnes (a new record low).

Electricity generators accounted for 71 per cent of total coal use in the third quarter of 2015; unchanged from a year earlier.

Coal used on coke manufacture fell 30 per cent in the third quarter of 2015 to 0.9 million tonnes (a new record low). This was due to Monckton (the sole dedicated coke plant) ceasing production on 16 December 2014, problems at Scunthorpe steelworks and SSI steelworks at Redcar ceasing production in mid-September.

Sales to industrial users fell by 3.0 per cent in the third quarter of 2015 and sales to other final consumers (including domestic) decreased by 1.0 per cent to 0.1 million tonnes during the third quarter of 2015.

**Chart 2.4 Coal stocks**



Coal stocks showed a fall of 1.4 million tonnes during the third quarter of 2015 compared to the end of June 2015, and stood at 17.0 million tonnes. Coal stocks were 1.6 million tonnes lower than at the end of September 2014.

The level of coal stocks at power stations at the end of the third quarter of 2015 was 14.1 million tonnes, 2.1 million tonnes lower than at the end of September 2014, as stocks were used for generation rather than imports.

Stocks held by coke ovens were 0.8 million tonnes at the end of the third quarter of 2015, 0.02 million tonnes higher than stock levels at the end of the September 2014.

Stocks held by coal producers (undistributed stocks) decreased during the third quarter of 2015 to 0.7 million tonnes and were 0.1 million tonnes lower than at the end of September 2014.

**Table 2B Remaining operating deep mines as at the end of September 2015**

Name
Ayle Colliery
Eckington Colliery
Hill Top Colliery
Nant Hir No.2 Colliery
Dan-y-Graig No.4 Colliery
Kellingley Colliery
Aberpergwm Colliery
Monument Colliery

In 2015 two deep mines closed (Hatfield Colliery and Thoresby Colliery) and four surface mines closed (Earlseat, Laigh Glenmuir Site, Butterwell Disposal and Lodge House).

**Table 2C Remaining operating surface mines as at the end of September 2015**

Name
Glan Lash
East Pit
Nant Helen
Selar
Brenkley Lane
Rusha Site
Shotton
Glenmuckloch Site
Greenburn Project
Comrie Colliery Site
Ffos-y-Fran Land Reclamation Scheme
Muir Dean Site
Netherton
Tower Colliery Surface Mining Site
Minorca
Potland Burn
Broken Cross Site
House of Water

**Relevant tables**

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

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## 2 SOLID FUEL AND DERIVED GASES

### Table 2.1 Supply and consumption of coal

*Thousand tonnes*

	2013	2014	<i>per cent change</i>	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter	2015 3rd quarter p	<i>per cent change<sup>1</sup></i>
<b>SUPPLY</b>													
Indigenous production	12,767	11,648	-8.8	2,858	2,731	2,833	3,009	3,030	2,776	3,040	2,410r	1,455	-52.0
Deep mined	4,089	3,685	-9.9	785	829	932	936	916	901	980	879	419	-54.3
Surface mining <sup>2</sup>	8,584	7,962	-7.2	2,011	1,902	1,902	2,072	2,113	1,875	2,060	1,532r	1,036	-51.0
Other sources <sup>3</sup>	95	-	-100.0	62	-	-	-	-	-	-	-	-	
Imports <sup>4</sup>	49,402	41,765	-15.5	12,540	11,983	12,653	10,631	8,026	10,454	11,507	5,154r	4,366	-45.6
Exports <sup>5</sup>	593	425	-28.4	95	185	129	79	112	105	102	75r	103	-8.1
Stock change <sup>6</sup>	-1,328	-4,330		-2,383	+1,074	+536	-2,606	-2,175	-84	-661r	+1,028r	+1,363	
<b>Total supply</b>	<b>60,248</b>	<b>48,658</b>	<b>-19.2</b>	<b>12,920</b>	<b>15,603</b>	<b>15,894</b>	<b>10,955</b>	<b>8,768</b>	<b>13,041</b>	<b>13,785r</b>	<b>8,518r</b>	<b>7,081</b>	<b>-19.2</b>
Statistical difference	-177	+158		-58	-26	+35	+25	+33	+65	-16r	-25r	+10	
<b>Total demand</b>	<b>60,425</b>	<b>48,500</b>	<b>-19.7</b>	<b>12,977</b>	<b>15,630</b>	<b>15,859</b>	<b>10,930</b>	<b>8,735</b>	<b>12,976</b>	<b>13,800r</b>	<b>8,542r</b>	<b>7,071</b>	<b>-19.1</b>
<b>TRANSFORMATION</b>	<b>57,607</b>	<b>45,665</b>	<b>-20.7</b>	<b>12,335</b>	<b>14,889</b>	<b>15,137</b>	<b>10,292</b>	<b>8,084</b>	<b>12,153</b>	<b>13,090</b>	<b>7,833</b>	<b>6,436</b>	<b>-20.4</b>
Electricity generation	50,041	38,400	-23.3	10,349	12,933	13,248	8,439	6,223	10,490	11,320	6,147	5,045	-18.9
Heat generation <sup>7</sup>	609	516	-15.2	129	157	151	117	107	140	151	117	107	-
Coke manufacture	5,288	4,977	-5.9	1,404	1,331	1,270	1,287	1,264	1,156	1,165	1,053	890	-29.6
Blast furnaces	1,411	1,513	+7.3	393	399	411	377	416	309	423	447	330	-20.7
Patent fuel manufacture	259	259	+0.1	60	69	58	72	72	57	31	69	64	-11.5
Energy industry use	3	1	-78.0	0	0	0	0	-	-	-	-	-	
<b>FINAL CONSUMPTION</b>	<b>2,816</b>	<b>2,834</b>	<b>+0.6</b>	<b>642</b>	<b>740</b>	<b>722</b>	<b>638</b>	<b>652</b>	<b>823</b>	<b>710r</b>	<b>710r</b>	<b>635</b>	<b>-2.6</b>
Iron & steel	53	54	+2.0	13	13	14	14	13	13	14	14	14	+2.8
Other industries	2,078	2,186	+5.2	481	546	558	485	507	636	516r	549r	491	-3.1
Domestic	636	547	-14.1	137	166	138	126	119	163	165r	131r	115	-3.9
Other final users	48	48	-1.0	11	15	13	13	12	10	15r	17r	15	+26.6
<b>Stocks at end of period</b>													
Distributed stocks	13,591	17,944	+32.0	14,540	13,591	13,085	15,672	17,719	17,944	18,551	17,408r	16,266	-8.2
Of which:													
Major power producers <sup>8</sup>	11,871	17,091	+44.0	12,336	11,871	11,350	13,858	16,275	17,091	16,573	15,264	14,137	-13.1
Coke ovens	518	795	+53.3	952	518	323	473	739	795	836	985	762	+3.1
Undistributed stocks	696	576	-17.2	867	696	712	731	860	576	829r	944r	722	-16.0
<b>Total stocks<sup>9</sup></b>	<b>14,287</b>	<b>18,520</b>	<b>+29.6</b>	<b>15,407</b>	<b>14,287</b>	<b>13,797</b>	<b>16,403</b>	<b>18,578</b>	<b>18,520</b>	<b>19,380r</b>	<b>18,351r</b>	<b>16,988</b>	<b>-8.6</b>

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. Not produced since 2013 as the only mine producing slurry has ceased trading

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

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

6. Stock change + = stock draw, - = stock build.

7. 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.

8. This includes stocks held at ports.

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

## 2 SOLID FUEL AND DERIVED GASES

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

													<i>Thousand tonnes</i>
	2013	2014	<i>per cent change</i>	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter	2015 3rd quarter p	<i>per cent change<sup>3</sup></i>
<b>SUPPLY</b>													
Indigenous production	4,136	3,906	-5.6	1,053	1,047	994	1,025	990	897	895	868	727	-26.5
Coke Oven Coke	3,769	3,601	-4.4	969	949	919	940	912	830	854	800	658	-27.8
Coke Breeze	32	31	-2.6	8	8	8	8	8	7	5	5	4	-48.5
Other MSF	336	274	-18.4	76	90	67	77	70	60	36	64	65	-7.4
Imports	834	940	+12.7	235	167	204	202	283	251	302	290	215	-24.1
Exports	117	112	-4.3	20	26	40	30	29	13	23	74	69	(+)
Stock change <sup>1</sup>	-122r	-211	+73.0	-111	-4	+42	-92	-75	-86	+73r	+31r	+23	
Transfers	0	-5		0	-0	-1	-13	9	-	-2	-1	-	-100.0
<b>Total supply</b>	4,730	4,519	-4.5	1,157	1,184	1,199	1,093	1,177	1,049	1,246r	1,115r	896	-23.9
Statistical difference	-1	-0		-0	-0	-0	-	-0	0	-0	-	-0	
<b>Total demand</b>	4,732	4,519	-4.5	1,157	1,184	1,200	1,093	1,177	1,049	1,246r	1,115r	896	-23.9
<b>TRANSFORMATION</b>													
Coke manufacture	3,713	3,585	-3.5	913	912	958	856r	929	842	1,009r	908r	705	-24.1
Blast furnaces	-	-		-	-	-	-	-	-	-	-	-	
Energy industry use	3,713	3,585	-3.5	913	912	958	856r	929	842	1,009r	908r	705	-24.1
<b>FINAL CONSUMPTION</b>													
Iron & steel	1,019	934	-8.3	244	273	242	237	248	207	237	207	191	-23.3
Other industries	626	634	+1.3	159	169	165	161	174	134	165	151	125	-28.1
Domestic	83	45	-46.4	22	23	11	10	10	14	10	6	6	-33.7
Stocks at end of period <sup>2</sup>	310	256	-17.5	63	81	66	66	64	59	62	50	59	-8.5
<b>Stocks at end of period<sup>2</sup></b>	714	719	+0.8	599	714	465	525	624	719	543r	462r	399	-36.0

1. Stock change + = stock draw, - = stock build.

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; (+) represents a positive percentage change greater than 100%.

## 2 SOLID FUEL AND DERIVED GASES

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

	<i>GWh</i>												
	2013	2014	<i>per cent change</i>	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter	2015 3rd quarter p	<i>per cent change</i> <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production	25,686	25,441	-1.0	6,675	6,563	6,628	6,393	6,673	5,748	6,995r	6,315r	4,972	-25.5
Coke oven gas	8,479	8,473	-0.1	2,216	2,119	2,132	2,211	2,199	1,931	2,264r	2,030r	1,595	-27.5
Blast furnace gas	15,576	15,386	-1.2	4,043	4,028	4,075	3,762	4,094	3,455	4,359	3,941r	3,117	-23.9
Benzole & tars	1,630	1,582	-3.0	417	416	421	420	380	361	371	344r	260	-31.7
Transfers	61	140	(+)	14	5	9	25	40	66	92	96r	99	(+)
<b>Total supply</b>	25,746	25,581	-0.6	6,689	6,568	6,637	6,418	6,713	5,813	7,088r	6,411r	5,071	-24.5
Statistical difference	+16	-35		-0	+2	-8	-8	-19	+0	-3	+4r	-13	
<b>Total demand</b>	25,730	25,616	-0.4	6,690	6,566	6,645	6,426	6,732	5,813	7,090r	6,407r	5,084	-24.5
<b>TRANSFORMATION</b>	11,522	11,253	-2.3	2,874	2,836	2,915	2,792	2,858	2,688	3,226	2,512r	1,967	-31.2
Electricity generation	10,925	10,655	-2.5	2,725	2,687	2,765	2,642	2,709	2,539	3,077	2,363r	1,818	-32.9
Heat generation <sup>2</sup>	598	598	-	149	149	149	149	149	149	149	149	149	-
Energy industry use	9,041	9,331	+3.2	2,358	2,323	2,463	2,333	2,381	2,154	2,581	2,358r	1,894	-20.4
Losses	2,500	2,517	+0.7	755	697	579	561	926	452	674	912r	737	-20.4
<b>FINAL CONSUMPTION</b>	2,667	2,515	-5.7	703	709	689	740	567	519	609r	625r	486	-14.2
Iron & steel	862	768	-10.9	244	248	236	276	143	114	238r	281r	227	+58.8
Other industries <sup>3</sup>	174	165	-5.3	42	45	32	45	44	44	-	-	-	-100.0
Non-Energy Use <sup>4</sup>	1,630	1,582	-3.0	417	416	421	420	380	361	371	344r	260	-31.7

1. Percentage change between the most recent quarter and the same quarter a year earlier; (+) represents a positive percentage change greater than 100%.

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

3. The main consumer of gases Monckton closed in December 2014.

4. 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 Q3 2015 was 27 per cent higher than a year ago. UK indigenous production of crude and NGLs reached the lowest level in Q3 2014 than in any other quarter since 1977 but has since stabilised. Production in the year to date is up 10.9 per cent on last year. **(Chart 3.1)**

Net imports of primary oils (crude oil, NGLs and process oils) in Q3 2015 were 5.5 million tonnes (down 23 per cent) due to higher indigenous production. These met around 34 per cent of the UK's refinery demand. **(Chart 3.3)**

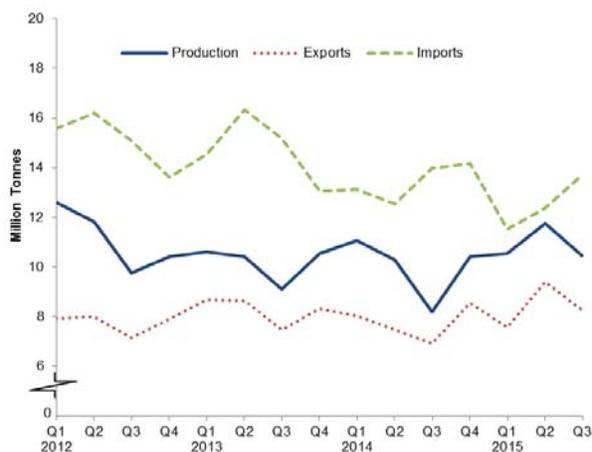
Refinery production in Q3 2015 was up 7.3 per cent on the same quarter of last year. This increase is partially driven by low crude prices. Whilst domestic demand remains stable there is a strong market for exports, as evidenced by the notable increase in motor spirit exports in recent months. Production in the year to date has been fairly stable compared to last year (down 1.5 per cent in year to Q3). **(Chart 3.2)**

Imports of petroleum products increased by 10.7 per cent on last year and exports increased by 17.3 per cent due to higher refinery production. However, the UK was a net importer of petroleum products in Q3 2015, for the ninth consecutive quarter, by 2.3 million tonnes, following a long period where the UK was generally a net exporter of petroleum products. **(Chart 3.2)**

Total deliveries of the key transport fuels were up slightly on the same period last year (up 2.4 per cent). Diesel deliveries increased by 4.8 per cent in line with a long term trend, diesel share of road fuels is now 66 per cent, up 15 percentage points on 10 years ago. Deliveries of aviation turbine fuel were up by 1.5 per cent. **(Chart 3.5)**

Overall stocks of crude oil and petroleum products, at 15.0 million tonnes, were up 1.0 million tonnes on Q3 2014. **(Chart 3.7)**

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



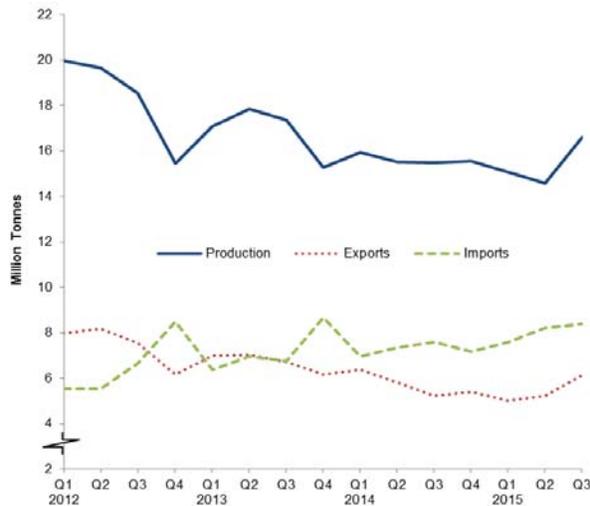
Indigenous UK crude oil production was 29 per cent higher in Q3 of 2015 compared with Q3 2014. Crude oil production in August last year was particularly low, largely because of planned maintenance at Buzzard, the UK's largest oil field but also due to the Golden Eagle field coming online within the last 12 months.

Production of NGLs was relatively stable, with a slight increase of 0.9 per cent on last year.

Imports of crude oil and NGL's decreased by 5.6 per cent compared with the same quarter a year earlier as UK indigenous production accounted for a larger share of refinery demand.

Net imports of primary oils (crude, NGLs and feedstocks) decreased to 5.5 million tonnes in Q3 2015.

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



Indigenous production of petroleum products at refineries in Q3 2015 was 7.3 per cent higher compared with a year earlier. The substantial increase in refinery production is driven partially by low crude prices. Whilst domestic demand remains stable there is a strong market for exports, as evidenced by a sharp increase in motor spirit exports in recent months.

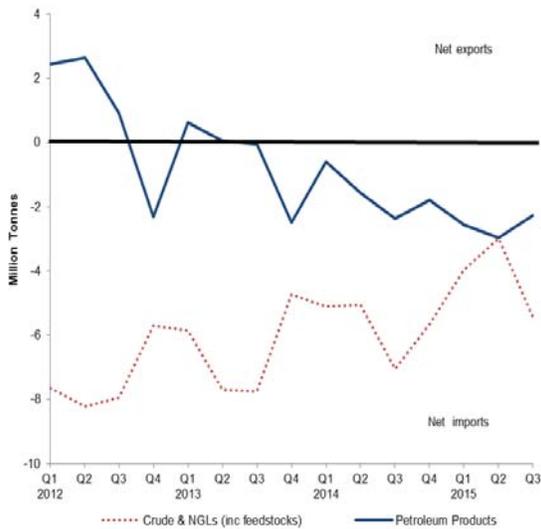
Motor spirit production showed the largest absolute change, increasing by 0.6 million tonnes, 16.6 per cent, on Q3 2014.

Imports of petroleum products were up on Q3 2014 by 10.7 per cent whilst exports were up by 17.3 per cent due to the increase in production. The UK remained a net importer of petroleum products in the third quarter of 2015 by 2.3 million tonnes.

Imports of motor spirit and road diesel (DERV) showed the largest absolute increases, 0.3 million tonnes each, up by 41.2 per cent and 9.4 per cent.

For exports, motor spirit showed the largest absolute increase, up by around 0.9 million tonnes (51.7 per cent).

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



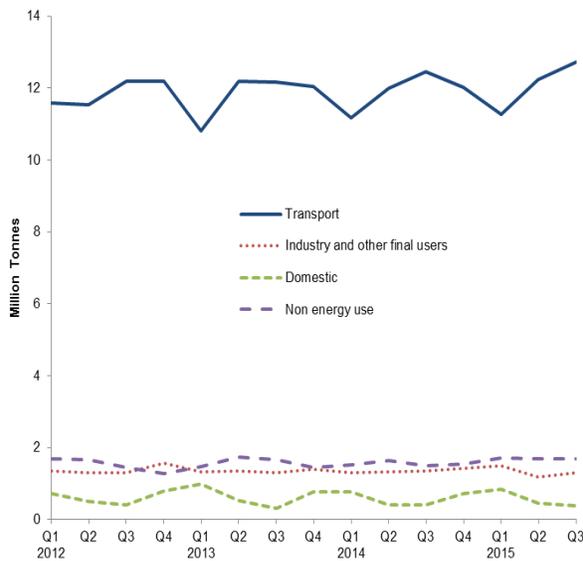
The UK's overall net import dependence for primary oils (Crude, NGL's and feedstocks) was 34 per cent in Q3 2015 and down 10 percentage points on Q3 2014.

Crude oil import dependence has decreased in 2015 as a new field has come online. In 2014 there were maintenance issues that dented UK indigenous production of crude, which have not affected this year's production so adversely. Recent increased refinery activity has also helped push up demand for primary oils.

In Q3 2015 the UK was a net importer of petroleum products, by 2.3 million tonnes, similar to levels Q3 2014. There have now been nine consecutive quarters where the UK has imported more petroleum products than it exported. In 2013 the UK was a net importer, the first year this has happened since 1984 when there was industrial action in the coal industry. Data for the year to date indicate that net import dependency is now normal.

The UK remains structurally short in diesel road fuel and aviation fuel, with a net import dependence rate of 42 and 63 per cent respectively

**Chart 3.4 Final consumption of oil**

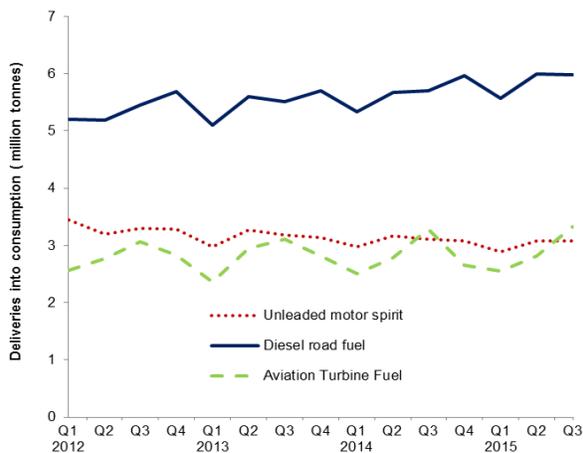


Final consumption in the oil sector is slightly seasonal with different products peaking at different times of the year. Consumption of domestic fuels for heating peaks in Q1 and Q4 each year, and consumption of aviation fuels is higher in Q2 and Q3.

Overall, final consumption of petroleum products in Q3 2015 was up by 2.2 per cent compared to Q3 2014. Domestic consumption, primarily used for heating, was lower by 6.0 per cent, and for industry was down nearly 10 per cent. Non-energy use was up by 11.4 per cent and transport was up by 2.1 per cent.

Transport accounts for just over three-quarters of UK final consumption. Transport fuels are examined in more detail below.

**Chart 3.5 Demand for key transport fuels**

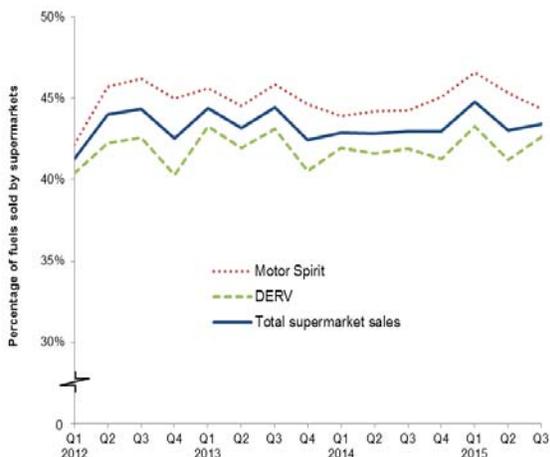


Total deliveries of key hydrocarbon transport fuels in Q3 2015 were higher by 2.4 per cent than the same quarter of 2014.

Consumption of motor spirit decreased by 1.0 per cent but road diesel consumption was up by 4.8 per cent. This is part of an on-going trend as more motorists switch from unleaded to diesel. Diesel's share of road fuel stands at 66 per cent.

Deliveries of aviation turbine fuel were up by 1.5 per cent on the same quarter last year and exceeded demand for motor spirit for the second time. (These figures are based on the hydrocarbon element; total deliveries of motor spirit including the blended bio-fuels are slightly higher).

