Electricity generation and supply figures for Scotland, Wales, Northern Ireland and England, 2012 to 2015

Introduction

This article shows how generation and consumption of electricity varies across the four countries of the United Kingdom. It updates and extends a previous version published in December 2015¹. The UK figures shown in this article are taken from the Digest of United Kingdom Energy Statistics (DUKES) 2016, chapters 5 and 6 so the definitions used are identical to those in the Digest. Tables 1 and 2 are included at the end of the main text and cover the last four years, with data for 2004 to 2015 available in the accompanying Excel spreadsheet.

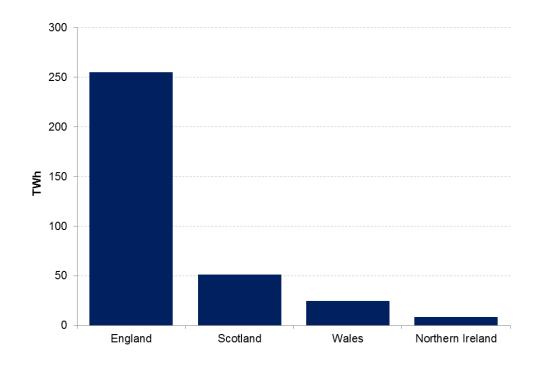
Key points

- Scotland exported a record high 29 per cent of generated electricity to other countries in the UK, with virtually all of these net exports going to England.
- The fuel mix for generation varied across the UK. Gas had the largest generation share in both England (35 per cent) and Northern Ireland (49 per cent). In Scotland renewables had the largest share at 42 per cent, while in Wales coal had the largest share at 33 per cent.
- A record high percentage of generation share came from renewables in each country; 21
 per cent in England, 42 per cent in Scotland, 20 per cent in Wales and 26 per cent in
 Northern Ireland.

Generation and trade

Table 1 shows generation and supply of electricity in each UK country. Because the mix of generating plants 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.

Chart 1: Total generation by country (all generating companies) in 2015



www.gov.uk/government/statistics/energy-trends-december-2015-special-feature-article-electricity-generation-and-supply-figures-for-scotland-wales-northern-ireland-and-england-2

Special feature – Sub national electricity figures

Between 2014 and 2015 England's share of total generation decreased to 77 per cent (down 1.7 percentage points), while Scotland's share remained broadly stable at 15 per cent (up 0.3 percentage points). Wales' share also increased, from 6.2 per cent to 7.2 per cent. Northern Ireland's share of generation slightly increased from 2.3 per cent to 2.5 per cent. On average, over the last four years, 76 per cent of UK electricity generation has taken place in England, 15 per cent in Scotland, 7 per cent in Wales and 2.3 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 has been a net exporter to Wales since 2014.

In 2015 Scotland exported a record high 29 per cent of the electricity generated there to consumers elsewhere in the UK; this has increased from 24 per cent in 2014 (up 5.2 percentage points) due to an increase in generation in Scotland (up 2.5 per cent). Net exports to England increased 36 per cent which offset the 82 per cent drop in net exports to Northern Ireland.

In 2015 Wales was a net importer from England for the second consecutive year, however the level of imports from England fell 87 per cent, as Welsh generation rose 17 per cent with only a 13 per cent increase in 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 4.3 per cent of Wales' generation exported to the Republic of Ireland in 2015.

Northern Ireland trades electricity with the Republic of Ireland and had been a net exporter between 2004 and 2014, but has since become a net importer from the Republic of Ireland. Northern Ireland also imports electricity from Scotland via the Moyle interconnector.

Generation by fuel

For each of the four UK countries, Table A shows the shares of the generation of electricity by fuel category for 2014 and 2015. This is also shown in Chart 2. In the UK, the nuclear share increased slightly in 2015 from 19 per cent to 22 per cent following a decrease in generation in 2014 due to maintenance outages at a number of plants. In Scotland, the share of nuclear dropped slightly from 35 per cent to 33 per cent between 2013 and 2014, before rising to 35 per cent again in 2015. In Wales the share of nuclear generation dropped from 17 per cent in 2013 to 9 per cent in 2014 following outages at Wylfa, before increasing to 16 per cent in 2015.