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

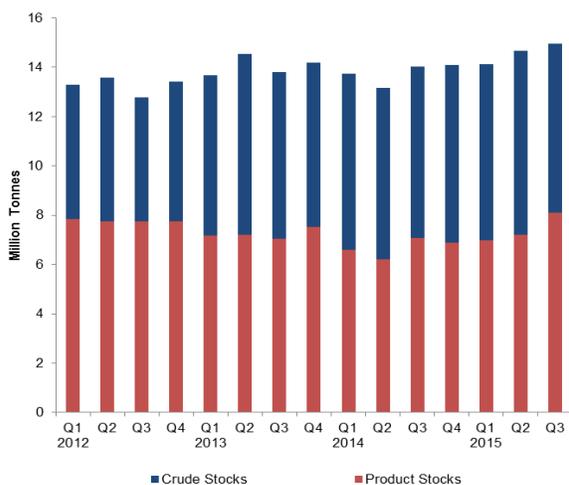


On an overall basis, supermarket outlets accounted for 43.4 per cent of total retail sales. This is up slightly on the third quarter of 2014 where supermarkets accounted for 43.0 per cent of retail sales.

Supermarkets accounted for 44 per cent of motor spirit (unleaded) and 43 per cent of DERV (diesel) in the third quarter of 2015, stable for motor spirit and up one percentage point for DERV.

*The Supermarket figures refer to Asda, Morrisons, Sainsbury's and Tesco only.*

**Chart 3.7 UK oil stocks**

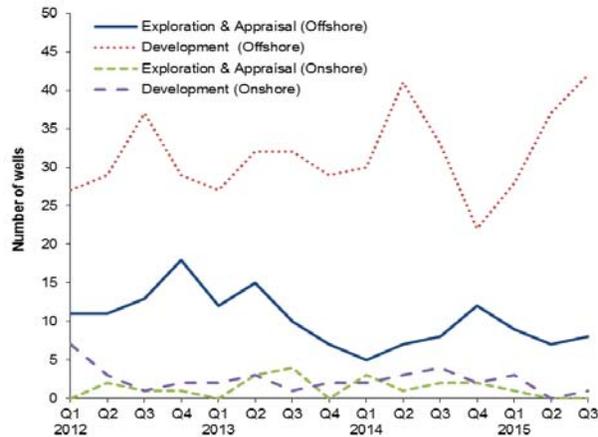


At the end of Q3 2015, UK total oil stocks were up on the end of Q3 2014, by 6.8 per cent. Stocks of crude oil and process oils were down slightly by 0.9 per cent (0.1 million tonnes) than a year earlier, while stocks of oil products were up 14.3 per cent (1.0 million tonnes).

Stocks of petroleum products held in the UK were higher by 5.3 per cent at the end of September 2015 than they were a year previously (by 0.4 million tonnes). There was also an increase of 10.2 per cent in petroleum product stocks held abroad for the UK (under bilateral agreements).

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. The UK is required to hold 61 days of stock for emergency purposes, and there is additional stock (in the region of 10 to 15 days) held by companies as part of their day to day operations

**Chart 3.8 Drilling activity on the UKCS**



There were 8 exploration and appraisal wells started offshore in the third quarter of 2015, the same number as in the corresponding quarter of 2014.

There were 42 development wells drilled offshore in the third quarter of 2015, compared to 33 in the corresponding quarter of 2014.

There were no exploration and appraisal wells started onshore in the third quarter of 2015, compared to 2 in the corresponding quarter of 2014.

There was 1 development well drilled onshore in the third quarter of 2015, compared to 4 in the corresponding quarter of 2014.

**Relevant tables**

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

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# 3 OIL AND OIL PRODUCTS

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

Thousand tonnes

			2013		2013		2014		2014		2015		2015	
	2013	2014	per cent change	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter p	per cent change <sup>8</sup>	
<b>SUPPLY</b>														
Indigenous production <sup>2</sup>	40,646	39,928	-1.8	9,108	10,541	11,052	10,278	8,195	10,402	10,532	11,763r	10,441	+27.4	
Crude oil	38,456	37,474	-2.6	8,647	10,074	10,369	9,634	7,692	9,779	9,954	11,077r	9,934	+29.1	
NGLs <sup>3</sup>	2,190	2,453	+12.0	461	466	683	644	503	623	578r	686r	508	+0.9	
Imports <sup>4</sup>	59,137	53,798	-9.0	15,195	13,056	13,118	12,521	13,984	14,174	11,534r	12,383r	13,699	-2.0	
Crude oil & NGLs	52,470	48,890	-6.8	13,533	11,284	11,619	11,340	12,831	13,101	10,465r	11,245r	12,116	-5.6	
Feedstocks	6,667	4,907	-26.4	1,662	1,773	1,499	1,182	1,153	1,074	1,069	1,137	1,583	+37.3	
Exports <sup>4</sup>	33,105	30,946	-6.5	7,452	8,318	8,017	7,474	6,924	8,532	7,566r	9,384r	8,241	+19.0	
Crude Oil & NGLs	31,670	29,887	-5.6	7,028	8,065	7,796	7,192	6,651	8,248	7,072r	8,892r	7,612	+14.4	
Feedstocks	1,436	1,060	-26.2	424	253	221	282	273	284	494	493r	630	(+)	
Stock change <sup>5</sup>	+724	-592		+615	-224	-288	+63	+199	-566	+88r	-353r	+547		
Transfers <sup>6</sup>	-1,758	-1,361		-507	-132	-338	-296	-288	-438	-83r	-381r	-225		
<b>Total supply</b>	<b>65,644</b>	<b>60,826</b>	<b>-7.3</b>	<b>16,960</b>	<b>14,922</b>	<b>15,527</b>	<b>15,093</b>	<b>15,165</b>	<b>15,041</b>	<b>14,506r</b>	<b>14,027r</b>	<b>16,220</b>	<b>+7.0</b>	
Statistical difference <sup>7</sup>	-44	+3		+51	+20	+21	-2	-24	+8	-10r	+13r	+0		
<b>Total demand</b>	<b>65,687</b>	<b>60,823</b>	<b>-7.4</b>	<b>16,909</b>	<b>14,903</b>	<b>15,505</b>	<b>15,095</b>	<b>15,189</b>	<b>15,033</b>	<b>14,515r</b>	<b>14,014r</b>	<b>16,220</b>	<b>+6.8</b>	
<b>TRANSFORMATION</b>														
Petroleum refineries	65,687	60,823	-7.4	16,909	14,903	15,505	15,095	15,189	15,033	14,515r	14,014r	16,220	+6.8	
Petroleum refineries	65,687	60,823	-7.4	16,909	14,903	15,505	15,095	15,189	15,033	14,515r	14,014r	16,220	+6.8	

- 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.
- Includes offshore and onshore production.
- Natural Gas Liquids (NGLs) are condensate and petroleum gases derived at onshore treatment plants.
- 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.
- 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.
- Mostly direct disposals to petrochemical plants.
- Total supply minus total demand.
- Percentage change between the most recent quarter and the same quarter a year earlier; (+) represents a positive percentage change greater than 100%.

# 3 OIL AND OIL PRODUCTS

Table 3.2 Supply and use of petroleum products

Thousand tonnes

	2013	2014	per cent change	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter	2015 3rd quarter p	per cent change <sup>1</sup>
<b>SUPPLY</b>													
Indigenous production <sup>2</sup>	67,596	62,477	-7.6	17,370	15,280	15,943	15,507	15,472	15,556	15,048r	14,568r	16,603	+7.3
Imports <sup>3</sup>	28,769	29,055	+1.0	6,758	8,657	6,954	7,353	7,581	7,167	7,591r	8,195r	8,393	+10.7
Exports <sup>3</sup>	26,910	22,748	-15.5	6,718	6,157	6,353	5,796	5,212	5,387	5,026r	5,225r	6,116	+17.3
Marine bunkers	2,540	2,340	-7.9	645	591	600	563	582	595	472r	616r	642	+10.4
Stock change <sup>4</sup>	+106	+292		+63	-41	+204	+227	-324	+184	-142r	-36r	-624	
Transfers <sup>5</sup>	-463	-817		-49	-371	-238	-272	-181	-125	-522r	-253r	-258	
<b>Total supply</b>	<b>66,559</b>	<b>65,920</b>	<b>-1.0</b>	<b>16,778</b>	<b>16,776</b>	<b>15,910</b>	<b>16,456</b>	<b>16,754</b>	<b>16,800</b>	<b>16,478r</b>	<b>16,633r</b>	<b>17,356</b>	<b>+3.6</b>
Statistical difference <sup>6</sup>	-69	-180		-14	-29	-22	-10	-105	-43	+16r	-13r	-2	
<b>Total demand</b>	<b>66,628</b>	<b>66,100</b>	<b>-0.8</b>	<b>16,791</b>	<b>16,806</b>	<b>15,932</b>	<b>16,467</b>	<b>16,859</b>	<b>16,843</b>	<b>16,461r</b>	<b>16,647r</b>	<b>17,357</b>	<b>+3.0</b>
<b>TRANSFORMATION</b>													
Electricity generation	546	471	-13.8	148	131	129	113	110	120	120r	116r	130	+17.8
Heat generation	65	68	+5.6	16	16	17	17	17	17	17	17	17	-0.5
Other Transformation	111	91	-17.8	24	32	27	24	20	20	16	22	21	+4.3
<b>Energy industry use</b>													
Petroleum Refineries	3,759	3,245	-13.7	999	832	834	796	816	798	817	786r	957	+17.3
Blast Furnaces	-	-		-	-	-	-	-	-	-	-	-	
Others	619	647	+4.4	155	155	162	162	162	162	162	162	155	-4.2
<b>FINAL CONSUMPTION</b>													
Iron & steel	4	7	+80.3	1	1	1	2	2	2	2	2	4	(+)
Other industries	4,013	4,026	+0.3	963	1,057	1,011	984	966	1,065	1,100r	798r	874	-9.6
Transport	47,222	47,648	+0.9	12,173	12,035	11,177	11,988	12,454	12,030	11,275r	12,229r	12,718	+2.1
Domestic	2,580	2,299	-10.9	301	770	764	403	411	721	851r	445r	386	-6.0
Other final users	1,365	1,379	+1.0	342	337	291	333	393	363	389r	385r	414	+5.3
Non energy use	6,344	6,220	-2.0	1,671	1,441	1,518	1,647	1,508	1,546	1,712r	1,685r	1,681	+11.4

1. Percentage change between the most recent quarter and the same quarter a year earlier; (+) represents a positive percentage change greater than 100%.
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

	2013										2014									
	Total Petroleum Products	Motor spirit	DERV <sup>3</sup>	Gas oil <sup>1</sup>	Aviation turbine fuel	Fuel oils	Petroleum gases <sup>2</sup>	Burning oil	Other products <sup>3</sup>		Total Petroleum Products	Motor spirit	DERV <sup>3</sup>	Gas oil <sup>1</sup>	Aviation turbine fuel	Fuel oils	Petroleum gases <sup>2</sup>	Burning oil	Other products <sup>3</sup>	
<b>SUPPLY</b>																				
Indigenous production <sup>4</sup>	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 <sup>5</sup>	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 <sup>5</sup>	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 <sup>6</sup>	+106	-356	+46	+91	-20	+93	+11	+52	188		+292	+113	-61	+24	+123	+107	-30	-15	31	
Transfers <sup>7</sup>	-463	+1,606	-253	+250	-519	-401	+23	+447	-1,617		-817	+1,610	-509	+489	-642	-616	+23	+621	-1,793	
<b>Total supply</b>	<b>66,559</b>	<b>12,575</b>	<b>21,896</b>	<b>5,185</b>	<b>11,238</b>	<b>916</b>	<b>5,930</b>	<b>3,501</b>	<b>5,318</b>		<b>65,920</b>	<b>12,232</b>	<b>22,674</b>	<b>5,241</b>	<b>11,201</b>	<b>696</b>	<b>5,669</b>	<b>3,154</b>	<b>5,052</b>	
Statistical difference <sup>8</sup>	-69	1	-30	11	-4	5	3	-6	-51		-180	-94	-1	-0	-19	-32	-15	-26	5	
<b>Total demand</b>	<b>66,628</b>	<b>12,574</b>	<b>21,926</b>	<b>5,174</b>	<b>11,242</b>	<b>911</b>	<b>5,926</b>	<b>3,507</b>	<b>5,369</b>		<b>66,100</b>	<b>12,326</b>	<b>22,675</b>	<b>5,241</b>	<b>11,220</b>	<b>728</b>	<b>5,684</b>	<b>3,179</b>	<b>5,046</b>	
<b>TRANSFORMATION</b>	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	
<b>FINAL CONSUMPTION</b>	<b>61,528</b>	<b>12,574</b>	<b>21,926</b>	<b>4,461</b>	<b>11,242</b>	<b>330</b>	<b>3,585</b>	<b>3,507</b>	<b>3,903</b>		<b>61,578</b>	<b>12,326</b>	<b>22,675</b>	<b>4,480</b>	<b>11,220</b>	<b>355</b>	<b>3,552</b>	<b>3,179</b>	<b>3,791</b>	
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	-	-	
<b>Non energy use</b>	<b>6,344</b>	<b>-</b>	<b>-</b>	<b>17</b>	<b>-</b>	<b>-</b>	<b>2,885</b>	<b>-</b>	<b>3,442</b>		<b>6,220</b>	<b>-</b>	<b>-</b>	<b>17</b>	<b>-</b>	<b>-</b>	<b>2,793</b>	<b>-</b>	<b>3,410</b>	

Thousand tonnes

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

# 3 OIL AND OIL PRODUCTS

Table 3.4 Supply and use of petroleum products - latest quarter

Thousand tonnes

	2014 3rd quarter										2015 3rd quarter p									
	Total Petroleum Products	Motor spirit	DERV <sup>p</sup>	Gas oil <sup>1</sup>	Aviation turbine fuel	Fuel oils	Petroleum gases <sup>2</sup>	Burning oil	Other products <sup>3</sup>		Total Petroleum Products	Motor spirit	DERV <sup>p</sup>	Gas oil <sup>1</sup>	Aviation turbine fuel	Fuel oils	Petroleum gases <sup>2</sup>	Burning oil	Other products <sup>3</sup>	
<b>SUPPLY</b>																				
Indigenous Production <sup>4</sup>	15,472	3,725	3,548	2,109	1,336	1,177	1,484	357	1,735	16,603	4,343	3,634	1,925	1,456	1,241	1,729	406	1,869		
Imports <sup>5</sup>	7,581	782	2,797	479	2,516	278	44	100	584	8,393	1,104	3,061	505	2,461	317	146	137	661		
Exports <sup>5</sup>	5,212	1,809	476	844	319	835	213	26	689	6,116	2,743	530	679	368	923	212	48	614		
Marine bunkers	582	-	-	338	-	244	-	-	-	642	-	-	432	-	210	-	-	-		
Stock change <sup>6</sup>	-324	-63	-32	-43	-150	-62	+2	+5	+19	-624	-109	-118	-2	-187	+14	-110	-28	-85		
Transfers <sup>7</sup>	-181	+400	-136	+123	-107	-144	+7	+99	-423	-258	+477	-71	+82	-35	-256	-	+28	-483		
<b>Total supply</b>	<b>16,754</b>	<b>3,036</b>	<b>5,702</b>	<b>1,485</b>	<b>3,275</b>	<b>169</b>	<b>1,326</b>	<b>535</b>	<b>1,226</b>	<b>17,356</b>	<b>3,072</b>	<b>5,977</b>	<b>1,398</b>	<b>3,327</b>	<b>184</b>	<b>1,554</b>	<b>495</b>	<b>1,348</b>		
Statistical difference <sup>8</sup>	-105	-67	+1	-0	-5	-0	+11	-1	-43	-2	-0	-	-	-2	-10	+9	-3	+5		
<b>Total demand</b>	<b>16,859</b>	<b>3,103</b>	<b>5,701</b>	<b>1,485</b>	<b>3,280</b>	<b>169</b>	<b>1,315</b>	<b>536</b>	<b>1,269</b>	<b>17,357</b>	<b>3,072</b>	<b>5,976</b>	<b>1,398</b>	<b>3,330</b>	<b>194</b>	<b>1,545</b>	<b>499</b>	<b>1,344</b>		
<b>TRANSFORMATION</b>	147	-	-	26	-	45	56	-	20	167	-	-	24	-	50	56	-	37		
Electricity generation	110	-	-	24	-	32	54	-	-	130	-	-	23	-	37	54	-	-		
Heat generation	17	-	-	1	-	13	3	-	-	17	-	-	1	-	13	3	-	-		
Petroleum refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Coke manufacture	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Blast furnaces	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Patent fuel manufacture	20	-	-	-	-	-	-	-	20	21	-	-	-	-	-	-	-	21		
Energy industry use	978	-	-	162	-	33	504	-	279	1,112	-	-	155	-	68	599	-	290		
<b>FINAL CONSUMPTION</b>	<b>15,734</b>	<b>3,103</b>	<b>5,701</b>	<b>1,298</b>	<b>3,280</b>	<b>91</b>	<b>754</b>	<b>536</b>	<b>970</b>	<b>16,078</b>	<b>3,072</b>	<b>5,976</b>	<b>1,219</b>	<b>3,330</b>	<b>75</b>	<b>890</b>	<b>499</b>	<b>1,017</b>		
Iron & steel	2	-	-	-	-	1	-	-	-	4	-	-	-	-	4	-	-	-		
Other industries	966	-	-	559	-	55	76	214	61	874	-	-	524	-	51	74	180	45		
Transport	12,454	3,103	5,701	327	3,280	16	22	-	4	12,718	3,072	5,976	308	3,330	8	20	-	4		
Domestic	411	-	-	48	-	-	42	322	-	386	-	-	45	-	-	23	319	-		
Other final users	393	-	-	359	-	19	16	-	-	414	-	-	337	-	12	65	-	-		
Non energy use	1,508	-	-	5	-	-	598	-	905	1,681	-	-	5	-	-	707	-	969		

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<sup>1</sup>

Thousand tonnes

			per cent change	2013	2013	2014	2014	2014	2014	2015	2015	2015	per cent change <sup>2</sup>
	2013	2014		3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	
<b>MOTOR SPIRIT</b>													
of which, Hydrocarbon <sup>3</sup>	12,574	12,326	-2.0%	3,178	3,145	2,974	3,163	3,103	3,086	2,893	3,076	3,072	-1.0%
of which, Bio-ethanol <sup>4</sup>	650	645	-0.9%	178	160	152	164	168	160	150	161	163	-3.3%
<b>Total Motor Spirit including Bio-ethanol</b>	<b>13,224</b>	<b>12,971</b>	<b>-1.9%</b>	<b>3,355</b>	<b>3,305</b>	<b>3,126</b>	<b>3,327</b>	<b>3,271</b>	<b>3,247</b>	<b>3,043</b>	<b>3,237</b>	<b>3,235</b>	<b>-1.1%</b>
of which, sold through Supermarkets <sup>5</sup>	5,974	5,755	-3.7%	1,539	1,476	1,373	1,471	1,448	1,464	1,418	1,467	1,435	-0.9%
of which, sold through Refiners, and other traders <sup>6</sup>	7,250	7,216	-0.5%	1,816	1,829	1,753	1,856	1,823	1,783	1,625	1,770	1,800	-1.3%
of which, sold via commercial sales <sup>7</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>DIESEL ROAD FUEL</b>													
Hydrocarbon <sup>8</sup>	21,926	22,675	3.4%	5,518	5,706	5,341	5,674	5,701	5,960	5,575	5,998	5,976	4.8%
Bio-diesel <sup>9</sup>	682	850	24.7%	197	201	174	230	243	204	111	135	158	-35.2%
<b>Total Diesel Road Fuel including Bio-diesel</b>	<b>22,607</b>	<b>23,525</b>	<b>4.1%</b>	<b>5,715</b>	<b>5,907</b>	<b>5,514</b>	<b>5,903</b>	<b>5,944</b>	<b>6,164</b>	<b>5,687</b>	<b>6,133</b>	<b>6,134</b>	<b>3.2%</b>
of which, sold through Supermarkets <sup>10</sup>	6,217	6,394	2.8%	1,607	1,562	1,508	1,602	1,625	1,658	1,605	1,648	1,706	5.0%
of which, sold through Refiners, and other traders <sup>11</sup>	8,519	8,946	5.0%	2,118	2,289	2,087	2,247	2,252	2,360	2,103	2,351	2,293	1.8%
of which, sold via commercial sales <sup>12</sup>	7,871	8,185	4.0%	1,989	2,056	1,919	2,054	2,067	2,146	1,979	2,134	2,135	3.3%
<b>OTHER GAS DIESEL OIL<sup>13</sup></b>	<b>5,174</b>	<b>5,241</b>	<b>1.3%</b>	<b>1,313</b>	<b>1,321</b>	<b>1,183</b>	<b>1,288</b>	<b>1,485</b>	<b>1,286</b>	<b>1,115r</b>	<b>1,260r</b>	<b>1,398</b>	<b>-5.9%</b>
<b>AVIATION FUELS</b>													
<b>Total sales</b>	<b>11,257</b>	<b>11,238</b>	<b>-0.2%</b>	<b>3,119</b>	<b>2,817</b>	<b>2,510</b>	<b>2,788</b>	<b>3,284</b>	<b>2,655</b>	<b>2,556r</b>	<b>2,823r</b>	<b>3,333</b>	<b>1.5%</b>
Aviation spirit	16	18	15.7%	5	3	7	5	4	3	2	4	4	-5.9%
Aviation turbine fuel	11,242	11,220	-0.2%	3,113	2,814	2,504	2,784	3,280	2,652	2,554r	2,820r	3,330	1.5%
<b>FUEL OIL</b>													
<b>Total Sales</b>	<b>569</b>	<b>554</b>	<b>-2.7%</b>	<b>133</b>	<b>120</b>	<b>150</b>	<b>136</b>	<b>136</b>	<b>132</b>	<b>159r</b>	<b>107r</b>	<b>125</b>	<b>-8.1%</b>
Light	219	175	-20.3%	65	19	29	74	68	3	50r	34r	40	-41.9%
Medium	139	126	-10.0%	31	32	32	31	31	32	36r	24r	28	-7.9%
Heavy	209	255	21.5%	37	69	89	32	37	97	73r	49r	58	55.9%

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<sup>1</sup> at end of period

		Crude oil and refinery process oil					Petroleum products						Total stocks			
		Refineries <sup>2</sup>	Terminals <sup>3</sup>	Offshore <sup>4</sup>	Net bilaterals of Crude and Process oil <sup>5</sup>	Total <sup>5</sup>	Motor Spirit <sup>6</sup>	Kerosene <sup>7</sup>	Gas/Diesel Oil <sup>8</sup>	Fuel oils	Other products <sup>9</sup>	Net bilaterals of products <sup>5</sup>	Total products	Total Net bilaterals <sup>5</sup>	Total Stocks in UK <sup>10</sup>	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	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	3,793	992r	485	1,871	7,141r	1,304	1,136	1,553	292	640	2,051	6,976	3,922	10,195r	14,116r
	2nd quarter	3,590	1,515r	487r	1,862	7,454r	996	1,211	1,706	352	634	2,315	7,214	4,177	10,490r	14,668r
	3rd quarter p	3,098	1,583	396	1,793	6,869	1,087	1,426	1,825	338	716	2,703	8,096	4,496	10,469	14,965
<i>Per cent change<sup>11</sup></i>		-4.6	+20.9	-22.6	-3.8	-0.9	+19.0	+13.2	+8.5	+2.5	+4.6	+22.1	+14.3	+10.2	+5.3	+6.8

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

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

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

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

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

6. Motor spirit and aviation spirit.

7. Aviation turbine fuel and burning oil.

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

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

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

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

# 3 OIL AND OIL PRODUCTS

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

		<i>Number of wells started</i>					
		Offshore				Onshore	
		Exploration &		Exploration &			
		Exploration	Appraisal	Appraisal	Development <sup>2</sup>	Appraisal	Development <sup>2</sup>
	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
	<i>Per cent change</i>	-6.7	-37.9	-27.3	+5.0	+14.3	+37.5
2013	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	7	9	28	1	3
	2nd quarter	5	2	7	37	-	-
	3rd quarter p	6	2	8	42	-	1
	<i>Per cent change<sup>3</sup></i>	+100.0	-60.0	-	+27.3	-100.0	-75.0

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

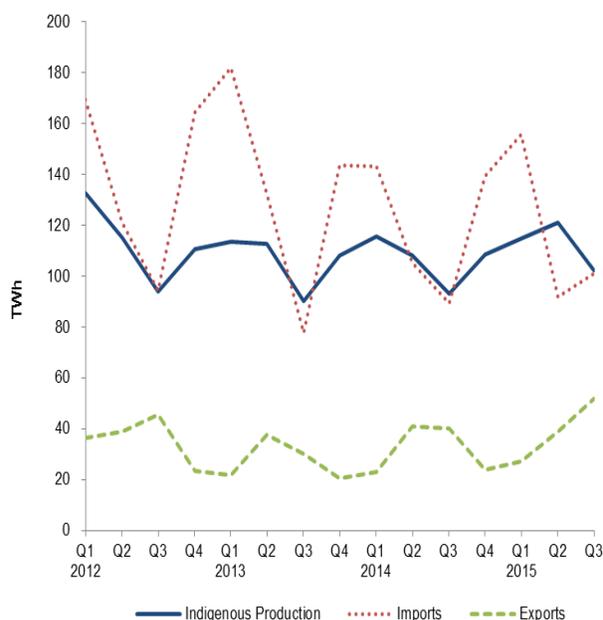
### Key results show:

Gross UK production of natural gas in Q3 2015 was 10.0 per cent higher than in the same period a year ago, continuing the trend of strong growth this year, due partially to the opening of new fields. **(Chart 4.1).**

Imports of gas increased by 12.8 per cent in Q3 2015 compared with the same quarter in 2014, despite a decrease in shipped imports of LNG. Exports also increased, up 29 per cent on the same period as last year. The latest quarter marked the largest volume of gas exports to Belgium since 2011. **(Chart 4.4).** The strong supply to the UK also saw a large increase in gas stocks, with a build of nearly 16 TWh, more than double that seen last year.

Overall UK gas demand decreased marginally (by 0.8 per cent) to around 135 TWh. Energy industry use is up 13.5 per cent, reflecting continued strong growth in oil and gas production. Gas used for electricity generation is down 11.7 per cent, as a result of power station outages during August, lower coal prices and an increased proportion of renewables used in generation. Final consumption of gas is up 8.2 per cent. Within this, consumption by domestic and other final users is up 15.6 and 7.0 per cent respectively, partly as a result of cooler temperatures, particularly in September. **(Chart 4.6)**

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



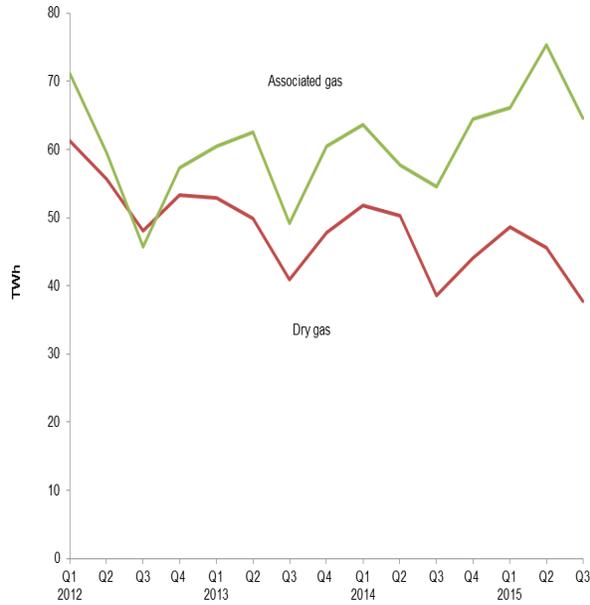
Total indigenous UK production of natural gas in Q3 2015 was 10.0 per cent higher than in the same quarter a year earlier, the largest increase since 2010. Whilst production last year was depressed through maintenance, the opening of the Juliet and Kew fields has contributed to stronger production this year.

In general terms, UKCS production has been in decline year on year, and UKCS production has decreased by around 7.5 per cent on average since production peaked in 2000. However, 2014 saw the first annual increase in indigenous production since 2000, with a 0.2 per cent increase year-on-year.

In Q3 2015, imports and exports of natural gas were 101 TWh and 52 TWh respectively, 12.8 and 29 per cent higher than a year ago. Overall, net imports are broadly similar to last year, down 0.1 per cent.

# Gas

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

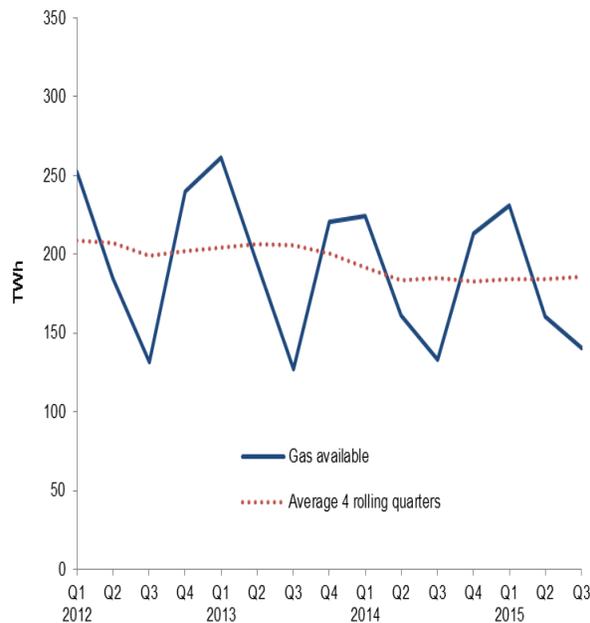


In Q3 2015 associated gas production (natural gas produced from oil fields) increased by 19 per cent from 55 TWh in Q3 2014 to 65 TWh in Q3 2015.

The main driver behind this is less planned maintenance at associated gas terminals during Q3 2015.

Compared to the same quarter a year ago dry gas production decreased by 2.2 per cent to 38 TWh.

### Chart 4.3 Gas availability

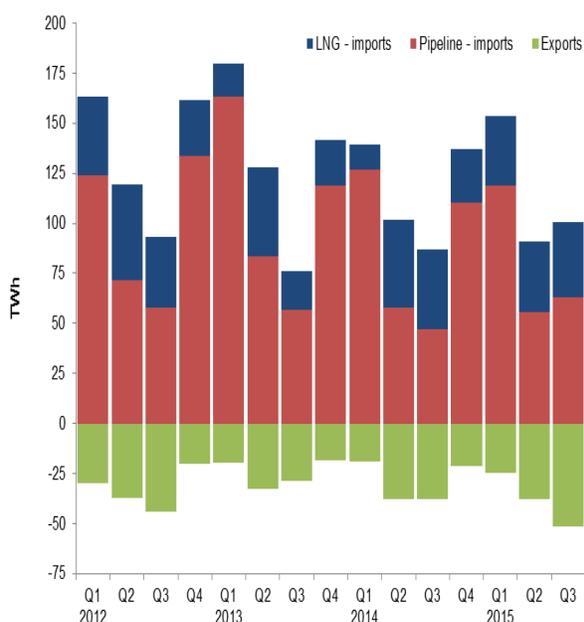


Gas available at terminals is equal to the gross gas production minus producers own use plus net imports.

Gas availability is seasonal, mirroring gas demand, and peaks during Q1 and Q4 each year. Gas availability in Q3 2015 increased by 5.3 per cent compared to Q3 2014 to 140 TWh.

Within the latest quarter net imports comprised 35 per cent of gas available at terminals. For the same period last year this was 37 per cent.

Chart 4.4 Import and exports



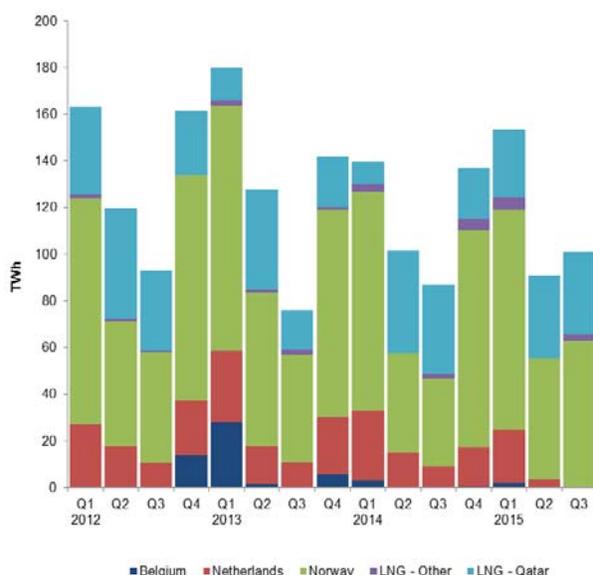
Total nominated imports in Q3 2015 increased by 12.8 per cent compared to the same quarter a year ago.

The reason for the increase between Q3 2014 and Q3 2015 was an increase in pipeline imports which increased by 34 per cent to 63 TWh.

Physical LNG imports were lower than the same period last year, both in absolute volume and proportion of total imports and accounted for 38 per cent of total imports in Q3 2015 compared with 46 per cent a year ago.

Total exports also increased by 29 per cent in Q3 2015. Within this there are notable changes in volumes exported to Belgium which are up 58 per cent on last year and as a result these volumes accounted for just under two thirds of total exports. Quarter 3 marked the largest volume of gas exports to Belgium since 2011 and the year to date figure is 46 per cent higher than 2014.

Chart 4.5 Imports by origin

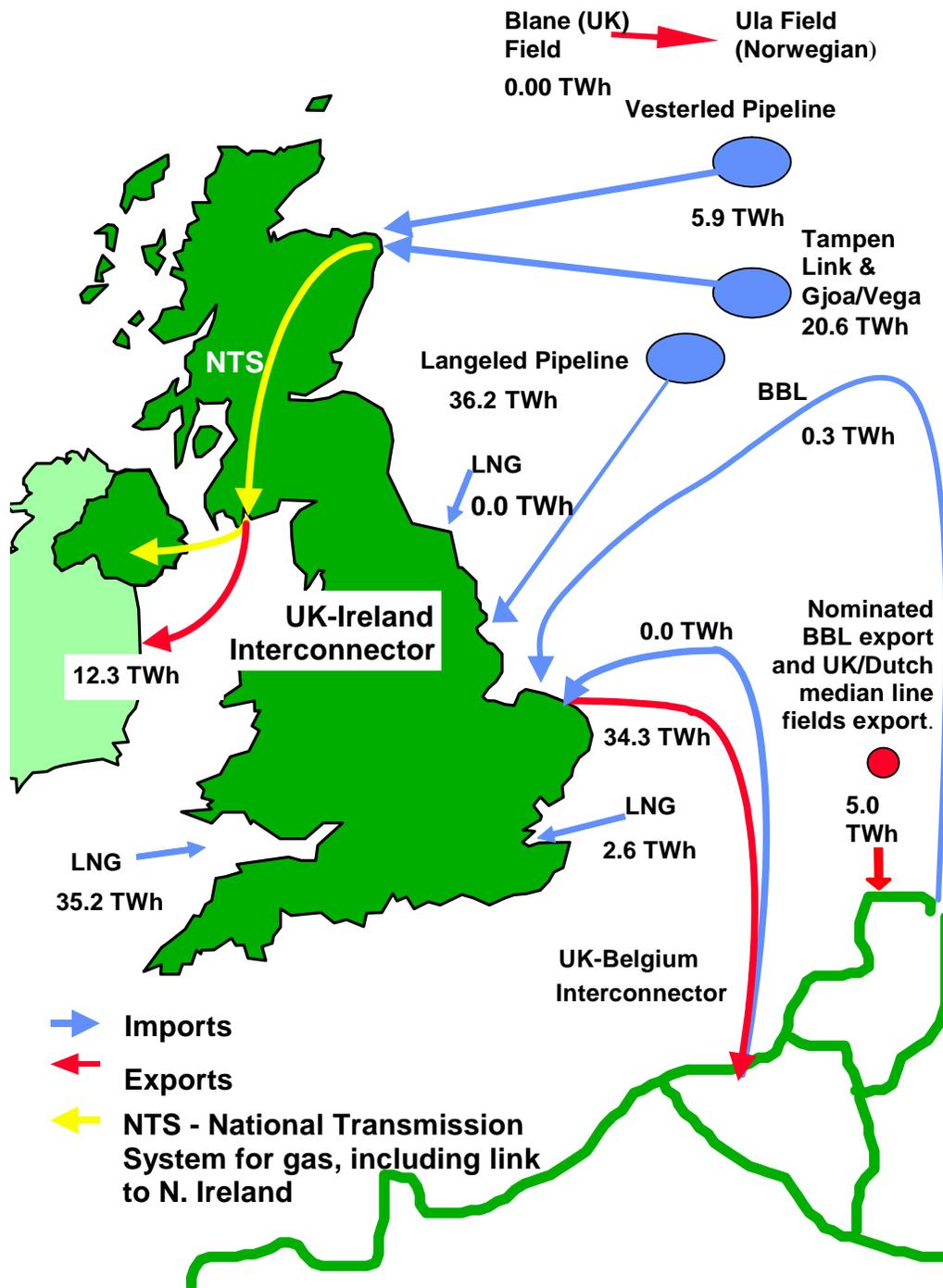


The majority of LNG imports are sourced from Qatar, around 93 per cent in Q3 2015. There was a small decrease in the quantity of LNG imports from Qatar in Q3 2015, 8.2 per cent lower than the same quarter in 2014.

Pipeline imports from the Netherlands were 97 per cent lower in the most recent quarter compared with the previous year, falling from 9.1 TWh in Q3 2014 to 0.3 TWh in Q3 2015. Imports from Netherlands made up under 0.3 per cent of total imports this quarter, the lowest share since the BBL pipeline commenced supply in 2006. In contrast, imports from Norway were 66 per cent higher than a year ago.

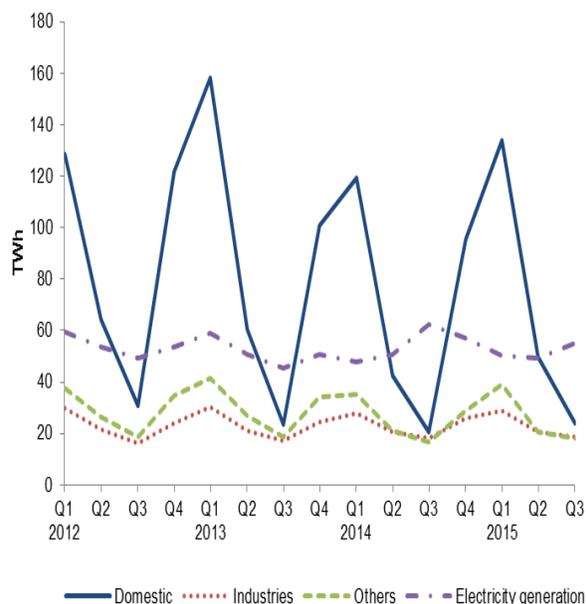
A complete country breakdown for physical pipeline and LNG imports is provided in Energy Trends table 4.4 - *Supplementary information on the origin of UK gas imports*.

Map: UK imports and exports of gas Q3 2015<sup>1</sup>



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 demand for natural gas in Q3 2015 was 0.8 per cent lower than in the same period a year ago. Within this:

Energy industry use is up 13.5 per cent, reflecting continued strong growth in gas production.

Gas used for electricity generation is down 11.7 per cent, as a result of power station outages during August, lower coal prices and an increased proportion of renewables used in generation.

Final consumption of gas is up 8.2 per cent. Within this, consumption by domestic and other final users is up 15.6 and 7.0 per cent respectively, partly as a result of cooler temperatures, particularly in September.

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

**Relevant table**

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

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# 4 GAS

## Table 4.1. Natural gas supply and consumption

	GWh												
			per cent	2013	2013	2014	2014	2014	2014	2015	2015	2015	per cent
	2013	2014	change	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	change <sup>1</sup>
				quarter	quarter	quarter p							
<b>SUPPLY</b>													
Indigenous production	424,153	424,897	+0.2	90,047	108,142	115,395	107,923	93,050	108,529	114,776r	120,931r	102,315	+10.0
Imports	535,105	477,163	-10.8	77,546	143,520	143,212	105,078	89,405	139,468	155,644	91,781	100,853	+12.8
of which LNG	102,620	123,912	+20.7	19,428	22,771	12,911	43,973	40,151	26,877	34,556	35,518	37,825	-5.8
Exports	109,664	127,907	+16.6	30,106	20,443	22,862	41,063	40,102	23,880	27,059	38,741	51,581	+28.6
Stock change <sup>2</sup>	+621	-2,383		-14,890	+327	+16,992	-18,072	-7,057	+5,754	+34,500	-11,042	-15,919	
Transfers	-61	-140		-14	-5	-9	-25	-40	-66	-92	-96r	-99	
<b>Total supply</b>	<b>850,155</b>	<b>771,630</b>	<b>-9.2</b>	<b>122,583</b>	<b>231,541</b>	<b>252,728</b>	<b>153,841</b>	<b>135,256</b>	<b>229,806</b>	<b>277,768r</b>	<b>162,832r</b>	<b>135,569</b>	<b>+0.2</b>
Statistical difference	1,888	-867		347	420	-270	-716	-683	803	979r	142r	661	
<b>Total demand</b>	<b>848,267</b>	<b>772,497</b>	<b>-8.9</b>	<b>122,236</b>	<b>231,121</b>	<b>252,998</b>	<b>154,557</b>	<b>135,939</b>	<b>229,003</b>	<b>276,789r</b>	<b>162,690r</b>	<b>134,908</b>	<b>-0.8</b>
<b>TRANSFORMATION</b>													
Electricity generation	205,831	217,944	+5.9	45,222	50,715	47,866	50,742	62,230	57,106	50,256	49,303r	54,921	-11.7
Heat generation <sup>3</sup>	24,727	26,028	+5.3	4,597	6,530	7,967	5,725	5,093	7,243	7,967	5,725	5,093	-
Energy industry use	53,775	49,281	-8.4	11,853	12,783	13,167	12,316	10,895	12,903	14,843r	15,113r	12,364	+13.5
Losses	7,473	6,856	-8.3	1,614	1,828	1,959	1,573	1,656	1,668	1,650r	1,172r	1,881	+13.6
<b>FINAL CONSUMPTION</b>													
Iron & steel	5,338	5,448	+2.1	1,223	1,335	1,455	1,350	1,303	1,339	1,578	1,524r	1,317	+1.0
Other industries	87,652	87,032	-0.7	15,878	23,234	26,431	19,064	17,087	24,450	27,273	19,199r	17,329	+1.4
Domestic	342,501	278,101	-18.8	23,367	100,641	119,112	42,542	20,825	95,621	134,108	49,843r	24,071	+15.6
Other final users	115,372	96,377	-16.5	17,083	32,656	33,683	19,886	15,492	27,316	37,757	19,454r	16,575	+7.0
Non energy use <sup>3</sup>	5,598	5,430	-3.0	1,399	1,399	1,357	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 change + = stock draw, - = stock build.

3. For heat generation and 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 Q3, total electricity generated fell by 0.5 per cent, from 76.4 TWh a year earlier to 75.9 TWh. **(Chart 5.1).**

Renewables' share of electricity generation was 23.5 per cent in 2015 Q3, up 6 percentage points on the share in 2014 Q3. **(Chart 5.2).**

Coal's share of generation decreased from 21.0 per cent to 17.1 per cent, whilst gas's share of generation decreased from 38.2 per cent in the third quarter of 2014 to 34.9 per cent in the third quarter of 2015. **(Chart 5.2).**

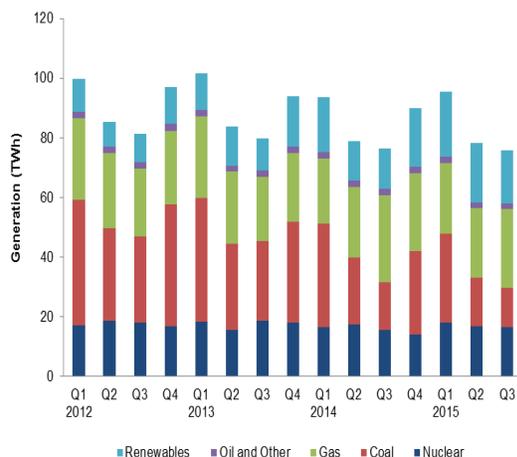
Nuclear's share of generation rose from 20.5 per cent in the third quarter of 2014 to 21.8 per cent in the third quarter of 2015. **(Chart 5.2).**

Low carbon electricity's share of generation increased from 38.1 per cent to 45.3 per cent, due to increased generation from renewables and increased nuclear availability. **(Chart 5.3).**

The UK remains a net importer with 7.2 per cent (a record high) of electricity supplied from net imports in the third quarter of 2015 **(Chart 5.4).**

Final consumption of electricity during the third quarter of 2015, at 70.7 TWh, was 1.2 per cent higher than in the same period last year but a fall in losses left overall demand broadly unchanged. Domestic sales remained unchanged when compared to the same quarter in 2014. **(Chart 5.5).**

**Chart 5.1 Electricity generated by fuel type**



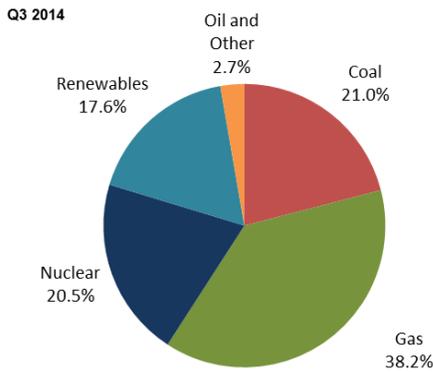
Despite a 2.6 per cent fall in Major Power Producers (MPPs) generation in the third quarter of 2015, overall generation only fell by 0.5 per cent. This was due to a 14.0 per cent increase in generation from other generators, as a result of an increase in wind and solar capacity and a high level of rainfall.

Coal fired generation fell by 18.8 per cent from 16.0 TWh in 2014 Q3 to 13.0 TWh in 2015 Q3, due to 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 Q3, gas fired generation fell by 9.1 per cent from 29.2 TWh to 26.5 TWh. Nuclear generation rose by 5.8 per cent from 15.7 TWh in 2014 Q3 to 16.6 TWh in 2015 Q3, due to increased availability, following outages in autumn 2014.

In 2015 Q3, wind and PV generation rose by 47 per cent, from 6.7 TWh to 9.9 TWh. Wind generation was up 39 per cent compared with a year ago whilst solar generation rose by 73 per cent, due to increased capacity. Hydro generation rose 34 per cent, from 0.8 TWh to 1.0 TWh, with 18.4 per cent more rainfall than a year ago.

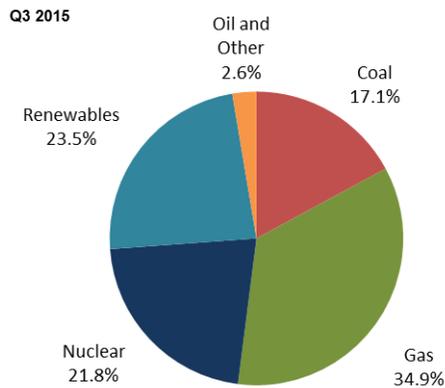
## Electricity

### Chart 5.2 Shares of electricity generation

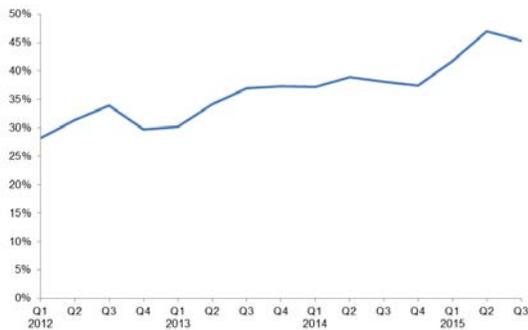


The share of generation from coal decreased from 21.0 per cent in 2014 Q3 to 17.1 per cent in 2015 Q3. Gas's share of generation decreased from 38.2 per cent in 2014 Q3 to 34.9 per cent in 2015 Q3. Nuclear's share of generation increased from 20.5 per cent in 2014 Q3 to 21.8 per cent in 2015 Q3.