Coal's share of UK generation has decreased each year since 2012, down to a record low 22 per cent in 2015. The fall in coal generation in England, from 31 per cent in 2014 to 22 per cent in 2015, is due to reduced capacity after the closure or partial closure of multiple coal plants that were opted out of the Large Combustion Plant Directive². This includes the partial closure of Ferrybridge C in April 2014 (capacity falling from 1,960 MW to 980 MW) and the mothballing of Lynemouth in April 2015. Another factor in the reduction of coal generation in England was the conversion of two units at Drax: one unit from coal to biomass in 2014 and another unit from coal to high-range cofiring (85% to <100% biomass) in 2015. The share of coal generation in Wales decreased slightly from 36 per cent to 33 per cent, in Scotland from 20 per cent to 16 per cent and in Northern Ireland from 28 per cent to 25 per cent.

The share of gas generation between 2014 and 2015 in England increased only slightly to 35 per cent (up 0.6 percentage points), with Wales down from 24 per cent to 20 per cent and Northern Ireland down from 49 per cent to 48 per cent. Gas generation in Scotland has reduced each year since 2008, and fell further from 5.5 per cent to 3.7 per cent from 2014.

Renewables share of generation has been continually increasing, reaching a record high of 25 per cent in 2015. The conversions at Drax, along with a 70 per cent increase in solar capacity have led to an increase in England's renewables share of generation, up to 21 per cent in 2015 from 16 per cent in 2014. Scotland's generation from renewables was 42 per cent in 2015, up 4.2 percentage

² Details of this were published in the September 2015 issue of Energy Trends, available at www.gov.uk/government/uploads/system/uploads/attachment_data/file/462364/LCPD.pdf

points, mainly due to an increase in wind capacity of 6.2 per cent. Renewables generation in Wales increased by 3.7 percentage points to 20 per cent, with Northern Ireland up by 4.1 percentage points to 26 per cent.

Table A: Percentage shares of each country's generation, by fuel type, 2014 and 2015

	Scotland	Wales	Northern Ireland	England	UK total
2014					
Coal	20.3	35.7	28.4	31.0	29.6
Gas	5.5	24.1	48.9	34.4	29.8
Nuclear	33.3	9.3	0.0	17.4	18.9
Renewables	38.0	16.3	21.9	15.6	19.1
Oil and Other	2.9	14.6	0.8	1.6	2.6
2015					
Coal	16.2	32.7	24.9	22.4	22.3
Gas	3.7	19.9	48.3	35.0	29.5
Nuclear	34.7	15.8	0.0	19.1	20.7
Renewables	42.2	20.0	26.0	21.5	24.6
Oil and Other	3.1	11.6	0.7	2.0	2.8

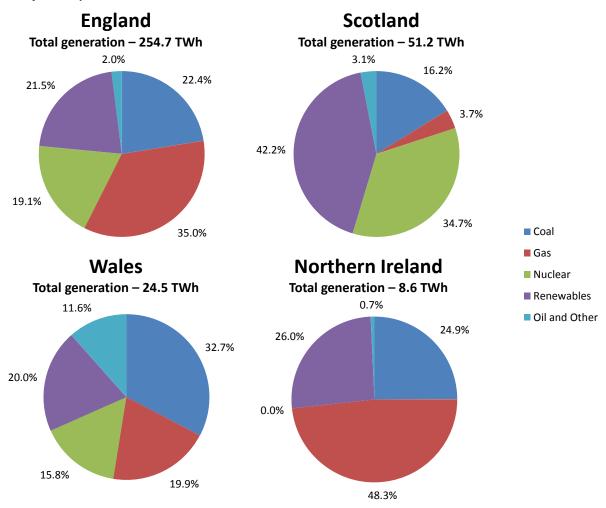
Combined heat and power (CHP) forms the bulk of 'Other generators' generation, although some major power producers (MPPs) also operate generating plants that are partially CHP. CHP statistics for 2015 on a sub-national and regional basis were published in the September 2016 issue of Energy Trends (see references at the end of the article).