The share of renewables (hydro, wind and other renewables) increased from 17.6 per cent in 2014 Q3 to 23.5 per cent in 2015 Q3. This was primarily due to an increase in wind and solar capacity, along with a rise in bioenergy generation, in part due to the conversion of a third unit at Drax from coal to biomass.

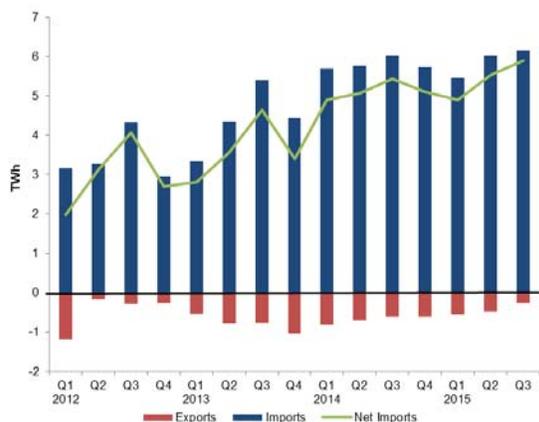


### Chart 5.3 Low carbon electricity's share of generation



Low carbon electricity's share of generation increased from 38.1 per cent in 2014 Q3 to 45.3 per cent in 2015 Q3, with the fall in coal and gas generation offset by an increase in generation from renewables and nuclear.

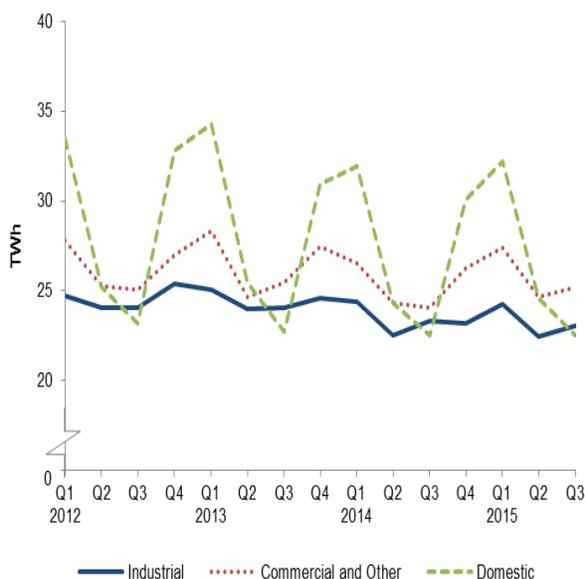
**Chart 5.4 UK trade in electricity**



In 2015 Q3, compared with the same period in 2014, imports of electricity rose by 2.0 per cent (+0.1 TWh) to a record high 6.2 TWh, whilst exports fell by 57 per cent to 0.26 TWh, the lowest Q3 level since 2007. Following the net exports of electricity in 2009 Q4 and 2010 Q1, the UK has since remained a net importer of electricity.

Net imports of electricity rose by 8.5 per cent from 5.4 TWh in 2014 Q3 to a record high 5.9 TWh in 2015 Q3, with increased imports from the Netherlands and Ireland more than offsetting a slight reduction in imports from France. Total imports from Ireland to Wales were around 5 times larger than Q3 2014 at 0.14 TWh while Wales to Ireland exports were down by 60 per cent to 0.24 TWh. At 0.26 TWh total exports were at the lowest Q3 level since 2010 (0.18 TWh). Net imports represented a record high 7.2 per cent of the electricity supplied in 2015 Q3.

**Chart 5.5 Electricity final consumption**



Final consumption of electricity rose by 1.2 per cent in 2015 Q3, from 69.9 TWh in 2014 Q3, to 70.7 TWh.

Domestic use remained unchanged from Q3 2014 at 22.5 TWh.

Industrial use of electricity, including iron and steel, fell by 1.2 per cent from 23.3 TWh to 23.0 TWh, while consumption by commercial and other users<sup>1</sup> increased by 4.7 per cent, from 24.1 TWh to 25.2 TWh.

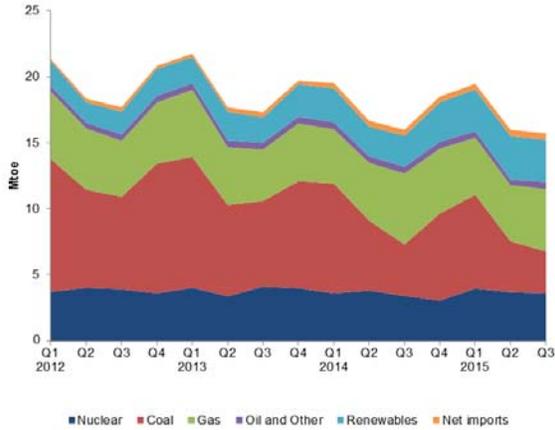
In 2015 Q3, temperatures were on average 1.1 degrees lower than in 2014 Q3<sup>2</sup>.

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

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

Electricity

**Chart 5.6 Fuel used for electricity Generation**

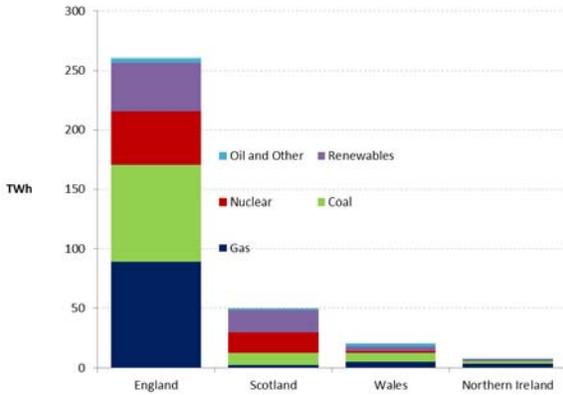


Fuel used by generators fell 1.7 per cent, from 16.0 mtoe in 2014 Q3 to 15.7 mtoe in 2015 Q3<sup>3</sup>.

In 2015 Q3, gas use was 11.7 per cent lower than in 2014. Coal use during the quarter was 18.9 per cent lower than a year earlier, while nuclear sources rose by 5.8 per cent.

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

**Chart 5.7 Generation by fuel in 2014 for England, Scotland, Wales and Northern Ireland**



In 2014, England had a share of 77.6 per cent of electricity generation in the UK with 260.9 TWh. Of England's generation 34.3 per cent was from gas and 31.1 per cent was from coal.

Scotland had a share of 14.3 per cent of electricity generation in the UK with 49.9 TWh. Of Scotland's generation 33.3 per cent was from nuclear, 38.0 per cent from renewables, and 20.3 per cent was from coal.

Wales had a share of 6.0 per cent of electricity generation in the UK with 20.9 TWh. Of Wales's generation 24.1 per cent was from gas, with 35.7 per cent from coal.

Northern Ireland had a share of 2.2 per cent of electricity generation in the UK with 7.2 TWh. Of Northern Ireland's generation, 49.1 per cent came from gas and 28.3 per cent came from coal.

Of electricity generated in the UK, 19.1 per cent came from renewables in 2014. The shares of electricity generated by renewables for each country are: Scotland 38.0 per cent, Northern Ireland 22.2 per cent, England 15.8 per cent and Wales 16.3 per cent.

Data from special feature article "Electricity generation and supply figures for Scotland, Wales, Northern Ireland and England, 2010 to 2014" (page 49).

**Relevant tables**

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

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# 5 ELECTRICITY

Table 5.1. Fuel used in electricity generation and electricity supplied

	2013	2014	per cent change	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter	2015 3rd quarter	per cent change <sup>1</sup>
<b>FUEL USED IN GENERATION</b>													
<b>All generating companies</b>													
	Million tonnes of oil equivalent												
Coal	31.43	24.11	-23.3	6.50	8.12	8.32	5.30	3.91	6.59	7.11	3.86	3.17	-18.9
Oil	0.59	0.53	-10.6	0.17	0.16	0.14	0.15	0.12	0.12	0.14	0.12	0.17	+34.8
Gas	17.74	18.78	+5.9	3.90	4.37	4.13	4.37	5.36	4.92	4.33	4.25	4.73	-11.7
Nuclear	15.44	13.85	-10.3	4.09	3.97	3.59	3.80	3.40	3.05	3.95	3.68	3.60	+5.8
Hydro	0.40	0.51	+25.2	0.06	0.15	0.19	0.10	0.07	0.15	0.17	0.12	0.09	+33.3
Wind and Solar <sup>2</sup>	2.62	3.10	+18.5	0.48	0.92	0.99	0.57	0.58	0.97	1.10	0.99r	0.85	+47.2
Bioenergy <sup>3</sup>	5.54	6.53	+17.9	1.37	1.37	1.38	1.59	1.70	1.87	1.90r	2.18r	2.26	+32.8
Other fuels	1.43	1.52	+6.3	0.35	0.35	0.38	0.35	0.39	0.40	0.34	0.30	0.35	-10.1
Net imports	1.24	1.76	+42.1	0.40	0.29	0.42	0.44	0.47	0.44	0.42	0.48r	0.51	+8.5
<b>Total all generating companies</b>	<b>76.45</b>	<b>70.70</b>	<b>-7.5</b>	<b>17.32</b>	<b>19.71</b>	<b>19.54</b>	<b>16.66</b>	<b>15.99</b>	<b>18.51</b>	<b>19.46r</b>	<b>15.98r</b>	<b>15.72</b>	<b>-1.7</b>
<b>ELECTRICITY GENERATED</b>													
<b>All generating companies</b>													
	TWh												
Coal	130.77	100.71	-23.0	26.69	33.58	34.67	22.21	16.01	27.81	29.69r	16.12r	13.00	-18.8
Oil	2.09	1.88	-10.0	0.60	0.49	0.53	0.50	0.43	0.42	0.52	0.37	0.47	+8.5
Gas	96.03	100.93	+5.1	21.38	23.16	21.76	23.78	29.16	26.22	23.67r	23.38r	26.51	-9.1
Nuclear	70.61	63.75	-9.7	18.69	18.16	16.53	17.50	15.66	14.06	18.17	16.92	16.56	+5.8
Hydro (natural flow)	4.70	5.88	+25.2	0.74	1.74	2.24	1.11	0.78	1.75	2.02	1.44r	1.04	+33.8
Wind and Solar <sup>2</sup>	30.42	36.07	+18.6	5.54	10.65	11.55	6.58	6.70	11.24	12.78r	11.54r	9.87	+47.2
- of which, Offshore <sup>6</sup>	11.47	13.40	+16.8	1.98	4.03	4.38	2.09	2.24	4.69	4.66r	3.57r	3.40	+51.7
Bioenergy <sup>3</sup>	18.16	22.70	+25.0	4.46	4.44	4.59	5.48	5.94	6.68	6.87r	6.87r	6.95	+16.9
Pumped Storage	2.90	2.88	-0.7	0.71	0.76	0.79	0.67	0.63	0.79	0.64	0.59	0.56	-11.0
Other fuels	3.49	4.13	+18.1	0.87	0.86	1.04	1.00	1.03	1.06	1.05	1.01	0.98	-4.8
<b>Total all generating companies</b>	<b>359.17</b>	<b>338.93</b>	<b>-5.6</b>	<b>79.67</b>	<b>93.85</b>	<b>93.71</b>	<b>78.84</b>	<b>76.35</b>	<b>90.03</b>	<b>95.41r</b>	<b>78.24r</b>	<b>75.94</b>	<b>-0.5</b>
<b>ELECTRICITY SUPPLIED <sup>4</sup></b>													
<b>All generating companies</b>													
	TWh												
Coal	124.06	95.53	-23.0	25.32	31.86	32.89	21.07	15.19	26.39	28.16r	15.29r	12.33	-18.8
Oil	1.89	1.71	-9.8	0.54	0.45	0.48	0.46	0.39	0.38	0.47	0.33	0.43	+8.0
Gas	94.21	99.03	+5.1	20.99	22.72	21.33	23.34	28.63	25.73	23.17r	22.95r	26.01	-9.1
Nuclear	64.13	57.90	-9.7	16.97	16.50	15.01	15.90	14.22	12.77	16.51	15.37	15.04	+5.8
Hydro	4.67	5.83	+24.9	0.74	1.72	2.21	1.10	0.77	1.74	2.01	1.43r	1.04	+33.9
Wind and Solar <sup>2</sup>	30.42	36.07	+18.6	5.54	10.65	11.55	6.58	6.70	11.24	12.78r	11.54r	9.87	+47.2
- of which, Offshore <sup>6</sup>	11.47	13.40	+16.8	1.98	4.03	4.38	2.09	2.24	4.69	4.66	3.57r	3.40	+51.7
Bioenergy <sup>3</sup>	15.73	19.61	+24.6	3.86	3.83	3.94	4.73	5.14	5.80	5.96r	5.96r	6.02	+17.0
Pumped Storage (net supply) <sup>5</sup>	-1.04	-1.01	-2.4	-0.26	-0.25	-0.26	-0.25	-0.24	-0.26	-0.25	-0.23	-0.24	+3.5
Other fuels	3.27	3.85	+17.9	0.81	0.81	0.97	0.93	0.96	0.99	0.98	0.94	0.92	-4.9
Net imports	14.43	20.51	+42.1	4.65	3.40	4.89	5.08	5.43	5.11	4.91r	5.54r	5.89	+8.5
<b>Total all generating companies</b>	<b>351.78</b>	<b>339.03</b>	<b>-3.6</b>	<b>79.17</b>	<b>91.68</b>	<b>93.01</b>	<b>78.94</b>	<b>77.21</b>	<b>89.87</b>	<b>94.70r</b>	<b>79.12r</b>	<b>77.30</b>	<b>+0.1</b>

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

# 5 ELECTRICITY

## Table 5.2 Supply and consumption of electricity

GWh

	2013	2013	Per cent change	2013	2013	2014	2014	2014	2014	2014	2015	2015	2015	Per cent change <sup>1</sup>
	2013	2014		3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	p	
<b>SUPPLY</b>														
Indigenous production	359,168	338,927	-5.6	79,670	93,848	93,705	78,843	76,350	90,028	95,405r	78,236r	75,937		-0.5
Major power producers <sup>2,3</sup>	321,821	297,939	-7.4	70,848	83,922	83,205	68,844	66,368	79,522	84,240r	66,579r	64,719		-2.5
Auto producers	34,443	38,104	+10.6	8,114	9,163	9,710	9,329	9,354	9,712	10,529r	11,068r	10,659		+14.0
Other sources <sup>4</sup>	2,904	2,883	-0.7	708	763	791	671	628	793	637	588	559		-11.0
Imports	17,533	23,230	+32.5	5,402	4,436	5,701	5,771	6,031	5,726	5,462r	6,023r	6,152		+2.0
Exports	3,103	2,720	-12.4	751	1,038	807	695	602	616	555r	484r	259		-56.9
Transfers	-	-		-	-	-	-	-	-	-	-	-		
<b>Total supply</b>	373,598	359,437	-3.8	84,321	97,246	98,599	83,919	81,780	95,139	100,312r	83,775r	81,830		+0.1
Statistical difference	-1,036	-561		-512	-326	-116	-265	-153	-27	-209r	27r	-324		
<b>Total demand</b>	374,634	359,998	-3.9	84,833	97,572	98,715	84,184	81,933	95,166	100,521r	83,748r	82,154		+0.3
<b>TRANSFORMATION</b>	-	-		-	-	-	-	-	-	-	-	-		
Energy industry use <sup>5</sup>	29,932	28,027	-6.4	7,177	7,536	7,541	6,882	6,417	7,186	7,458r	6,563r	6,353		-1.0
Losses	27,725	28,562	+3.0	5,459	7,078	8,307	6,156	5,606	8,493	9,225r	5,488r	5,052		-9.9
<b>FINAL CONSUMPTION</b>	316,977	303,409	-4.3	72,197	82,958	82,867	71,146	69,910	79,486	83,839r	71,696r	70,749		+1.2
Iron & steel	3,804	3,786	-0.5	947	940	956	945	937	949	969	919	912		-2.6
Other industries	93,865	89,587	-4.6	23,105	23,620	23,415	21,556	22,388	22,228	23,253r	21,557r	22,124		-1.2
Transport	4,268	4,259	-0.2	1,067	1,067	1,065	1,065	1,065	1,065	1,065	1,065	1,065		-
Domestic	113,445	108,881	-4.0	22,723	30,936	31,961	24,317	22,518	30,084	32,234r	24,557r	22,511		-
Other final users	101,595	96,896	-4.6	24,355	26,395	25,470	23,263	23,003	25,161	26,317r	23,599r	24,136		+4.9
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 23.5 per cent in 2015 Q3, up 5.9 percentage points on the share in 2014 Q3, due to increasing renewable capacity and generally more favourable weather conditions for renewable generation (higher wind speeds and rainfall, but lower sun hours). **(Chart 6.1)**

Renewable electricity generation was 17.8 TWh in 2015 Q3, an increase of 33 per cent on the 13.4 TWh in 2014 Q3, though 18 per cent lower than the peak quarterly generation of 2015 Q1 (21.7 TWh). **(Chart 6.2)**

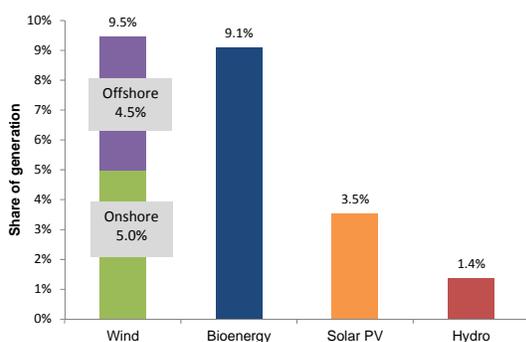
Onshore wind generation increased by 30 per cent, from 2.9 TWh in 2014 Q3 to 3.8 TWh in 2015 Q3. Offshore wind increased from 2.2 TWh to 3.4 TWh, an increase of 52 per cent. Solar PV increased by 73 per cent, from 1.6 TWh to 2.7 TWh due to increased capacity **(Chart 6.2)**

Renewable electricity capacity was 29.7 GW at the end of 2015 Q3, a 26 per cent increase (6.1 GW) on a year earlier, and a 4.0 per cent (1.1 GW) increase on the previous quarter, with high growth in solar photovoltaics and bioenergy capacity (largely plant biomass). **(Chart 6.3)**

By the end of 2015 Q3, 4.2 GW of capacity had been installed, and eligible for, the Feed in Tariff scheme, an increase of 28 per cent on a year earlier, constituting approximately 14 per cent of all renewable installed capacity. **(Chart 6.5)**

Liquid biofuels consumption fell by 21 per cent, from 485 million litres in 2014 Q3 to 382 million litres in 2015 Q3, with a 35 per cent decrease in biodiesel. In 2015 Q3, liquid biofuels represented 3.3 per cent of petrol and diesel consumed in road transport, down from 4.2 per cent a year earlier. **(Chart 6.6)**

**Chart 6.1 Renewables' share of electricity generation 2015 Q3**



Renewables' share of electricity generation increased from 17.6 per cent in 2014 Q3 to 23.5 per cent in 2015 Q3.<sup>1</sup> Compared to 2015 Q2, renewables share was 1.9 percentage points lower.

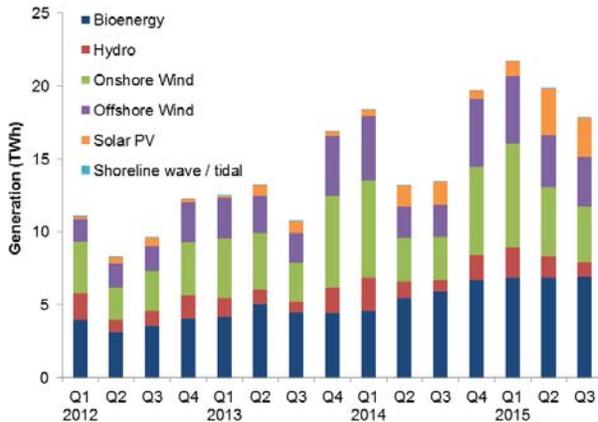
The increased share on a year earlier reflects the increase in renewables generation in addition to a slight decrease (0.5 per cent) in total electricity generation

Total electricity generated from renewables in 2015 Q3 was 17.8 TWh, an increase of 4.4 TWh (33 per cent) compared to 2014 Q3. This is 3.9 TWh (18 per cent) lower than the record of 21.7 TWh in 2015 Q1.

Overall electricity generation decreased by 0.5 per cent (0.4 TWh) from 76.4 TWh in 2014 Q3 to 75.9 TWh in 2015 Q3. This helped to increase the share of renewable generation by 0.1 per cent.

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

**Chart 6.2 Renewable electricity generation**



To note that the solar PV (and onshore wind) figures not only include installations confirmed on the 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).

Electricity generated from onshore wind increased by 0.9 TWh (30 per cent) between 2014 Q3 and 2015 Q3, from 2.9 TWh to 3.8 TWh, while generation from offshore wind increased by 52 per cent on a year earlier, from 2.2 TWh to 3.4 TWh. This is due to a combination of higher wind speeds compared to last year and also increased capacity, particularly for offshore wind.

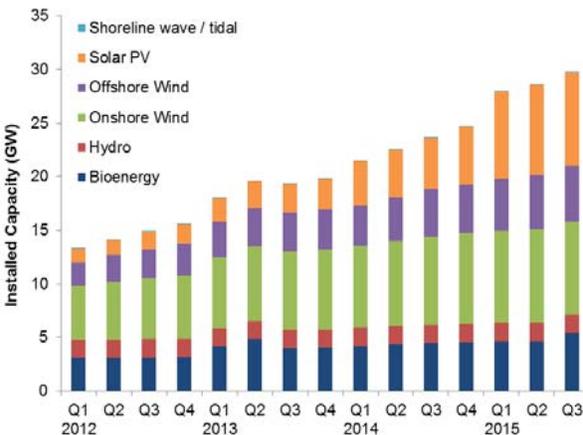
Average wind speeds in 2015 Q3 were lower than the ten year mean (7.7 knots and 8.0 knots respectively), though wind speeds for 2014 Q3 were the lowest for Q3 since 2002.<sup>2</sup>

Generation from solar PV increased by 73 per cent (1.1 TWh) compared to 2014 Q3, from 1.6 TWh to 2.7 TWh. This was due to increased capacity, which was up 81 per cent. In 2015 Q3, hydro generation rose by 34 per cent on a year earlier, from 0.8 TWh to 1.0 TWh, with rainfall (in the main hydro areas) up 18.4 per cent on a year earlier, though the average rainfall for 2014 Q3 was the lowest since 2003.

Generation from bioenergy<sup>3</sup> in 2015 Q3 increased by 16.3 per cent on a year earlier, from 5.9 TWh to, a record, 6.9 TWh. The main contributor to this was plant biomass, which increased from 3.6 TWh to 4.5 TWh, largely due to the full conversion of a third unit at Drax from coal to biomass in July 2015.

In 2015 Q3, bioenergy had a 39 per cent share of generation, with 21 per cent from onshore wind, 19 per cent from offshore wind, and 15 per cent from solar. Solar photovoltaics and offshore wind saw the largest increase in the share of renewable generation on 2014 Q3, at 3.5 and 2.4 percentage points respectively.

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



At the end of 2015 Q3, the UK's renewable electricity capacity totalled 29.7 GW, an increase of 4.0 per cent (1.1 GW) on that installed at the end of 2015 Q2, and 26 per cent (6.1 GW) on that installed a year earlier.

Of the 1.1 GW increase in capacity during 2015 Q3, more than half came from increases in plant biomass capacity due to the conversion of a third unit at Drax.

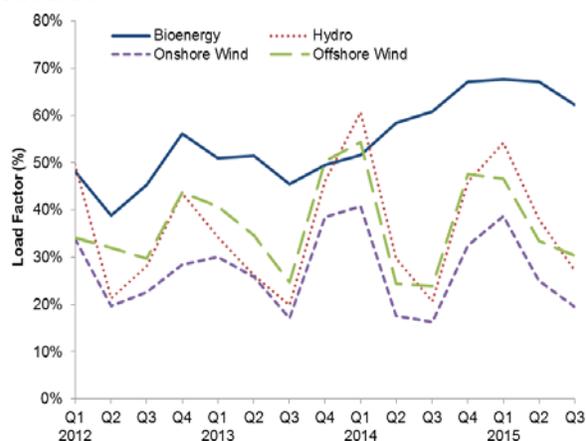
Solar photovoltaics (PV) capacity increased by 0.3 GW in 2015 Q3, with around 0.2 GW of this from Feed in Tariff eligible schemes, and 17 MW from small-scale Northern Irish schemes. At the end of 2015 Q3, solar PV, at 8.8 GW, was 29 per cent of all renewable capacity.

At the end of 2015 Q3, onshore wind and solar had the largest share of capacity (both at 29 per cent), followed by bioenergy (18 per cent) and offshore wind (17 per cent).

<sup>2</sup> Statistics on weather (temperature, wind speeds, rainfall and sun levels) can be found in tables ET 7.1 – 7.4, at: [www.gov.uk/government/publications/energy-trends-section-7-weather](http://www.gov.uk/government/publications/energy-trends-section-7-weather)

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

**Chart 6.4 Renewable electricity load factors**

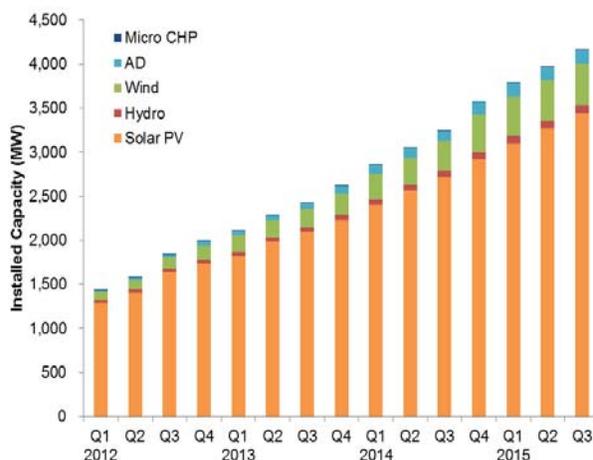


In 2015 Q3, onshore wind's load factor increased by 3.4 percentage points, from 16.2 per cent in 2014 Q3 to 19.6 per cent. Average wind speeds in 2015 Q3 were below the ten year mean, though in 2014 Q3 they were the second lowest since 2002. Offshore wind's load factor increased by 6.5 percentage points, from 23.9 per cent in 2014 Q3 to 30.4 in 2015 Q3.<sup>4</sup>

Hydro's load factor in 2015 Q3 increased by 6.6 percentage points, from 20.6 per cent in 2014 Q3 to 27.2 per cent, due to higher rainfall in July and September. Compared with 2015 Q2, hydro's load factor in 2015 Q3 was 10.7 percentage points lower due to lower rainfall in the main hydro areas.

For bioenergy, the load factor in 2015 Q3, at 62.2 per cent, was up by 1.4 percentage points on a year earlier, and down by 4.9 percentage points on 2015 Q2, with the converted power stations achieving particularly high load factors.

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



At the end of 2015 Q3, 4.2 GW of capacity was installed and eligible for the GB Feed in Tariff (FiT) scheme<sup>5</sup>. This was a 28 per cent increase on that at the end of 2014 Q3.<sup>6</sup>

In terms of number of installations, at the end of 2015 Q3, there were over 765,000 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 83 per cent of the total. The majority of PV installations are sub-4 kW retrofitted schemes, 2.1 GW in 2015 Q3.

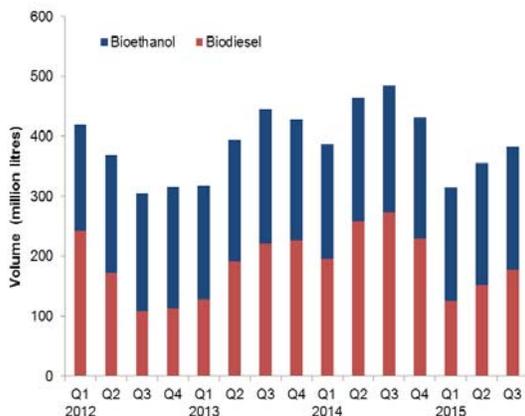
Renewable installations eligible for FiTs (all except MicroCHP) represented 14 per cent of all renewable installed capacity.

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

<sup>5</sup> 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.

<sup>6</sup> Statistics on Feed in Tariffs can be found at: [www.gov.uk/government/collections/feed-in-tariff-statistics](http://www.gov.uk/government/collections/feed-in-tariff-statistics)

**Chart 6.6 Liquid biofuels for transport consumption**



In 2015 Q3, 382 million litres of liquid biofuels were consumed in transport, a fall of 21 per cent on the total in 2014 Q3 (485 million litres). This was mostly due to a fall in biodiesel.

In 2015 Q3, biodiesel accounted for 2.4 per cent of diesel, and bioethanol 4.7 per cent of motor spirit. The combined contribution of the two fuels was 3.3 per cent, 0.9 percentage points lower than 2014 Q3's share.

Bioethanol consumption fell by 3.3 per cent, from 212 million litres in 2014 Q3 to 205 million litres in 2015 Q3. Biodiesel consumption fell by 96 million litres (35 per cent), to 177 million litres in the same period but actually increased from 2015 Q2 by 25 million litres (16 per cent).

In 2015 Q3, bioethanol contributed the largest share of biofuels consumption, for the third successive quarter (following five successive quarters of biodiesel having the majority share), with 54 per cent. Biodiesel represented 46 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 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter	2015 3rd quarter p	per cent change <sup>11</sup>
<b>Cumulative Installed Capacity <sup>1</sup></b>													
Onshore Wind	7,519	8,486	+12.9	7,309	7,519	7,655	7,977	8,236	8,486	8,641r	8,719r	8,750	+6.2
Offshore Wind	3,696	4,501	+21.8	3,657	3,696	3,764	4,084	4,420	4,501	4,750	5,025	5,105	+15.5
Shoreline wave / tidal	7	9	+19.0	7	7	8	9	9	9	10	10	10	+11.5
Solar photovoltaics	2,851	5,378	+88.6	2,642	2,851	4,160	4,441	4,842	5,378	8,216r	8,468r	8,755	+80.8
Small scale Hydro	231	246	+6.7	224	231	239	240	242	246	257r	259r	260	+7.4
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	1,049	1,050	1,050	1,051	1,058r	1,058r	1,058	+0.7
Sewage sludge digestion	198	208	+5.3	198	198	204	205	205	208	216r	216r	216	+5.4
Energy from waste	550	696	+26.7	550	550	597	644	652	696	697	713	781	+19.9
Animal Biomass (non-AD) <sup>2</sup>	111	111	-	111	111	111	111	111	111	111	111	111	-
Anaerobic Digestion	164	216	+31.5	141	164	189	198	203	216	244r	245r	245	+20.5
Plant Biomass <sup>3</sup>	1,955	2,244	+14.8	1,955	1,955	2,029	2,144	2,224	2,244	2,296r	2,297r	2,974	+33.8
<b>Total</b>	<b>19,801</b>	<b>24,623</b>	<b>+24.4</b>	<b>19,313</b>	<b>19,801</b>	<b>21,481</b>	<b>22,578</b>	<b>23,670</b>	<b>24,623</b>	<b>27,972r</b>	<b>28,597r</b>	<b>29,741</b>	<b>+25.6</b>
Co-firing <sup>4</sup>	35	15	-56.8	35	35	15	15	15	15	11r	11r	11	-28.2
<b>Generation <sup>5</sup></b>													
													<b>GWh</b>
Onshore Wind <sup>6</sup>	16,950	18,611	+9.8	2,705	6,309	6,690	3,003	2,909	6,010	7,162r	4,741r	3,781	+30.0
Offshore Wind <sup>6, 7</sup>	11,472	13,404	+16.8	1,965	4,087	4,384	2,092	2,242	4,686	4,662	3,567r	3,401	+51.7
Shoreline wave / tidal <sup>6</sup>	6	2	-62.3	1	1	0	1	0	1	1	1	1	(+)
Solar photovoltaics <sup>6</sup>	1,989	4,050	(+)	849	310	474	1,486	1,550	540	955r	3,227r	2,684	+73.2
Hydro <sup>6</sup>	4,702	5,885	+25.2	744	1,734	2,240	1,114	782	1,748	2,025r	1,437r	1,044	+33.5
Landfill gas <sup>6</sup>	5,160	5,045	-2.2	1,270	1,304	1,268	1,266	1,245	1,266	1,233r	1,192r	1,183	-5.0
Sewage sludge digestion <sup>6</sup>	761	846	+11.1	184	196	195	228	212	211	219r	226r	206	-2.8
Energy from waste <sup>8</sup>	1,649	1,950	+18.2	420	414	481	478	498	493	500	513	574	+15.4
Co-firing with fossil fuels	309	133	-56.8	39	50	25	37	37	34	35	13r	23	-36.0
Animal Biomass (non-AD) <sup>2, 6</sup>	628	614	-2.3	144	151	159	161	132	162	169	169r	141	+6.9
Anaerobic Digestion	722	1,009	+39.7	183	205	233	247	256	273	304r	320r	322	+26.0
Plant Biomass <sup>3, 6</sup>	8,930	13,105	+46.8	2,224	2,115	2,233	3,064	3,565	4,242	4,414r	4,442r	4,462	+25.2
<b>Total</b>	<b>53,278</b>	<b>64,654</b>	<b>+21.4</b>	<b>10,729</b>	<b>16,876</b>	<b>18,384</b>	<b>13,177</b>	<b>13,426</b>	<b>19,667</b>	<b>21,678r</b>	<b>19,848r</b>	<b>17,823</b>	<b>+32.7</b>
Non-biodegradable wastes <sup>9</sup>	1,481	1,951	+31.7	377	372	482	478	498	493	501r	513	575	+15.4
<b>Load Factors <sup>10</sup></b>													
Onshore Wind	28.8%	26.5%		17.1%	38.5%	40.8%	17.6%	16.2%	32.6%	38.7%r	25.0%r	19.6%	
Offshore Wind	39.1%	37.3%		24.7%	50.3%	54.4%	24.4%	23.9%	47.6%	46.7%	33.4%r	30.4%	
Solar photovoltaics	9.9%	11.2%		15.0%	5.1%	6.3%	15.8%	15.1%	4.8%	6.5%r	17.7%r	14.1%	
Hydro	31.6%	39.2%		19.8%	46.1%	60.6%	29.7%	20.6%	46.0%	54.2%r	37.9%r	27.2%	
Landfill gas	56.6%	55.0%		55.1%	56.6%	56.1%	55.2%	53.7%	54.6%	54.1%r	51.6%r	50.7%	
Sewage sludge digestion	43.2%	47.5%		42.2%	44.7%	44.9%	51.1%	46.7%	46.2%	47.8%r	47.7%r	43.0%	
Energy from waste	35.3%	35.8%		34.6%	34.1%	38.9%	35.3%	34.8%	33.1%	33.3%	33.3%r	34.8%	
Animal Biomass (non-AD)	64.9%	63.4%		59.1%	61.9%	66.6%	66.7%	54.1%	66.4%	70.7%	70.1%r	57.8%	
Anaerobic Digestion	58.3%	60.5%		60.6%	60.9%	60.9%	58.5%	57.8%	59.0%	61.1%r	60.0%r	59.7%	
Plant Biomass	65.2%	71.2%		42.6%	49.0%	51.9%	67.3%	73.9%	86.0%	90.0%r	88.6%r	76.7%	
<b>Total (excluding co-firing and non-biodegradable wastes)</b>	<b>34.2%</b>	<b>33.2%</b>		<b>24.9%</b>	<b>39.0%</b>	<b>41.2%</b>	<b>27.3%</b>	<b>26.2%</b>	<b>36.8%</b>	<b>38.1%r</b>	<b>32.1%r</b>	<b>27.6%</b>	

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

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

3. Includes the use of straw and energy crops. 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, hospital waste and general industrial waste.

10. Load factors are calculated based on installed capacity at the beginning and the end of the quarter/year. 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](http://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; (+) represents a positive percentage change greater than 100%.

## 6 RENEWABLES

Table 6.2. Liquid biofuels for transport consumption

	2013	2014	per cent change	2013 3rd quarter	2013 4th quarter	2014 1st quarter	2014 2nd quarter	2014 3rd quarter	2014 4th quarter	2015 1st quarter	2015 2nd quarter	2015 3rd Quarter p	per cent change <sup>1</sup>
<b>Volume (million litres)</b>													
Bioethanol	819	812	-0.9	224	202	192	206	212	202	189	203	205	-3.3%
Biodiesel	766	955	+24.7	221	226	195	258	273	229	125	152	177	-35.2%
<b>Total biofuels for transport</b>	<b>1,585</b>	<b>1,767</b>	<b>+11.5</b>	<b>445</b>	<b>428</b>	<b>387</b>	<b>464</b>	<b>485</b>	<b>431</b>	<b>314</b>	<b>355</b>	<b>382</b>	<b>-21.2%</b>
<b>Energy (thousand toe)</b>													
Bioethanol	462	458	-0.9	126	114	108	116	120	114	107	114	116	-3.3%
Biodiesel	629	785	+24.7	182	186	160	212	224	188	103	125	145	-35.2%
<b>Total biofuels for transport</b>	<b>1,091</b>	<b>1,242</b>	<b>+13.9</b>	<b>308</b>	<b>300</b>	<b>268</b>	<b>328</b>	<b>344</b>	<b>302</b>	<b>209</b>	<b>239</b>	<b>261</b>	<b>-24.1%</b>
<b>Shares of road fuels</b>													
Bioethanol as per cent of Motor Spirit	4.5%	4.6%		4.9%	4.5%	4.5%	4.5%	4.8%	4.6%	4.6%	4.6%	4.7%	
Biodiesel as per cent of DERV	2.8%	3.4%		3.2%	3.2%	3.0%	3.7%	3.9%	3.1%	1.8%	2.1%	2.4%	
<b>Total biofuels as per cent of road fuels</b>	<b>3.5%</b>	<b>3.9%</b>		<b>3.9%</b>	<b>3.7%</b>	<b>3.6%</b>	<b>4.0%</b>	<b>4.2%</b>	<b>3.7%</b>	<b>2.9%</b>	<b>3.0%</b>	<b>3.3%</b>	

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

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

[www.uktradeinfo.com/Statistics/Pages/TaxAndDutybulletins.aspx](http://www.uktradeinfo.com/Statistics/Pages/TaxAndDutybulletins.aspx)

## **Electricity generation and supply figures for Scotland, Wales, Northern Ireland and England, 2011 to 2014**

### **Introduction**

This article shows how generation and consumption of electricity varies across the four countries of the United Kingdom. It updates and extends that published in December 2014. The UK figures shown in the tables in this article are taken from the Digest of United Kingdom Energy Statistics (DUKES) 2015, Chapters 5 and 6 and so the definitions used are identical to those in the Digest. Tables 1 and 2 are shown in “landscape” format at the end of the main text and cover the last four years.

### **Generation and trade**

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

Between 2013 and 2014, England’s share of total generation increased from 76.4 per cent to 77.6 per cent, while Scotland’s share remained around the same at 14.3 per cent. For Wales, there was a decrease in the share from 7.1 per cent to 6.0 per cent, mainly due to a decline in nuclear and coal generation. Northern Ireland’s share of generation remained stable at 2.2 per cent. On average, over the last four years, 76.5 per cent of UK electricity generation has taken place in England, 14.3 per cent in Scotland, 7.0 per cent in Wales and 2.1 per cent in Northern Ireland.

England is a net importer of electricity from Scotland and from continental Europe (via the France and Netherlands interconnectors), but was a net exporter to Wales for the first time in 2014. Net imports from France were a record high 15.0 TWh, while net imports from the Netherlands were 7.9 TWh, also a record high.

In 2014, Scotland exported 23.7 per cent of the electricity generated there to consumers elsewhere in the UK; this has decreased from 28.0 per cent in 2013 due to a reduction in generation in Scotland (down 8.3 per cent) despite steady total consumption. Transfers from Scotland to England fell by 18.9 per cent between 2013 and 2014, following a record high in 2013.

In 2014, Wales was a net importer from England for the first time. This was due to Wales experiencing a 21.8 per cent drop in generation but just a 4.5 per cent reduction in total consumption. Wales started trading with the Republic of Ireland in 2012 and has been a net exporter to them each year, with the equivalent of 11.5 per cent of Wales’ generation exported to the Republic of Ireland in 2014.

Northern Ireland trades electricity with the Republic of Ireland and had been a net exporter for the previous three years; however it became a net importer from the Republic of Ireland for the first time in 2014. Northern Ireland also imports electricity from Scotland via the Moyle interconnector.

### **Generation by fuel**

For each of the four UK countries, Table A1 shows the shares of the generation of electricity by the fuel categories used in Table 5.5 of the Digest of UK Energy Statistics 2015, for 2013 and 2014. The position in 2014 is shown in Chart 1, in terms of GWh. Due to planned and unplanned outages to nuclear stations, the nuclear share decreased slightly in 2014 after remaining steady from 2011 to 2013. In Scotland, the share of nuclear increased during 2011 to 2013 before falling slightly in 2014, while in Wales the share of nuclear generation saw a sharp fall in 2012 before rising slightly in 2013. This was succeeded by another large fall in 2014, down to 9.3 per cent of all generation in Wales, due to planned and unplanned outages.

### Special feature – Sub national electricity figures

Following a resurgence in 2012, coal's share of UK generation rose has been falling, down to 29.8 per cent in 2014. The fall in coal generation in England is due to reduced capacity after the closure or partial closure of multiple coal plants that were opted out of the Large Combustion Plant Directive (LCPD)<sup>1</sup>. This includes the closure of one (of two) 980 MW unit at Ferrybridge C in April 2014 and the closure of Didcot A during 2013. Another factor in the reduction of coal generation in England was the conversion of two units of Drax from coal to biomass, one in 2013 and one in 2014. The decrease in the share of coal generation in Wales (from 44.4 per cent to 35.7 per cent) is due to the closure of Uskmouth in April 2014, as well as a reduction in generation at other plants due to market conditions.

There was an increase in the share of gas generation between 2013 and 2014 in England (up from 30.3 per cent to 34.3 per cent), Wales (up from 17.3 per cent to 24.1 per cent) and Northern Ireland (45.8 per cent to 49.1 per cent). However, generation from gas fell from 10.3 per cent to 5.4 per cent in Scotland, mainly due to outages at Peterhead.

Renewables' share of generation has been continually increasing, reaching a record high of 19.1 per cent in 2014. The conversions at Drax have led to an increase in England's renewables share of generation, up to 15.6 per cent in 2014. Of Scotland's generation in 2014, 38 per cent was from renewables, up from 32 per cent in 2013, mainly due to the increase in the number of windfarms.

**Table A1: Shares of each country's generation, by fuel type, 2013 and 2014**

	Scotland	Wales	Northern Ireland	England	UK total
<b>2013</b>					
Coal	20.4%	44.4%	34.0%	38.8%	36.4%
Gas	10.3%	17.3%	45.8%	30.3%	26.7%
Nuclear	34.9%	16.7%	-	17.5%	19.7%
Renewables	32.0%	10.3%	19.5%	11.8%	14.8%
Oil and Other	2.4%	11.3%	0.7%	1.6%	2.4%
<b>2014</b>					
Coal	20.3%	35.7%	28.3%	31.1%	29.7%
Gas	5.4%	24.1%	49.1%	34.3%	29.8%
Nuclear	33.3%	9.3%	-	17.3%	18.8%
Renewables	38.0%	16.3%	22.2%	15.6%	19.1%
Oil and Other	2.9%	14.6%	0.3%	1.7%	2.6%

Combined heat and power (CHP) forms the bulk of "Other generators" generation, although some major power producers (MPPs) also operate generating plants that are partially CHP. CHP statistics for 2014 on a sub-national and regional basis were published in the September 2015 issue of Energy Trends<sup>2</sup>.

The share of generation accounted for by generators other than major power producers varies across the UK. In Scotland, in 2014, other generators had a 14 per cent share (up from 12 per cent in 2013), while in England the share was 11 per cent (up from 9 per cent), in Wales 14 per cent (up from 11 per cent) and in Northern Ireland 14 per cent (unchanged from 2013). These larger shares were due to increases in smaller-scale renewables and reductions in larger-scale fossil fuel capacity.

<sup>1</sup> Large Combustion Plant Directive (LCPD): Running hours during winter 2014/15 and capacity for 2015/16, page 71:

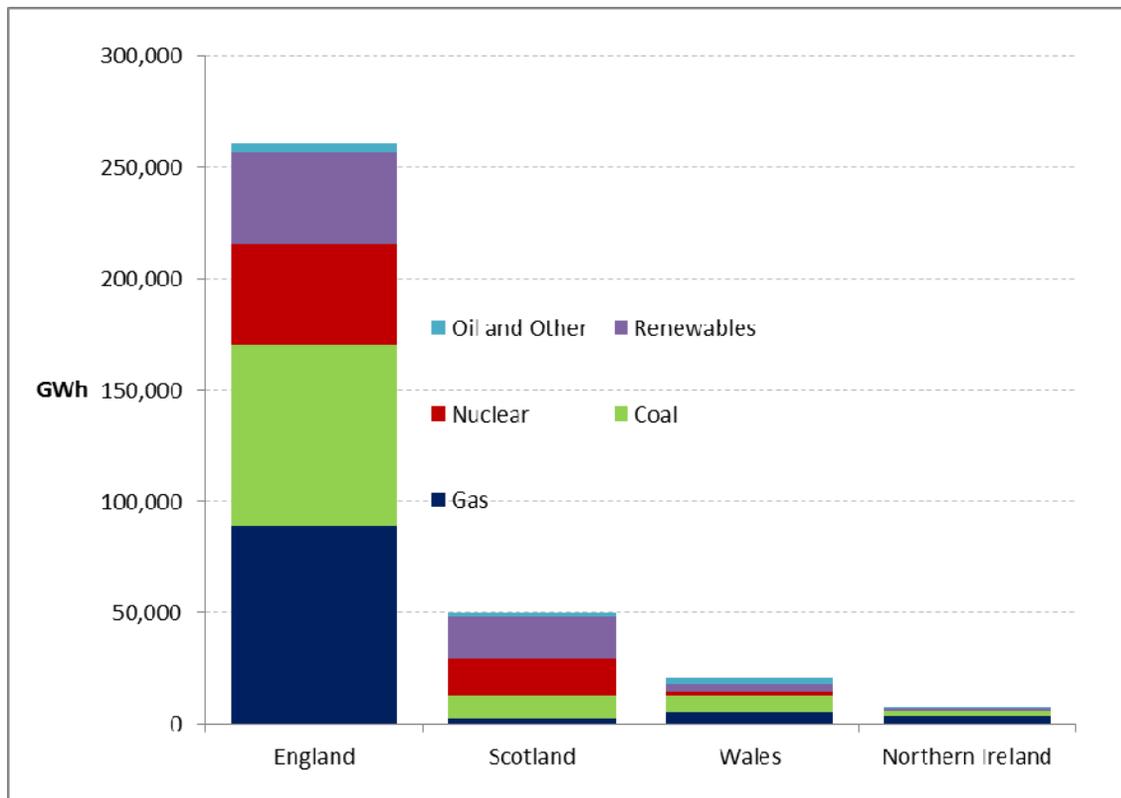
[www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles](http://www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles)

<sup>2</sup> "Combined Heat and Power in Scotland, Wales, Northern Ireland and the regions of England in 2014" – Energy Trends September 2015, page 61:

[www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles](http://www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles)

Overall, the UK saw a decline in total generation due to reductions in capacity. The largest reduction in generation share was experienced by coal, with coal fired plants closing throughout 2013 and 2014 due to the LCPD along with conversions of coal units to biomass units at Drax. Adverse market conditions also led to a reduction in the use of coal for generation.