The share of generation accounted for by generators other than major power producers varies across the UK. In Scotland, in 2015, other generators had a 15 per cent share (up from 14 per cent in 2014), while in England the share was 12 per cent (up from 10 per cent), in Wales 13 per cent (down from 14 per cent) and in Northern Ireland 20 per cent (up from 16 per cent).

Overall, the UK saw a small increase in total generation (up 0.3 per cent), despite a 1.7 per cent fall in MPP generation. This was due to a 16 per cent increase in autogeneration. The largest reduction in generation share was experienced by coal (down 7.3 percentage points), with conversions of coal units to biomass units at Drax and adverse market conditions. The Drax conversions also led to thermal renewables having the largest increase in generation share (up 5.4 percentage points).

Chart 2 shows the generation by fuel type for each country in 2015.

Chart 2: Generation by fuel type for each country in the UK in 2015 (all generating companies)



Renewables

The share of renewables in electricity generation or sales is measured in two different ways in the UK³. First, there is the "headline" overall measure that shows the percentage of electricity generation accounted for by all renewables. Secondly, there is the measure that is based on the Renewables Obligation (RO) (and the analogous Renewables Obligation (Scotland) - ROS) which shows the percentage of electricity sales accounted for by renewables eligible under these obligations. The main differences are the exclusion from the RO of large-scale hydro and non-biodegradable wastes⁴. Table B shows the overall measure for 2012 to 2015.

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³ 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.

⁴ 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.

Table B: Renewables percentages

		UK	Scotland	Wales	Northern Ireland	England
Overall	2012	11.3	29.1	9.3	15.9	8.2
renewables	2013	14.9	32.0	10.3	19.5	11.8
percentage	2014	19.1	38.0	16.3	21.9	15.6
	2015	24.6	42.2	20.0	26.0	21.5

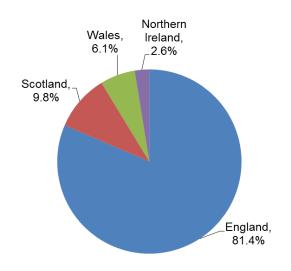
With its high proportion of natural flow hydro, as well as wind generation increasing over the last few years due to increased capacity, renewables' share in Scotland under the headline measure increased by 4.2 percentage points to stand at 42 per cent in 2015. This increase was mainly due to a rise in wind and solar generation as a result of increasing capacity. In 2015, all four regions had a record high percentage of electricity generated by renewables. On a RO basis, the percentage measure for the UK (12 per cent in 2012, 15 per cent in 2013, 18 per cent in 2014 and 23 per cent in 2015) is not meaningful at sub-national level because electricity generated in one part of the UK can be sold in a different part of the UK.

In Scotland, the renewables target to reach 100 per cent 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 2012, this percentage was 39 per cent, increasing to 44 per cent in 2013. In 2014, this rose by 5.3 percentage points to 50 per cent. It surpassed the interim target, of 50 per cent by 2015, after increasing to reach 59 per cent.

The amount of electricity from renewable sources transferred from Scotland or Wales to England, or from Scotland to Northern Ireland, is not known. What is known from Table 2 is that the amount of ROS eligible electricity generated in Scotland in 2015 was 13 per cent more than in 2014, while the amount of RO eligible electricity generated in Wales in 2015 was 60 per cent higher than in 2014. In England, the increase was 31 per cent. In Northern Ireland RO eligible electricity generated was 31 per cent higher. In the UK as a whole, RO eligible electricity production increased by 28 per cent from 2014 to 2015. Over the four years shown in Table 2, the increases in RO eligible electricity production have been substantial across all countries, namely 74 per cent for Northern Ireland, 43 per cent for Scotland, 86 per cent for Wales and 109 per cent for England.