**Chart 1: Generation by country and fuel type in 2014 (all generating companies)**



### Revisions

In the 2015 edition of DUKES, non-biodegradable waste was reclassified from ‘bioenergy’ to ‘other fuels’ for MPPs for 2013 and 2014. As a result, 522 GWh of ‘bioenergy’ was moved to ‘other fuels’ in 2013, but due to other revisions to the data since the 2014 edition of DUKES this has only resulted in a net fall of 119 GWh of bioenergy for 2013. Only England has been affected by this reclassification.

In the article from last year some generation was incorrectly allocated to Wales for 2012 and 2013. As a result, 430.6 MWh has been reallocated from Wales to England for 2012 and 552.9 MWh has been reallocated for 2013.

### Renewables

The share of renewables in electricity generation or sales is measured in two different ways in the UK<sup>3</sup>. First, there is the “headline” overall measure that shows the percentage of electricity generation accounted for by all renewables. Secondly, there is the measure that is based on the Renewables Obligation (RO) (and the analogous Renewables Obligation (Scotland) - ROS) which shows the percentage of electricity sales accounted for by renewables eligible under these

<sup>3</sup> There is also a third method used by the EU – a Renewables Directive basis – see Chapter 6 of the Digest of UK Energy Statistics 2015, table 6.7 and paragraph 6.43.

## Special feature – Sub national electricity figures

obligations. The main differences are the exclusion from the RO of large-scale hydro and non-biodegradable wastes<sup>4</sup>. Table A2 shows the overall measure for 2011, 2012, 2013 and 2014.

**Table A2: Renewables percentages**

		UK	Scotland	Wales	Northern Ireland	England
Overall renewables percentage	2011	9.4	26.7	8.4	12.6	6.2
	2012	11.3	29.1	9.3	15.9	8.1
	2013	14.8	32.0	10.3	19.5	11.8
	2014	19.1	38.0	16.3	22.2	15.6

With its high proportion of natural flow hydro, as well as wind generation increasing over the last few years due to increased capacity, renewables' share in Scotland under the headline measure increased by 6.0 percentage points to stand at 38.0 per cent in 2014. This increase was mainly due to a rise in hydro generation as a result of higher rainfall, up 15 per cent from 2013. In 2014, Scotland, Wales, Northern Ireland and England all had a record high percentage of electricity generated by renewables. On a RO basis, the percentage measure for the UK (9.8 per cent in 2011, 11.9 per cent in 2012, 16.1 per cent in 2013 and 19.1 per cent in 2014) is not meaningful at sub-national level because electricity generated in one part of the UK can be sold in a different part of the UK.

In Scotland, the renewables target (which is to reach 100 per cent by 2020) is expressed as generation as a proportion of gross electricity consumption (defined as generation plus transfers into Scotland less transfers out of Scotland). In 2011, this percentage was 36.2 per cent, increasing to 39.0 per cent in 2012. In 2013, this rose to 44.4 per cent and has continued to rise to 49.7 per cent in 2014. The next interim target is to reach 50 per cent by 2015.

The amount of electricity from renewable sources transferred from Scotland or Wales to England, or from Scotland to Northern Ireland, is not known. What is known from Table 2 is that the amount of RO eligible electricity generated in Scotland in 2014 was 4.4 per cent more than in 2013, while the amount of RO eligible electricity generated in Wales in 2014 was 13.3 per cent more than in 2013. In England, the increase was 17.1 per cent. In Northern Ireland RO eligible electricity generated was 9.3 per cent more. In the UK as a whole, RO eligible electricity production increased by 12.9 per cent. Over the four years shown in Table 2, the increases in RO eligible electricity production have been substantial across all countries, namely 65 per cent for Northern Ireland, 43 per cent for Scotland, 31 per cent for Wales and 121 per cent for England.

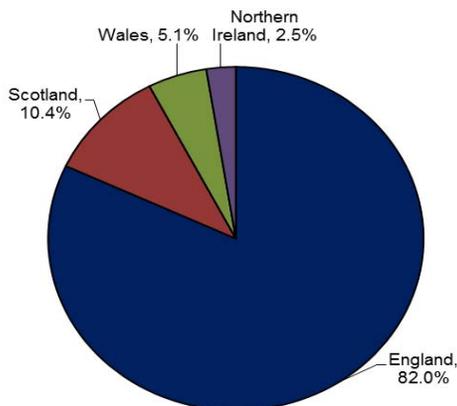
Renewables statistics for 2014 on a sub-national and regional basis were published in the September 2015 issue of Energy Trends<sup>5</sup> (see references at the end of the article).

<sup>4</sup> Specific exclusions from eligibility for the RO are existing hydro plant over 20 MW; all plant using renewable sources built before 1990 (unless re-furbished); and energy from mixed waste combustion unless the waste is first converted to fuel using advanced conversion technology.

<sup>5</sup> "Renewable energy in Scotland, Wales, Northern Ireland and the regions of England in 2014" – Energy Trends September 2015, page 49:

[www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles](http://www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles)

**Chart 2: Electricity consumption in 2014**



### Consumption and sales

Transmission and distribution losses are not separately available for Scotland, Wales, Northern Ireland and England so estimates have been made using the UK proportions. Consumption figures have then been calculated by deducting net transfers and losses figures from the electricity supplied figures shown in Table 1. These show (Chart 2) that in 2014, 10.4 per cent of electricity consumption in the UK was in Scotland, 5.1 per cent in Wales, 2.5 per cent in Northern Ireland and 82.0 per cent in England. These are all of little variation from the average percentage shares for each country for the period 2011 to 2014, namely 82.1 per cent for England, 10.0 per cent for Scotland, 5.3 per cent for Wales and 2.6 per cent for Northern Ireland.

Separate data is collected for sales of electricity from the public supply system in Scotland, England and Wales, and Northern Ireland and published in monthly table ET 5.5 on DECC's Energy Statistics website (see references at the end of the article), but for this article the breakdown between England and Wales has been estimated. Because of definitional and other differences set out in the technical notes to Chapter 5 of DUKES 2015, there is a statistical difference between the calculated consumption and the sales data in Table 1. The overall statistical difference for the UK equals that shown in Table 5.2 of DUKES for the UK as a whole for the public distribution system.

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

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

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*Special feature – Sub national electricity figures*

**References:**

Digest of UK Energy Statistics 2015 (DUKES); published for DECC by The Stationery Office. £75.00, but also available on DECC's energy statistics website at:

[www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes](http://www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes)

Energy Trends monthly table 5.5:

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

Large Combustion Plant Directive (LCPD): Running hours during winter 2014/15 and capacity for 2015/16, page 71:

[www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles](http://www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles)

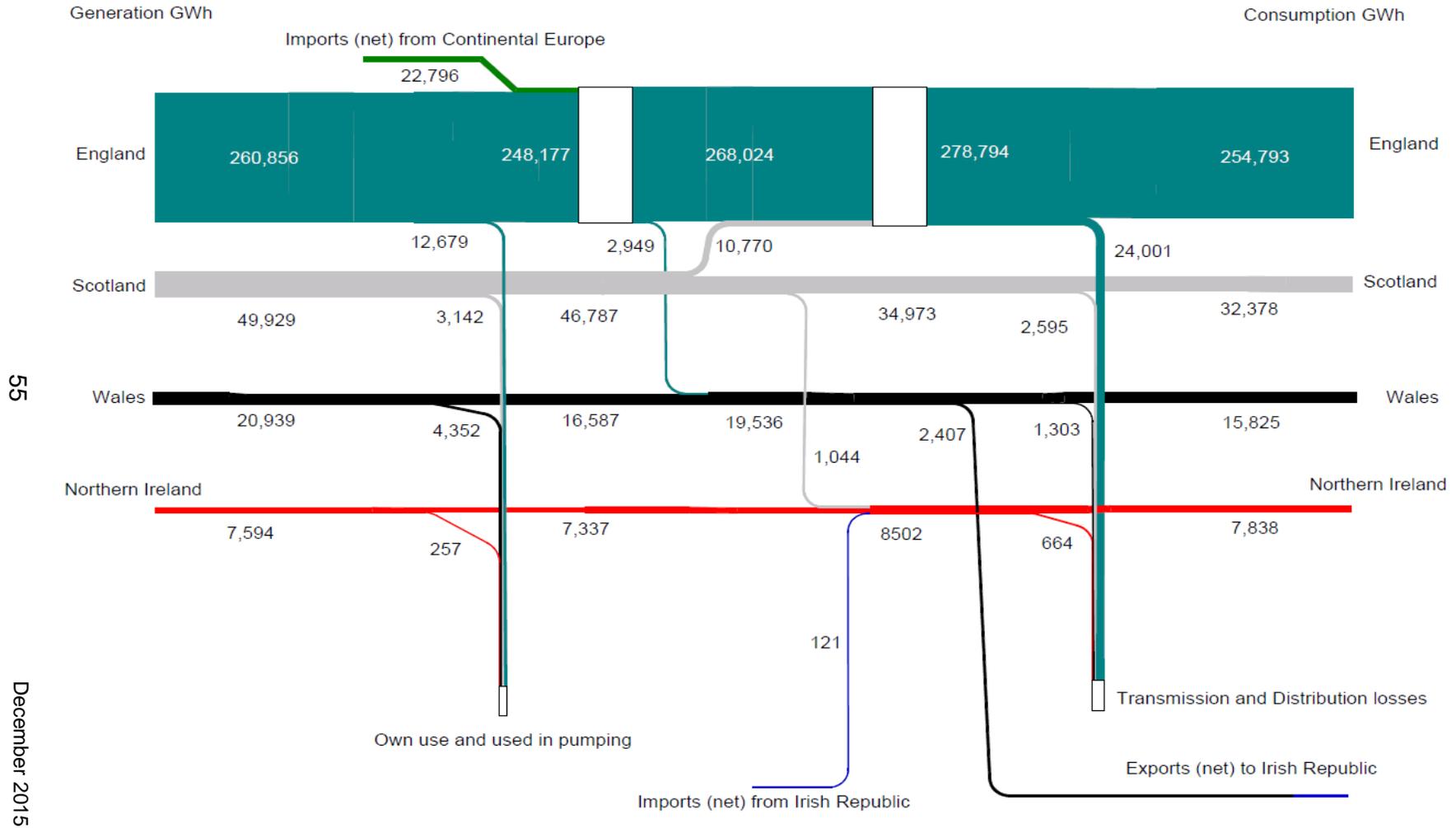
“Combined Heat and Power in Scotland, Wales, Northern Ireland and the regions of England in 2014” – Energy Trends September 2015, page 61:

[www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles](http://www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles)

“Renewable energy in Scotland, Wales, Northern Ireland and the regions of England in 2014” – Energy Trends September 2015, page 49:

[www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles](http://www.gov.uk/government/statistics/energy-trends-september-2015-special-feature-articles)

**Chart 3: Electricity generation and consumption flow chart, 2014**





**Table 1 continued: Generation and supply of electricity in Scotland, Wales, Northern Ireland and England, 2011 to 2014**

		2013					2014					GWh
		UK total	Scotland	Wales	Northern Ireland	England	UK total	Scotland	Wales	Northern Ireland	England	
Generated by	Major power producers	324,725	46,778	23,024	6,706	248,217	300,823	42,876	17,997	6,520	233,430	
	Other generators	34,443	6,185	2,843	1,072	24,342	38,104	7,052	2,942	1,075	27,426	
Total generated		359,168	52,963	25,867	7,778	272,560	338,927	49,929	20,939	7,594	260,856	
Own use by	Other generators	2,222	399	183	69	1,570	2,563	474	198	72	1,845	
Electricity supplied (net) by	Other generators	32,221	5,786	2,660	1,003	22,772	35,541	6,578	2,744	1,002	25,582	
Used in pumping at pumped storage and other own use by	MPPs	19,598	3,090	4,538	199	11,770	17,842	2,668	4,155	184	10,835	
Electricity supplied (net) by	MPPs	305,127	43,688	18,485	6,507	236,447	282,981	40,209	13,842	6,335	222,595	
Electricity transferred to England (net of receipts)		-	13,275	1,143	-	-14,418	-	10,770	-2,949	-	-7,821	
Electricity transferred to Northern Ireland (net of receipts)		-	1,541	-	-1,541	-	-	1,044	-	-1,044	-	
Electricity transferred to Europe (net of receipts)		-14,429	-	2,161	45	-16,636	-20,510	-	2,407	-121	-22,796	
Transfers from other generators to public supply		13,998	3,424	1,178	877	8,520	14,916	4,059	1,423	989	8,445	
Transmission losses		6,351	626	322	163	5,241	6,489	669	328	156	5,336	
Distribution losses		21,374	1,810	952	501	18,111	22,073	1,925	975	508	18,665	
Consumption from public supply [A]		305,851	29,864	15,087	8,216	252,685	289,862	29,862	14,505	7,826	237,668	
Consumption by autogenerators		18,201	2,359	1,481	125	14,237	20,608	2,516	1,320	13	17,125	
Total Electricity consumption		324,052	32,222	16,567	8,341	266,922	310,470	32,378	15,825	7,839	254,793	
Electricity sales (public supply) [B]		306,640	28,879	17,342	7,714	252,706	291,100	27,421	16,791	7,436	239,453	
Statistical difference		-789	+985	-2,255	+502	-21	-1,239	+2,442	-2,286	+390	-1,785	
<b>between calculated consumption [A] and sales [B]</b>												

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



**Table 2 continued: Generation of electricity by fuel in Scotland, Wales, Northern Ireland and England, 2011 to 2014 GWh**

		2013					2014				
		UK total	Scotland	Northern			UK total	Scotland	Northern		
				Wales	Ireland	England			Wales	Ireland	England
Major power producers:	Coal	130,204	10,802	11,478	2,606	105,319	100,158	10,152	7,478	2,159	80,369
	Oil	745	161	-	20	563	530	181	-	23	326
	Gas	82,891	3,497	3,432	3,457	72,505	88,871	880	4,187	3,679	80,126
	Nuclear	70,607	18,498	4,326	-	47,783	63,748	16,633	1,953	-	45,161
	Thermal renewables	9,285	360	129	-	8,796	12,707	375	74	-	12,258
	Other thermal	522	-	-	-	522	528	-	-	-	528
	Hydro natural flow	3,609	3,412	175	-	22	4,635	4,391	213	-	30
	Hydro pumped storage	2,904	620	2,283	-	1	2,883	494	2,389	-	-
	Non thermal renewables	23,958	9,428	1200	622	12,708	26,763	9,770	1702	660	14,632
	<b>Total</b>		<b>324,725</b>	<b>46,778</b>	<b>23,024</b>	<b>6,706</b>	<b>248,217</b>	<b>300,823</b>	<b>42,876</b>	<b>17,997</b>	<b>6,520</b>
Other Generators:	Coal	564	19	-	39	506	549	-	-	-	549
	Oil	1,346	434	49	38	825	1,351	633	43	-	675
	Gas	13,137	1,943	1,043	102	10,048	12,057	1,836	858	62	9,300
	Thermal renewables	8,873	999	490	134	7,250	9,995	1,353	493	144	8,004
	Other thermal	1,490	33	594	-	862	1,646	135	621	-	890
	Hydro natural flow	1,093	951	52	21	69	1,250	1,045	62	28	115
	Non thermal renewables	6,459	1,798	615	737	3,308	9,304	2,028	864	840	5,963
	Wastes	1,481	8	-	-	1,473	1,951	22	-	-	1,929
<b>Total</b>		<b>34,443</b>	<b>6,185</b>	<b>2,843</b>	<b>1,072</b>	<b>24,342</b>	<b>38,104</b>	<b>7,052</b>	<b>2,942</b>	<b>1,075</b>	<b>27,426</b>
Total generation by fuel		359,168	52,963	25,867	7,778	272,560	338,927	49,929	20,939	7,594	260,856
<i>within which:</i>											
	Renewables Hydro	4,702	4,363	227	21	91	5,885	5,436	276	28	145
	Wind, wave, solar	30,417	11,227	1,815	1,360	16,016	36,068	11,798	2,566	1,500	20,595
	Other	18,159	1,359	619	134	16,046	22,702	1,728	568	166	20,262
	<b>Total</b>	<b>53,277</b>	<b>16,949</b>	<b>2,661</b>	<b>1515</b>	<b>32,152</b>	<b>64,654</b>	<b>18,962</b>	<b>3,409</b>	<b>1,694</b>	<b>41,002</b>
Renewables eligible under the renewables obligation		44,948	13,979	2,107	1,414	27,449	52,745	15,094	2,628	1,563	33,460
Percentage shares of generation:	Coal	36.4%	20.4%	44.4%	34.0%	38.8%	29.7%	20.3%	35.7%	28.3%	31.1%
	Oil	0.6%	1.1%	0.2%	0.7%	0.5%	0.6%	1.6%	0.2%	0.3%	0.4%
	Gas	26.7%	10.3%	17.3%	45.8%	30.3%	29.8%	5.4%	24.1%	49.1%	34.3%
	Nuclear	19.7%	34.9%	16.7%	-	17.5%	18.8%	33.3%	9.3%	-	17.3%
	Hydro natural flow	1.3%	8.2%	0.9%	0.3%	-	1.7%	10.9%	1.3%	0.4%	0.1%
	Other renewables	13.5%	23.8%	9.4%	19.2%	11.8%	17.3%	27.1%	15.0%	21.9%	15.5%
	Other	1.8%	1.2%	11.1%	-	1.0%	2.1%	1.3%	14.4%	-	1.3%
	<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

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

## **Physical gas flows across Europe and diversity of gas supply in 2014**

### **Background**

This article has two main purposes. The first is to illustrate physical gas flows at the European level using 2014<sup>1</sup> data published by the International Energy Agency (IEA). The second is to attempt to compare the resilience of the UK's supply infrastructure with that of other EU Member States.

### **European Physical Gas Flows**

#### European Gas Production

The total EU-28 gas production in 2014 was 152.9 billion cubic metres (bcm), with the Netherlands and the UK accounting for 46 per cent and 25 per cent of this total respectively. This is 11.3% lower than EU-28 production in 2013 which was 172.4 bcm, mainly since Netherlands production decreased by nearly a fifth. Out of all EU-28 countries, only the Netherlands and Denmark produced more gas than they consumed, demonstrating Europe's reliance on gas imports from outside the EU.

#### European Gas Consumption

The largest demand among EU-28 countries came from Germany, the United Kingdom and Italy. Similar to 2013, these countries together accounted for over 50 per cent of EU-28 consumption. Germany remained the largest net importer in Europe in 2013 at 72 bcm, followed by Italy at 55 bcm and then France at 40 bcm<sup>2</sup>. Overall EU-28 net imports decreased by 7% compared to 2013.

Natural gas consumption in the EU-28 decreased considerably in 2014 compared to 2013, from 481 bcm to 430 bcm. All EU countries saw a reduction in gas demand with the Netherlands, Germany, Italy, France and UK contributing most significantly to this decrease. This partially reflected warmer weather in 2014 along with some fuel switching.

#### Sources of Gas

There are four sources of gas supply available to EU Member States: indigenous production, gas storage facilities, imports via Liquefied Natural Gas (LNG) terminals and imports via pipeline (see Chart 1, overleaf). Many countries use all four routes to meet their needs.

The largest single category of gas supply to the EU-28 was indigenous production, supplying 36 per cent of EU-28 consumption in 2014. A total of 14 countries have at least some indigenous gas production with the largest being from the Netherlands and UK which met 17 and 9 per cent of total EU demand respectively.

Aside from indigenous production, the Russian Federation remained the single supplier of gas to the EU-28, delivering around 116 bcm in 2014 compared to 131 bcm in 2013. In both years this accounted for 27 per cent of total EU-28 gas demand. The European pipeline infrastructure means that Central and Eastern European countries receive almost all of their natural gas supply from Russia. It should be noted that the origin of all of this gas is not necessarily Russian, since Russia acts as a transit country for gas from Kazakhstan and Turkmenistan to reach European markets.

Norwegian exports to the EU-28 increased between 2013 and 2014. In 2014 was around 108 bcm or 24 per cent of total EU-28 gas consumption compared to 22 per cent in 2013. This was due to an increase in exports to Germany; 23 per cent of Norwegian exports were directed to the UK in 2014.

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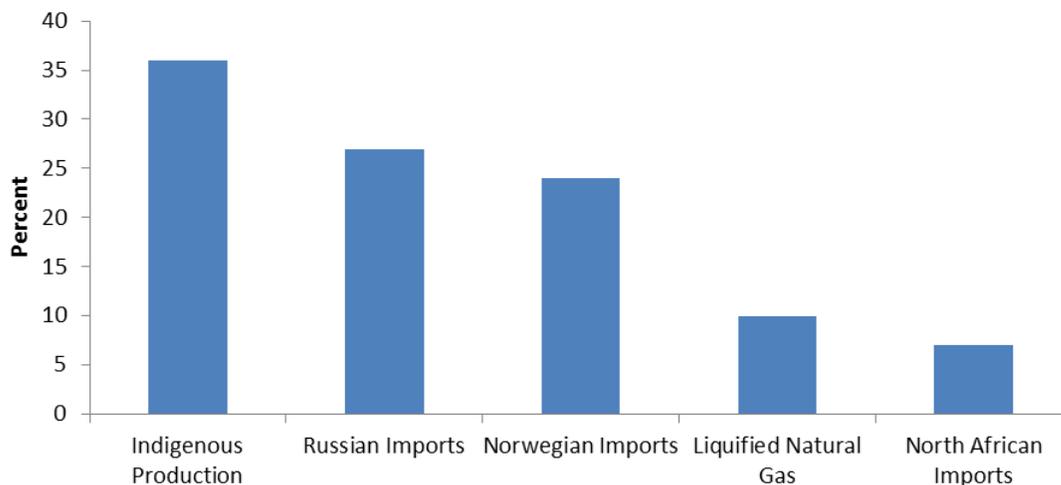
<sup>1</sup> January 1st 2014 to December 31st 2014 data

<sup>2</sup> These numbers differ slightly from the IEA's annual figures due to the adjustments necessary to balance supply. The supply for some countries may appear unbalanced as stock changes are not shown. Data were calculated primarily from 2014 monthly pipeline gas flows, with 2014 annual imports, exports, production and consumption used for quality assurance amendments.

Imports of LNG into the EU-28 were 42.3 bcm in 2014 versus 39.7 bcm in 2013. LNG met 10 per cent of EU-28 demand. The largest suppliers of LNG to the EU-28 were Qatar, Algeria and Nigeria, who supplied 40, 29 and 11 per cent of total EU-28 LNG imports respectively.

North African pipelines via Spain and Italy provided 29 bcm, or 7 per cent, of EU-28 demand. Algerian gas, coming direct from Algeria as well as via Morocco and Tunisia, accounted for 78 per cent of North African gas delivered to the EU-28, with Libya supplying the remainder.