Renewables statistics for 2015 on a sub-national and regional basis were published in the September 2016 issue of Energy Trends (see references at the end of the article).

Chart 3: Electricity consumption in 2015



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 3) that in 2015, 9.8 per cent of electricity consumption in the UK was in Scotland, 6.1 per cent in Wales, 2.6 per cent in Northern Ireland and 81.4 per cent in England. These are all broadly the same as the average percentage shares for each country for the period 2012 to 2015, namely 82.0 per cent for England, 10.0 per cent for Scotland, 5.5 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 BEIS' 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 2016, 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, BEIS 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 4 shows the relationship between generation and consumption of electricity in each of the countries by means of a flow diagram.

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References:

Digest of UK Energy Statistics 2016 (DUKES); available on BEIS's energy statistics website at: 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

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

www.gov.uk/government/uploads/system/uploads/attachment_data/file/462364/LCPD.pdf

"Combined Heat and Power in Scotland, Wales, Northern Ireland and the regions of England in 2015" – Energy Trends September 2016, page 63:

www.gov.uk/government/statistics/energy-trends-september-2016-special-feature-articles

"Renewable electricity in Scotland, Wales, Northern Ireland and the regions of England in 2015" – Energy Trends September 2016, page 48:

www.gov.uk/government/statistics/energy-trends-september-2016-special-feature-articles