**Chart 1: Sources of EU-28 gas, 2014**



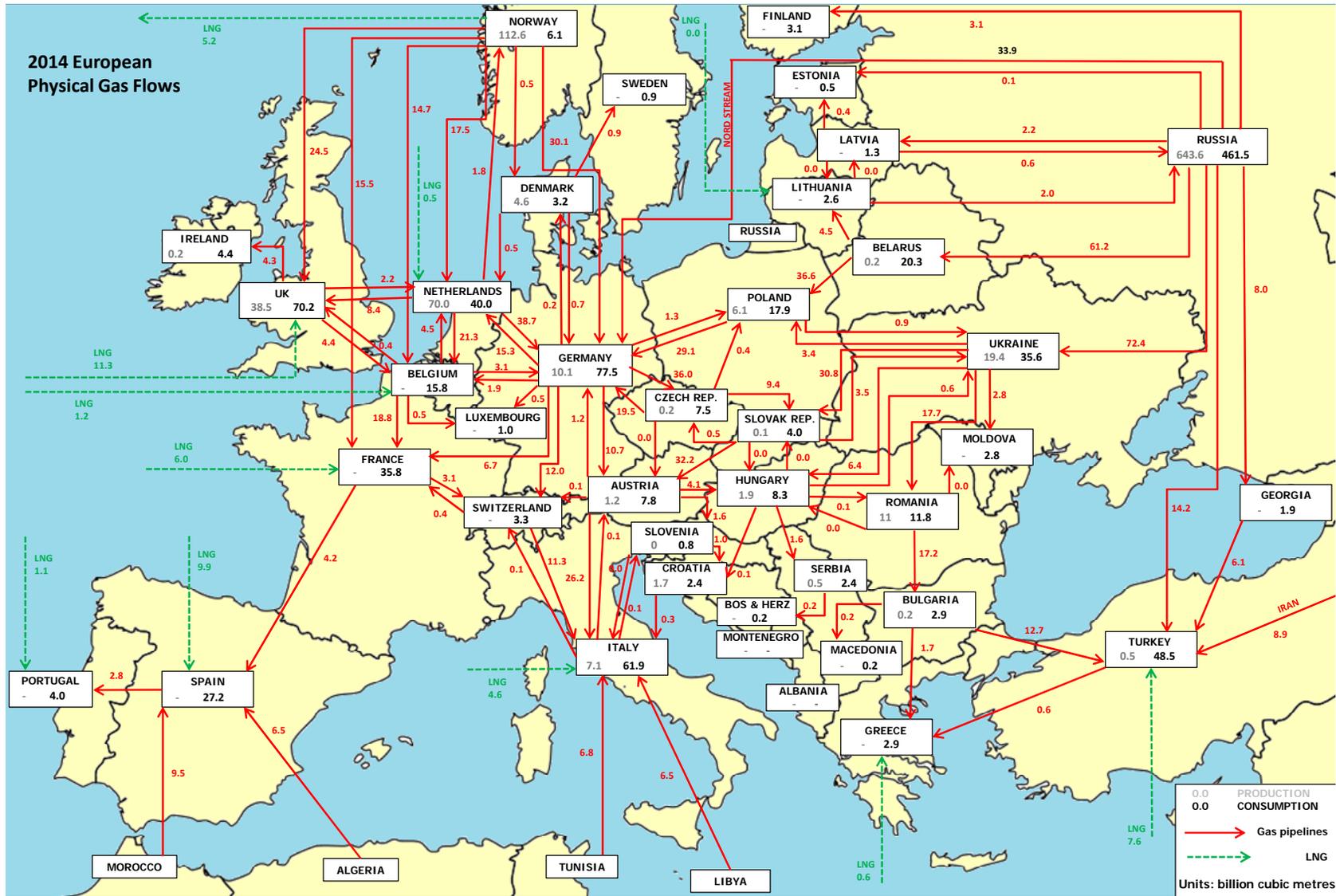
#### UK Flows in 2014

UK consumption in 2014 was 70.2 bcm, down from 77.9 in 2013. Around 55% of this was met by indigenous production in 2014, an increase on the 50% reported in 2013. The remaining demand was met by LNG imports (27 per cent) and pipeline imports from Norway (57 per cent of the total), Netherlands (15 per cent) and Belgium (1 per cent). There are no direct imports of Russian gas, though small volumes may exist in the Dutch and Belgian flows. Despite the large volume of imports, the UK is also a major exporter to the rest of the EU, exporting 10.9 bcm to Ireland (37% of total exports), Belgium (40%) and the Netherlands (20%).

UK imports of LNG increased by 21 per cent, from 9.4 bcm in 2013 to 11.3 bcm in 2014, keeping the UK as the second largest importer of LNG in 2014, behind Spain. 92 per cent of UK imports of LNG came from Qatar in 2014, down from 93 per cent in 2013 and 98 per cent in 2012.

#### Note

The map below uses pipeline data from the IEA to show entry and exit flows between countries and does not necessarily indicate that the gas actually passed through the domestic infrastructure of a country (for instance: Russian gas is transmitted to Turkey through Bulgaria but is separate to the Bulgarian domestic network).



## **EU-28 Infrastructure peak daily gas supply in 2014**

As noted above, there are four sources of gas supply available to EU Member States: indigenous production, gas storage facilities, imports via LNG terminals and imports via pipeline, with many countries making use of all of these routes to meet their demand. We have used the peak flow (i.e. the maximum gas deliverable in billion cubic metres per day) as a comparative measure of gas supply for each individual source for each country. For pipeline and LNG terminal, peak flow data were extracted from IEA physical gas flows data<sup>3</sup>. Similarly, peak outputs for storage facilities were extracted from the IEA Natural Gas Information 2015<sup>4</sup>. Storage facilities are assumed to be capable of working at peak capacity during times of peak demand. Although this is susceptible to inaccuracies, as peak capacity from storage facilities may not indeed be achievable by the point of peak demand in EU member states, it does allow a consistent metric across all storage facilities. Data for peak outputs for production was estimated, by taking the maximum monthly production (bcm) in 2014 for each gas-producing member state and dividing this by the number of days in that month.

Chart 2 shows peak gas supply for each individual country as a stacked bar chart, with different colours representing different categories of gas supply. Stacks were arranged with production and storage facilities stacked at the base of the chart and imports via LNG terminals and pipelines stacked above. Further, for these imports and storage sources, data were divided within categories by individual source (represented by horizontal lines within an individual bar colour). Please note these data were collected from a range of sources and we have not confirmed each of the data items with the countries who submit data to the IEA.

Chart 2 includes all EU-28 member states in order of peak gas demand. The estimated peak gas demand data (bcm per day) are included within Chart 2 as a single line-and-cross plot running across the graph. Peak gas demand acts as a comparator for peak gas supply, and was estimated for each country by taking the maximum monthly demand in 2014 (bcm) divided by the number of days within that month. Whilst this is a conservative estimate, it does allow for a common metric for comparison. Data for peak flows are provided in the table in Annex 1.

Chart 2 shows that in all EU countries for which data were available, maximum gas supply exceeded peak demand. According to the data, Germany had the highest peak demand in 2014, but also had the largest potential peak output from both indigenous storage facilities and import pipelines. The data indicated that only the Netherlands had sufficient indigenous production capacities to meet peak daily demand. The majority of countries had a peak supply more than double that of peak demand, with the exception of Finland and Sweden.

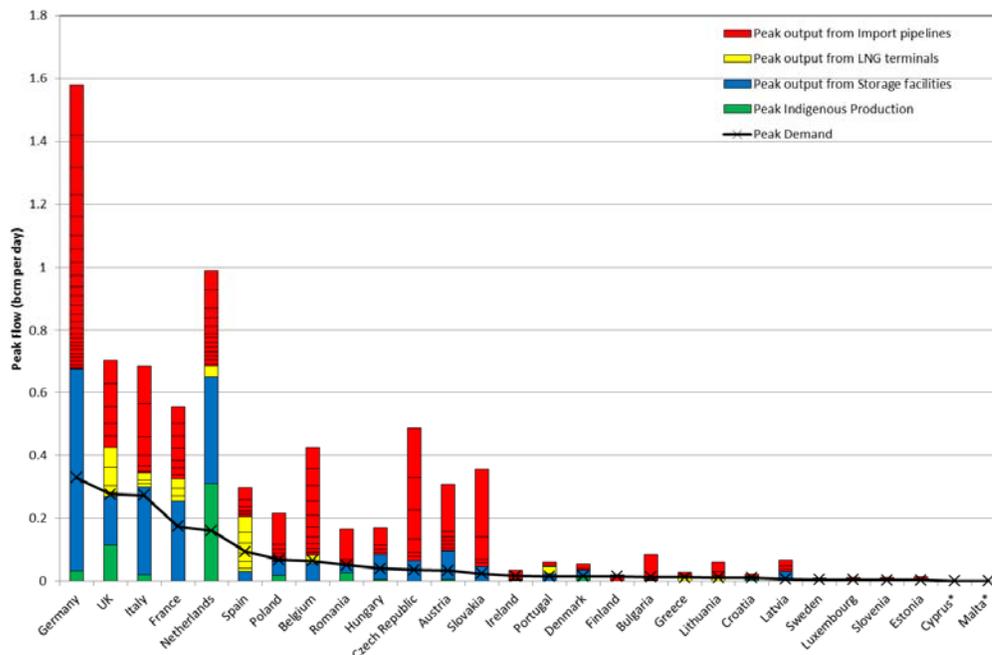
The UK had the second largest peak demand of the EU member states.

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<sup>3</sup> [www.iea.org/gtf/index.asp](http://www.iea.org/gtf/index.asp)

<sup>4</sup> Natural Gas Information 2015, International Energy Agency, ISBN 9789264238930

**Chart 2: Estimated Peak outputs for gas supply sources versus estimated peak demand for EU-28 Member States**



Source: DECC analysis of IEA data. \*Cyprus and Malta have no consumption and are included for completeness only. For import data, stacks are further divided by number/volume of pipelines/terminals. Data are provided in Table in Annex 1.

Looking at the pipeline import data in Chart 2 (red stacks), it is clear that the five member states with the largest peak demand have a diverse range of import pipelines. Germany in particular has a large number of import pipelines, 26 in total. There are substantially fewer import pipelines in EU countries east of Germany. Of particular note, the Slovak Republic appeared to have a peak supply that far exceeded demand, where almost all of this came via a single pipeline from Russia, which has pipelines transiting through to several other member states.” Aside from Spain (six), the UK (four) and Italy and France (three), all other member states had at most a single LNG terminal.

### EU-28 Gas Infrastructure Resilience 2014

In order to given an indication of the resilience of the gas supply infrastructure, we have developed a simple methodology that takes the sum of all gas supplies coming into a country running at maximum capacity (*PF*, peak flow), removes the largest supply route, and looks at the remaining percentage supply relative to peak demand. The equation below indicates *PF* as

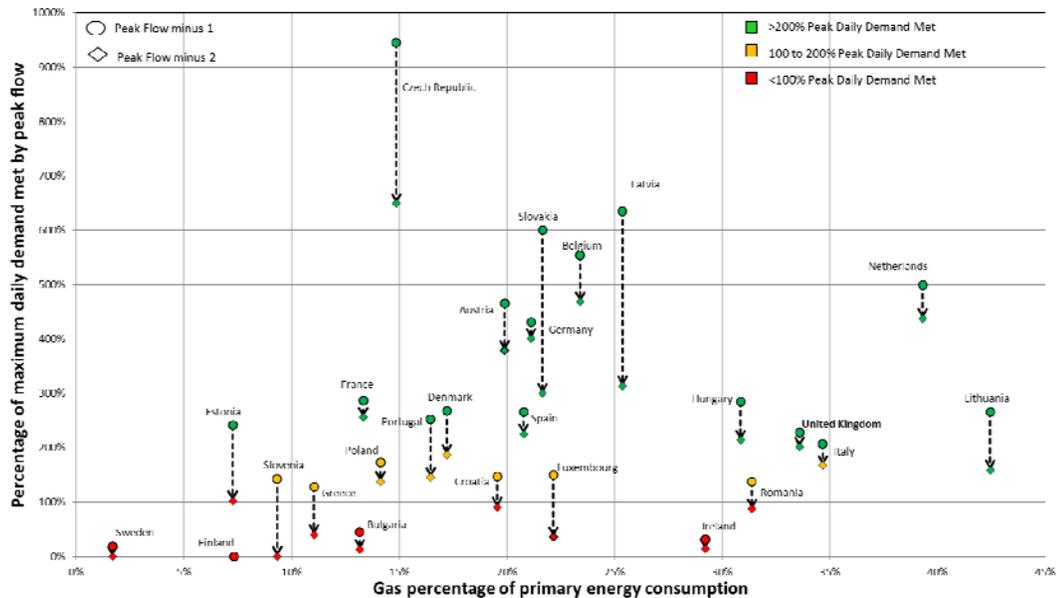
$$PF - 1[\%] = \frac{EP_{\max} + P_{\max} + S_{\max} + LNG_{\max} - I_{\max}}{D_{\max}} \quad \text{Equation 1}$$

- Where:
- PF* = Peak Flow (bcm/day)
  - EP<sub>max</sub>* = Peak capacity of entry points (bcm/day)
  - P<sub>max</sub>* = Peak capacity for each indigenous production pipeline (bcm/day)
  - S<sub>max</sub>* = Peak output for each storage facility (bcm/day)
  - LNG<sub>max</sub>* = Peak output for each LNG terminal (bcm/day)
  - D<sub>max</sub>* = Average 2013 peak gas demand (bcm/day)
  - I<sub>max</sub>* = Peak daily capacity of single largest supply route (bcm/day)

This formula is similar to a more widely used metric - the ‘N-1’ measure of supply outlined in the EU Regulation No. 994/2010 - but differs to that due to both the historical nature of the data used here and the definition of demand. In the EU regulation, peak demand ( $D_{max}$ ) is defined as the total daily gas demand of the country during a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years. In this report, because we are calculating resilience for 2014, we use the estimated peak gas demand in each country for 2014 (January 1<sup>st</sup> 2014 to December 31<sup>st</sup> 2014), taking the maximum monthly demand in 2014 (bcm) and dividing this by the number of days within that month. Beyond *PF-1*, *PF-2* was also calculated using the same methodology but removing the two largest supply routes as a more rigorous test of infrastructure resilience.

As well as considering infrastructure resilience, it is also important to consider the extent to which each EU-28 country relies on gas to meet its primary energy demand. If the *PF-1* score is less than 100 per cent, it could have considerable consequences for a country that relies on gas for a large proportion of its primary energy demand, compared to a lesser extent for a country that mainly uses other energy sources. We therefore plotted out *PF-1* and *PF-2* against the percentage of total primary energy demand met by gas for each EU Member State (Chart 3).

**Chart 3: EU-28\* gas infrastructure resilience versus percentage of primary energy consumption met by gas, 2014**



\*Data for Cyprus and Malta not available. Peak flow minus 1 = total gas supply capacity minus largest gas supply route (*PF-1*). Peak flow minus 2 = total gas supply capacity minus two largest gas supply routes (*PF-2*). For each member state, top circle represents *PF-1* and bottom diamond represents *PF-2*. Red-amber-green are illustrative, and do not reflect any pre-defined or standard resilience metric.

Chart 3 shows Czech Republic, Belgium, Germany, Austria, Hungary, Slovakia, Netherlands, Latvia, United Kingdom, Spain and France to have particularly resilient gas infrastructure. In all ten countries, the gas infrastructure was able to provide more than double the estimated –if conservative peak - gas demand in 2014, even with the loss of their two largest gas supply routes. Finland, Sweden, Ireland and Bulgaria appeared particularly vulnerable to infrastructure disruptions, with these four countries unable to meet peak daily demand after the loss of the largest gas supply route. Sweden and Finland use very little gas but it appears that Ireland was also vulnerable, given that gas accounts for nearly 30 per cent of primary energy demand.

## *Special feature – European gas flows*

The inclusion of both *PF-1* and *PF-2* scores in Chart 3 gives further insight into infrastructure resilience which would not be captured by the *PF-1* score alone. For example, the data indicate that Romania clearly has two major import routes: although resilient to a single supply disruption (meeting 138 per cent of peak demand), Romania would be vulnerable after the loss of these two main routes. This is also the case for Slovenia, Greece, Croatia and Luxembourg.

### **UK gas infrastructure resilience 2014**

For the UK's perspective, there are a diverse range of gas sources, including pipeline and LNG imports, storage and indigenous production, with consequent good resilience to disruption of major supply sources. According to these data, in 2014 the UK would have met 228 and 201 per cent of the estimated peak demand with the loss of the largest and two largest gas supply routes respectively. Overall, according to the common peak flow metric and data used in this report, the UK was the tenth most resilient Member State to gas supply infrastructure disruptions, but it was the fourth most dependent on gas for primary energy demand in 2014.

EU regulations, enforcing that all Member States must have an *N-1* score of greater than 100 per cent (using the larger value of peak gas demand based on a statistical probability of once in 20 years) came into force from 3<sup>rd</sup> December 2014. Given the similarity between the EU *N-1* methodology and the *PF-1* methodology used here, the UK is well-placed to meet this requirement.

#### Further data

For readers wanting a greater level of detail, the IEA have made available an interactive gas map, based on entry and exit points throughout Europe. This map is available free of charge at: [www.iea.org/gtf/index.asp](http://www.iea.org/gtf/index.asp)

For further information on European natural gas flows please contact:

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## Annex 1: Table of key data for gas use in the EU-28\* countries, 2014

EU-28 MS	Peak daily [X] (Billion cubic metres per day)								Total Energy Consumption (Mtoe)	Primary Consumption (Mtoe)
	Demand **	Indigenous production **	Import pipelines	Storage output	LNG output	PF-1 score	PF-2 score	Natural Gas Consumption (Mtoe)		
Austria	0.034	0.004	<b>0.213</b>	0.091	0.000	465%	379%	32.1	6.4	
Belgium	0.065	0.000	<b>0.341</b>	0.057	0.026	554%	469%	54.0	12.6	
Bulgaria	0.012	0.002	<b>0.078</b>	0.004	0.000	45%	13%	17.9	2.4	
Croatia	0.010	0.005	<b>0.012</b>	0.006	0.000	147%	91%	10.0	2.0	
Cyprus*	0.000	0.000	<b>0</b>	0.000	0.000	0%	0%	3.1	0.0	
Czech Republic	0.035	0.001	<b>0.420</b>	0.065	0.000	945%	650%	41.5	6.2	
Denmark	0.015	0.015	<b>0.019</b>	0.020	0.000	268%	187%	16.4	2.8	
Estonia	0.003	0.000	<b>0.014</b>	0.000	0.000	241%	102%	6.1	0.4	
Finland	0.015	0.000	<b>0.019</b>	0.000	0.000	0%	0%	34.2	2.5	
France	0.174	0.000	<b>0.230</b>	0.255	0.069	287%	256%	242.1	32.3	
Germany	0.329	0.034	<b>0.905</b>	0.640	0.000	431%	401%	303.6	64.1	
Greece	0.011	0.000	<b>0.015</b>	0.000	0.014	128%	40%	22.5	2.5	
Hungary	0.040	0.005	<b>0.085</b>	0.080	0.000	284%	214%	22.6	7.0	
Ireland	0.016	0.002	<b>0.030</b>	0.003	0.000	31%	14%	12.8	3.7	
Italy	0.273	0.020	<b>0.339</b>	0.280	0.044	207%	168%	146.2	50.7	
Latvia	0.006	0.000	<b>0.0376</b>	0.030	0.000	635%	314%	4.3	1.1	
Lithuania	0.011	0.000	<b>0.050</b>	0.000	0.012	266%	159%	5.4	2.3	
Luxembourg	0.004	0.000	<b>0.011</b>	0.000	0.000	150%	36%	3.8	0.8	
Malta*	0.000	0.000	<b>0</b>	0.000	0.000	0%	0%	2.0	0.0	
Netherlands	0.160	0.311	<b>0.305</b>	0.339	0.035	500%	437%	72.4	28.4	
Poland	0.068	0.018	<b>0.153</b>	0.044	0.000	173%	138%	94.9	13.4	
Portugal	0.015	0.000	<b>0.015</b>	0.023	0.022	252%	146%	21.1	3.5	
Romania	0.050	0.027	<b>0.110</b>	0.028	0.000	138%	88%	33.7	10.6	
Slovak Republic	0.023	0.000	<b>0.310</b>	0.045	0.000	601%	300%	15.4	3.3	
Slovenia	0.003	0.000	<b>0.011</b>	0.000	0.000	143%	0%	6.8	0.6	
Spain	0.093	0.000	<b>0.092</b>	0.032	0.173	265%	225%	113.9	23.7	
Sweden	0.005	0.000	<b>0.008</b>	0.001	0.000	19%	0%	46.7	0.8	
<b>United Kingdom</b>	0.276	0.115	<b>0.277</b>	0.154	0.155	228%	201%	177.8	59.7	

Source: DECC analysis of IEA data. \*No data available for Cyprus and Malta \*\*Calculated by peak month divided by number of days in that month.

**Annex 2: Table of PF-1 and PF-2 values for EU-28\* countries, 2014**

EU-28 MS	PF (bcm/day)	PF-1 (bcm/day)	Nature of the largest supply source	PF-2 (bcm/day)	Nature of the second largest supply source
Austria	0.307	0.157	Import pipeline	0.128	Storage
Belgium	0.424	0.358	Import pipeline	0.303	Import pipeline
Bulgaria	0.084	0.006	Import pipeline	0.002	Storage
Croatia	0.022	0.015	Import pipeline	0.009	Storage
Cyprus	0	0.000	-	0.000	-
Czech Republic	0.486	0.330	Import pipeline	0.227	Import pipeline
Denmark	0.054	0.040	Import pipeline	0.028	Storage
Estonia	0.014	0.007	Import pipeline	0.003	Import pipeline
Finland	0.019	0.000	Import pipeline	0.000	-
France	0.554	0.499	Storage	0.445	Import pipeline
Germany	1.579	1.419	Import pipeline	1.318	Import pipeline
Greece	0.029	0.015	LNG	0.005	Import pipeline
Hungary	0.170	0.114	Import pipeline	0.090	Storage
Ireland	0.035	0.005	Import pipeline	0.002	Storage
Italy	0.683	0.563	Import pipeline	0.458	Import pipeline
Latvia	0.068	0.038	Storage	0.019	Import pipeline
Lithuania	0.061	0.030	Import pipeline	0.018	Import pipeline
Luxembourg	0.011	0.006	Import pipeline	0.001	Import pipeline
Malta	0	0.000	-	0.000	-
Netherlands	0.990	0.801	Indigenous production	0.701	Import pipeline
Poland	0.215	0.117	Import pipeline	0.093	Storage
Portugal	0.060	0.038	LNG	0.022	Storage
Romania	0.165	0.069	Import pipeline	0.044	Storage
Slovakia	0.355	0.139	Import pipeline	0.070	Import pipeline
Slovenia	0.011	0.004	Import pipeline	0.000	Import pipeline
Spain	0.297	0.248	LNG	0.210	Import pipeline
Sweden	0.010	0.001	Import pipeline	0.000	Storage
United Kingdom	0.701	0.627	Import pipeline	0.553	Import pipeline

Source: DECC analysis of IEA data. PF = peak flow (defined in Equation 1 in report). \*No data available for Cyprus and Malta.

## Feed-in Tariff load factor analysis

### Introduction

This article updates the FIT load factor analysis presented in the December 2014 edition of Energy Trends<sup>1</sup> with data for FIT year five (financial year 2014/15). We also present regional analysis of solar PV for the four years that data has been published (FIT years two to five) and for wind for year five. All the data in this article is also available in excel format at the following link, including quarterly load factors for solar PV:

[www.gov.uk/government/statistics/quarterly-and-annual-load-factors](http://www.gov.uk/government/statistics/quarterly-and-annual-load-factors)

### Background

The Feed-in Tariff (FIT) scheme was launched in April 2010. It is a financial support scheme for eligible low-carbon electricity technologies, aimed at small-scale installations. The following technologies are supported:

- Solar photovoltaic (PV; Up to 5 MW capacity)
- Anaerobic digestion (AD; Up to 5 MW capacity)
- Hydro (Up to 5 MW capacity)
- Wind (Up to 5 MW capacity)
- Micro combined heat and power (MicroCHP; Up to 2 kW capacity)

Installers receive support through generation and export tariffs, paid directly from electricity suppliers. The generation tariff is based on the number of kilowatt hours (kWh) generated whereas the export tariff is based on electricity that is generated on site, not used and exported back to the grid.

Since the start of the scheme, DECC has provided regular updates on the number and capacity of installations installed under the scheme, currently publishing monthly updates on deployment levels with quarterly reports on geographical distribution, amongst other outputs<sup>2</sup>. From 2013, DECC obtained meter readings for each registered installation from Energy Suppliers and used this to produce quarterly and annual load factors for FIT years two to four (data from year one is not available as the number of installations running for the full year was very small).

### Methodology

The methodology used for the load factor analysis has been described in detail in an Energy Trends article from September 2014<sup>3</sup>. One additional quality assurance (QA) step has been added for 2015, to remove any installations from the analysis where more than one generation meter is attached. This step has only been applied to FIT year five data; previously produced statistics have not been revised. Please note that full QA on data from all installations has not been possible.

Table 1 shows how many installations were registered on the Central Feed-in Tariff Register at the start of FIT year five and how many installations had meter readings in March 2014 and 2015. Extreme values were excluded as in previous year's analysis, with just 0.9% of installations (1,739) removed. The column 'Valid load factor' in Table 1 indicates how many installations were included in the final analysis for each technology for the annual generation data. Anaerobic Digestion data has been included in the main results for the first time, but this data must be treated with caution as the number of installations remains low.

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<sup>1</sup> The article published in December 2014 can be found at: [www.gov.uk/government/statistics/energy-trends-december-2014-special-feature-article-feed-in-tariff-load-factor-analysis](http://www.gov.uk/government/statistics/energy-trends-december-2014-special-feature-article-feed-in-tariff-load-factor-analysis)

<sup>2</sup> The full FIT statistics collection can be found at: [www.gov.uk/government/collections/feed-in-tariff-statistics](http://www.gov.uk/government/collections/feed-in-tariff-statistics)

<sup>3</sup> The article published in September 2014 can be found at: [www.gov.uk/government/statistics/energy-trends-september-2014-special-feature-article-analysis-of-feed-in-tariff-generation-data](http://www.gov.uk/government/statistics/energy-trends-september-2014-special-feature-article-analysis-of-feed-in-tariff-generation-data)

**Table 1: Installations included in analysis by Technology – FIT Year 5**

Technology	Commissioned by 1st April 2014	Generation Data Reported*	Valid load factor	% remaining in analysis
Anaerobic digestion	214	26	24	11
Hydro	632	186	175	28
Micro CHP	505	83	83	16
Photovoltaic	615,550	195,413	193,708	31
Wind	6,609	2,545	2,524	38

\* Meter reading in March 2014 and March 2015.

## Results

Table 2 gives the weighted mean and median load factors as well as associated percentiles for each technology. Chart 1 presents this data across all available years (FITs years two to five), highlighting the large range present for Hydro compared to other technologies.

**Table 2: FIT Year 4 (2014/2015) load factors by technology**

Technology	Count	Mean	Weighted mean	Percentile				
				5 <sup>th</sup>	25 <sup>th</sup>	50 <sup>th</sup> (median)	75 <sup>th</sup>	95 <sup>th</sup>
Anaerobic Digestion	24	71.9	73.0	29.1	67.0	78.5	84.9	98.2
Hydro	175	41.0	39.7	12.9	28.8	37.2	52.9	75.3
MicroCHP	83	12.5	12.5	4.6	8.4	12.0	15.5	23.3
Solar PV	193,708	10.2	10.2	7.3	9.3	10.4	11.3	12.7
Wind	2,524	19.5	25.3	5.9	11.2	18.1	25.9	39.3

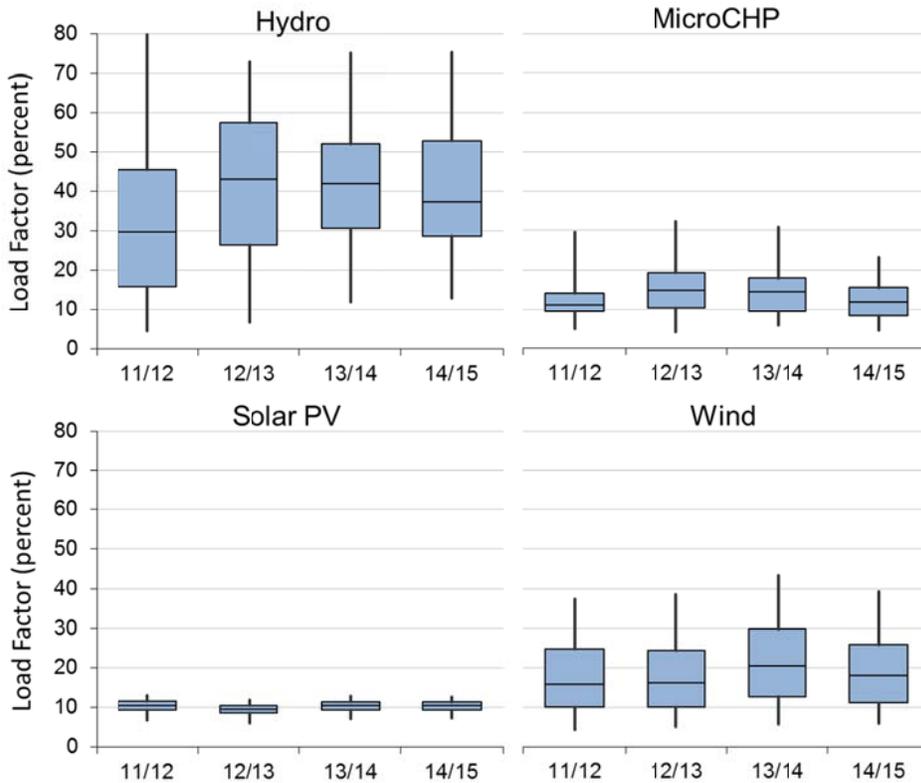
The median load factor for Solar PV in 2014/15 is the same as in 2013/14 (10.4%). This is expected, as the average daily sun hours are the same for both periods (4.5 hrs)<sup>4</sup>, see Table 3.

**Table 3: Solar PV load factors and average sun index**

Year	Median load factor	Average daily sun hours
2011/12	10.5	4.5
2012/13	9.6	3.7
2013/14	10.4	4.5
2014/15	10.4	4.5

<sup>4</sup> Average daily sun hours taken from Energy Trends section 7: weather, table 7.3 "Average daily sun hours and deviations from the long term mean (ET 7.3)" [www.gov.uk/government/statistics/energy-trends-section-7-weather](http://www.gov.uk/government/statistics/energy-trends-section-7-weather). Note that data for 2015 is provisional and subject to revision.

**Chart 1: Load factor range by technology and year.** Lines indicate range from 5<sup>th</sup> to 95<sup>th</sup> percentile. Boxes indicate range from lower to upper quartile (25<sup>th</sup> to 75<sup>th</sup> percentile) with median indicated.



As in previous years, the weighted mean load factor for Wind installations is higher than the mean, and this difference has increased year on year. This reflects a relative increase in the number of larger wind schemes in the analysis. The relationship between average daily wind speed<sup>5</sup> and load factor for wind installations is less clear than between sun hours and solar load factors (see Table 4). The data for wind installations is based on a smaller number of installations than the Solar PV analysis and therefore it is not clear yet whether the annual variation seen is an artefact of the samples used for each year.

**Table 4: Wind load factors and average wind speed**

Year	Median load factor	Average wind speed (knots)
2011/12	15.9	9.2
2012/13	19.3	8.1
2013/14	20.5	9.3
2014/15	18.1	8.6

<sup>5</sup> Average wind speed taken from Energy Trends section 7: weather, table 7.2 " Average wind speed and deviations from the long term mean (ET 7.2)" [www.gov.uk/government/statistics/energy-trends-section-7-weather](http://www.gov.uk/government/statistics/energy-trends-section-7-weather). Note that data for 2015 is provisional and subject to revision.

### Solar PV Load Factors

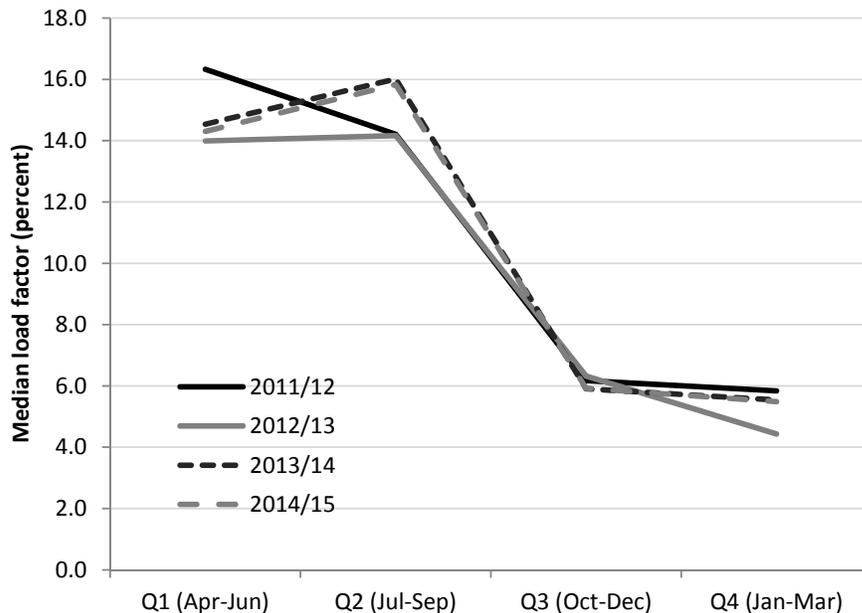
The number of Solar PV installations continues to steadily increase but there is no evidence from our analysis here that the load factor of installations decreases over time. When schemes are installed, their productivity may vary across time since the solar panels may degrade, losing efficiency. Newly installed schemes can benefit from technological improvements, but there is also a potential concern that early solar adopters used the most favourable sites, making newer sites less efficient. Table 5 gives the data from all the installations in the FIT year five analysis, broken down by calendar year commissioned. The mean load factor for Solar PV installations does not appear to vary relative to year installed.

**Table 5: Solar PV Load Factors in FIT Year 5 by year commissioned**

Year Commissioned	Count	Load Factor
2010 and earlier	10,003	10.1
2011	4,960	10.3
2012	61,629	10.2
2013	29,909	10.1
2014	7,206	10.1

Quarterly load factors for Solar PV installations are available in the accompanying excel workbook and are presented graphically in Chart 2. These show an expected association between load factor and daily hours of sunshine, where the quarters mainly covering Autumn and Winter have the lowest load factors. This chart also highlights that the lower annual load factors seen in FIT year three (2012/13) for Solar PV are driven by lower load factors in all quarters except quarter three (Q3).

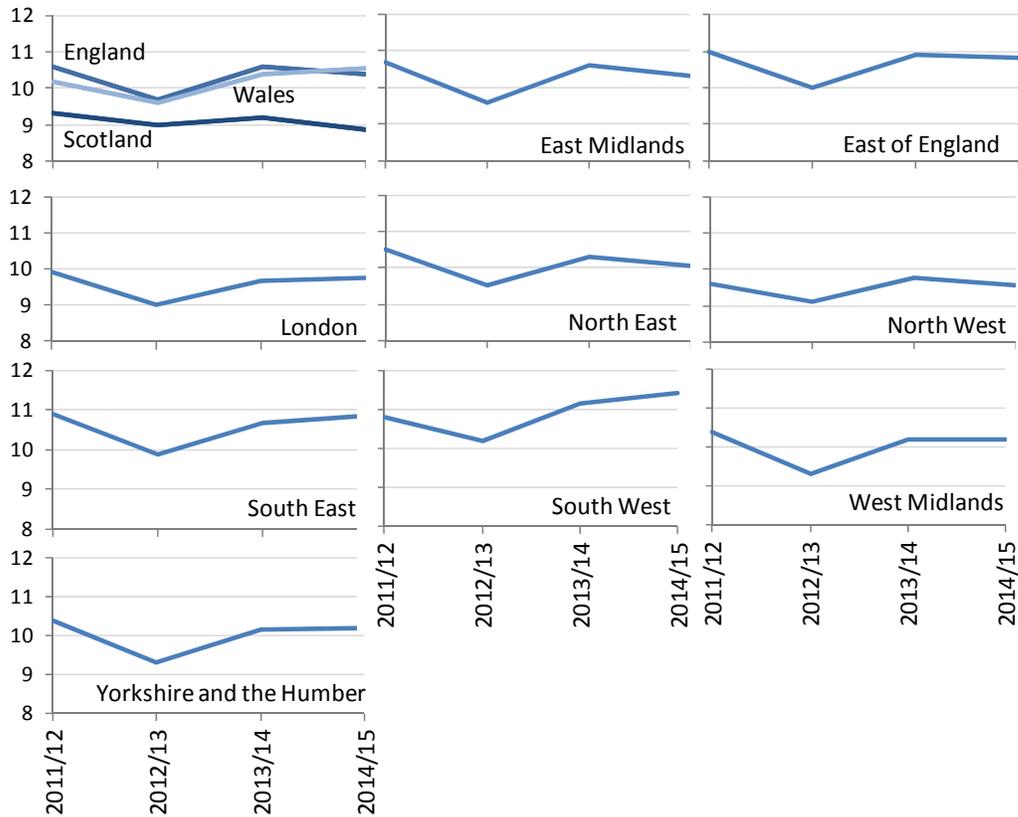
**Chart 2: Quarterly PV load factors by FIT year**



### Regional Solar PV Load Factors

Solar PV Factors for each Government Office Region have been published for FIT years two to four and are updated with data from year five in Table 4. Chart 3 highlights that the lowest load factors are seen in Scotland, while the highest are seen in the South West. Load factors in year three (2012/13) are lower than in other years, which are explained by the average daily sun hours also dropping for that year (see Table 3). London again has a lower load factor than the South East which may be due to pollution or particles settling on the panels or because panels are shaded by tall buildings nearby.

**Chart 3: Regional Solar PV load factors for FITs years 2-5**



**Table 4: Regional Solar PV load factors for FITs years 2-5**

Region	FIT Year 2 (2011/12)		FIT Year 3 (2012/13)		FIT Year 4 (2013/14)		FIT Year 2 (2014/15)	
	Count	Median	Count	Median	Count	Median	Count	Median
East Midlands	855	10.7	7,520	9.6	12,936	10.6	18,735	10.3
East of England	1,465	11.0	10,521	10.0	16,306	10.9	21,247	10.8
London	523	9.9	3,283	9.0	4,117	9.7	4,996	9.8
North East	224	10.5	3,460	9.5	5,805	10.3	8,023	10.1
North West	718	9.6	8,867	9.1	13,024	9.8	17,360	9.5
South East	2,764	10.9	17,378	9.9	23,235	10.7	25,994	10.9
South West	2,649	10.8	24,445	10.2	31,965	11.2	36,938	11.4
West Midlands	974	10.4	7,139	9.3	11,118	10.2	15,312	10.2
Yorkshire and the Humber	798	10.3	7,292	9.3	11,299	10.2	18,507	9.9
<b>England</b>	<b>10,970</b>	<b>10.6</b>	<b>89,905</b>	<b>9.7</b>	<b>129,805</b>	<b>10.6</b>	<b>167,112</b>	<b>10.4</b>
<b>Scotland</b>	<b>508</b>	<b>9.3</b>	<b>7,722</b>	<b>9.0</b>	<b>11,531</b>	<b>9.2</b>	<b>11,363</b>	<b>8.9</b>
<b>Wales</b>	<b>645</b>	<b>10.2</b>	<b>9,882</b>	<b>9.6</b>	<b>13,643</b>	<b>10.4</b>	<b>15,100</b>	<b>10.5</b>

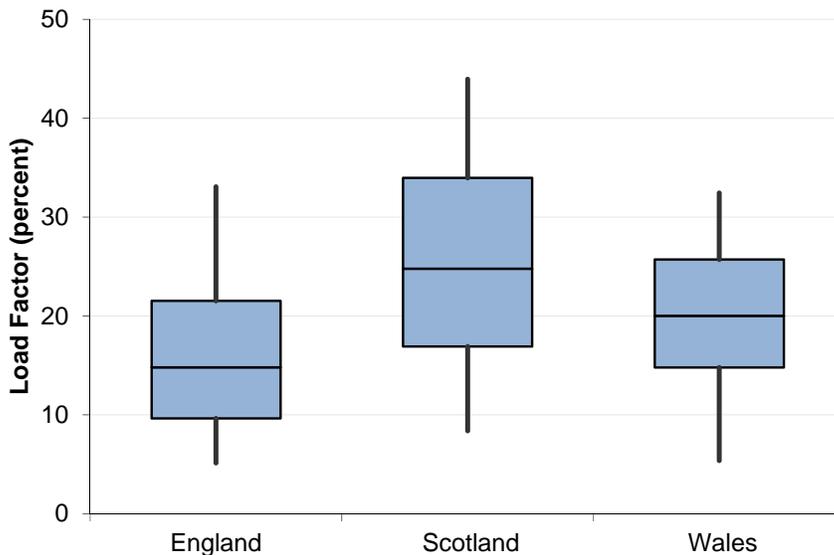
### Regional Wind Load Factors

This year we have also produced regional load factors for Wind schemes and these are presented in Table 5. Data from London and the South East has been aggregated as there was only installation within the London region with a valid load factor. Chart 4 summarises this data for England, Scotland and Wales, showing that the highest Wind load factors are found in Scotland.

**Table 5: Regional Wind load factors for FITs year 5**

Region	Count	Median
East Midlands	134	14.4
East of England	453	10.0
London and South East	30	14.8
North East	84	16.5
North West	133	19.0
South West	318	19.6
West Midlands	63	13.6
Yorkshire and the Humber	319	18.9
<b>England</b>	<b>1,534</b>	<b>14.8</b>
<b>Scotland</b>	<b>743</b>	<b>24.8</b>
<b>Wales</b>	<b>190</b>	<b>20.0</b>

**Chart 4: Wind regional load factors for FITs year 5 by country.** Lines indicate range from 5<sup>th</sup> to 95<sup>th</sup> percentile. Boxes indicate range from lower to upper quartile (25<sup>th</sup> to 75<sup>th</sup> percentile) with median indicated.



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

### **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 was published on Thursday 29 October 2015 at: [www.gov.uk/government/collections/uk-energy-sector-indicators](http://www.gov.uk/government/collections/uk-energy-sector-indicators)

### **Household Energy Efficiency statistics**

DECC ran a user consultation on 20 August 2015 lasting for six weeks, to seek views on a number of proposals to the statistical series on Green Deal and Energy Company Obligation statistics. The consultation and DECC's response (published on 19 November 2015) can be found at: [www.gov.uk/government/consultations/decc-household-energy-efficiency-national-statistics-user-consultation](http://www.gov.uk/government/consultations/decc-household-energy-efficiency-national-statistics-user-consultation)

Following the consultation this statistical series has made the following changes:

- In response to concerns expressed by some respondents, DECC will not reduce the frequency of any ECO only related statistics.
- Headline figures on Green Deal related statistics previously published monthly, will now be released on a quarterly basis, with the exception of Cashback (since this scheme has now closed).
- Detailed figures on Green Deal related statistics, insulation levels and interactions between other schemes (e.g. Feed-in Tariffs) previously published quarterly, will now be released on an annual basis.
- Improved design and accessibility of the tables (including detailed time series breakdowns) and accompanying commentary.

The first headline release in the new format following the user consultation was published on 17 December 2015 at:

[www.gov.uk/government/collections/household-energy-efficiency-national-statistics](http://www.gov.uk/government/collections/household-energy-efficiency-national-statistics)

### **Greenhouse Gas Emissions quarterly statistics**

This publication provides provisional estimates of UK greenhouse gas emissions on a quarterly basis. The latest release covering emissions up to and including the 3rd quarter of 2015, will be published on 22 December 2015 at:

[www.gov.uk/government/collections/uk-greenhouse-gas-emissions-quarterly-official-statistics](http://www.gov.uk/government/collections/uk-greenhouse-gas-emissions-quarterly-official-statistics)

Future editions of this release will now coincide with the quarterly publication of Energy Trends in March, June, September and December, with the March release being combined with the provisional annual greenhouse gas emissions statistics (see below).

### **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 December 2015, will be published on 22 December 2015 at: [www.gov.uk/government/collections/smart-meters-statistics](http://www.gov.uk/government/collections/smart-meters-statistics)

### **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 1 February 2014 and 31 January 2015. These data follow on from the results produced from similar exercises carried out for 2005 to 2013. The release will be published on 22 December 2015, at:

[www.gov.uk/government/collections/sub-national-electricity-consumption-data](http://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 release will be published on 22 December 2015, at:

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

### **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 consumption data for 2012 and 2013 and non-domestic data for 2013 will be published on 22 December 2015 at:

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

### **Sub-national electricity and gas consumption at MSOA, IGZ and LSOA level, 2014**

This publication comprising a series of Excel spreadsheets provides details of domestic and non-domestic electricity and gas consumption at Lower Super Output Area (LSOA), Middle Super Output Area (MSOA) and Intermediate Geography Zone (IGZ) for 2014. The data will be published on 28 January 2016 for electricity at:

[www.gov.uk/government/statistics/lower-and-middle-super-output-areas-electricity-consumption](http://www.gov.uk/government/statistics/lower-and-middle-super-output-areas-electricity-consumption)

and gas at:

[www.gov.uk/government/statistics/lower-and-middle-super-output-areas-gas-consumption](http://www.gov.uk/government/statistics/lower-and-middle-super-output-areas-gas-consumption)

### **Greenhouse Gas Emissions final 2014 statistics**

This publication provides final estimates of UK greenhouse gas emissions going back to 1990. Estimates are presented by source in February of each year and are updated in March of each year to include estimates by end-user and fuel type. Final 2014 statistics will be published on 2 February 2016 at:

[www.gov.uk/government/collections/final-uk-greenhouse-gas-emissions-national-statistics](http://www.gov.uk/government/collections/final-uk-greenhouse-gas-emissions-national-statistics)

### **Greenhouse Gas Emissions provisional 2015 statistics**

This publication provides the latest provisional estimates of UK greenhouse gas emissions based on provisional inland energy consumption statistics as published in Energy Trends. Provisional 2015 statistics will be published on 31 March 2016 at:

[www.gov.uk/government/collections/provisional-uk-greenhouse-gas-emissions-national-statistics](http://www.gov.uk/government/collections/provisional-uk-greenhouse-gas-emissions-national-statistics)

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

### Energy

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

### Coal

- December 2014 Global coal trade
- September 2015 Coal in 2014

### Combined Heat and Power (CHP)

- September 2015 Combined Heat and Power in Scotland, Wales, Northern Ireland and the regions of England in 2014

### 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

- 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
- September 2015 Diversity of supply for oil and oil products in OECD countries in 2014

## **Renewables**

June 2015 Renewable energy in 2014

September 2015 Renewable electricity in Scotland, Wales, Northern Ireland and the regions of England in 2014  
UK and EU trade of wood pellets

## **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](http://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](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.

## 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](http://www.gov.uk/browse/business/generating-energy/oil-and-gas-exploration-and-production)

## Abbreviations

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

## Symbols used in the tables

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

## Conversion factors

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

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

## Conversion matrices

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

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

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

Note that all factors are quoted to 5 significant figures

## Sectoral breakdowns

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

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

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