Chart 4: Electricity generation and consumption flow chart, 2015

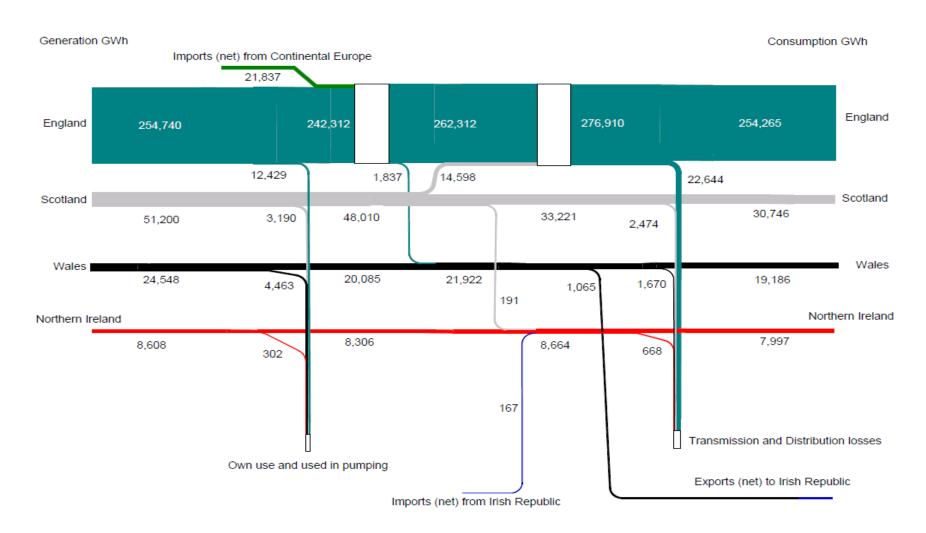


Table 1: Generation and supply of electricity in Scotland, Wales, Northern Ireland and England,												
		20	12 to 20								GWh	
				2012					2013			
		LIIV total	Scotland		Vorthern	Foolood	LIIZ total	Scotland	Wales	Northern	Faalaad	
0	M			Wales		England				Ireland	England	
Generated by	Major power producers	328,270		23,598	6,573	253,275	324,725		23,024	6,706	248,217	
	Other generators	35,309		2,529	822	26,260	33,653		2,706	1,072	23,689	
Total generated	l	363,579	50,520	26,127	7,396	279,535	358,378	52,963	25,730	7,778	271,906	
Own use by Oth	ner generators	2,108	340	151	49	1,568	2,187	402	176	70	1,539	
Electricity suppl	lied (net) by Other generators	33,200	5,357	2,378	773	24,692	31,466	5,783	2,531	1,002	22,150	
Used in pumping at pumped storage and other own use by MPPs		19,837	2,995	4,332	196	12,314	19,598	2,995	4,538	199	11,866	
Electricity supplied (net) by MPPs		308,433	41,828	19,267	6,377	240,961	305,127	43,783	18,485	6,507	236,352	
Electricity transferred to England (net of receipts) Electricity transferred to Northern Ireland (net of		0	10,717	2,157	0	-12,874	0	13,275	1,143	0	-14,418	
receipts)		0	2,162	0	-2,162	0	0	1,541	0	-1,541	0	
Electricity transferred to Europe (net of receipts)		-11,871	0	104	160	-12,135	-14,426	0	2,161	45	-16,632	
Transfers from (other generators to public supply	15,882	2,895	901	618	11,468	13,976	3,424	1,165	877	8,510	
Transmission lo	esses	6,757	656	370	175	5,556	6,351	629	320	163	5,239	
Distribution loss	ses	22,160	1,880	1,104	544	18,632	21,375	1,816	952	501	18,106	
Consumption from	om public supply [A]	307,285	29,311	16,433	8,279	253,262	305,825	29,950	15,076	8,216	252,583	
Consumption by	y autogenerators	17,303	2,460	1,476	155	13,213	17,467	2,356	1,364	124	13,624	
Total Electricity	consumption	324,588	31,771	17,909	8,434	266,475	323,292	32,306	16,439	8,340	266,207	
Electricity sales	(public supply) [B]	308,408	28,749	17,109	7,942	254,608	306,747	28,879	17,342	7,791	252,736	
Statistical differen	ence	-1,123	560	-677	318	-1,325	-923	1,072	-2,266	425	-153	
between calcula	ated consumption [A] and sales [B]											

	continued: Generation and s		d, 2012	to 2015		i, waics,	- TOTALICITI	псіапа			GWh
				2014			_		2015		
		LIV total	Scotland	-	Vorthern	England	LIV total	Scotland	Wales	Northern	England
Cananata d b	Majar nawar nyadusara			Wales		England				Ireland	England
Generated by	Major power producers	300,823	42,876	17,997	6,520	233,430	295,742			6,908	224,071
Tatal managets d	Other generators	37,352	7,068	2,938	1,219	26,127	43,353		3,096	1,700	30,669
Total generated	1	338,175	49,944	20,935	7,739	259,556	339,095	51,200	24,548	8,608	254,740
Own use by Oth	ner generators	2,526	478	199	82	1,767	2,867	522	205	112	2,028
Electricity suppl	lied (net) by Other generators	34,825	6,590	2,740	1,136	24,360	40,486	7,366	2,891	1,587	28,641
Used in pumping at pumped storage and other own use by MPPs		17,842	3,090	4,155	184	10,413	17,516	2,668	4,258	190	10,400
Electricity supplied (net) by MPPs		282,981	39,786	13,842	6,335	223,017	278,226	40,644	17,193	6,718	213,671
Electricity transferred to England (net of receipts) Electricity transferred to Northern Ireland (net of		0	10,770	-2,949	0	-7,821	0	14,598	-1,837	0	-12,761
receipts)		0	1,044	0	-1,044	0	0	191	0	-191	0
Electricity transf	ferred to Europe (net of receipts)	-20,520	0	2,408	-121	-22,807	-20,938	0	1,065	-167	-21,837
Transfers from o	other generators to public supply	16,378	4,059	1,425	989	9,904	18,733	4,059	1,753	1,423	11,497
Transmission lo	osses	6,509	665	329	166	5,349	7,394	723	454	189	6,028
Distribution loss	ses	22,142	1,897	975	508	18,761	20,063	1,751	1,216	479	16,616
Consumption fro	om public supply [A]	291,245	29,473	14,505	7,816	239,451	290,446	27,440	18,048	7,833	237,125
Consumption by	y autogenerators	18,431	2,527	1,313	146	14,444	21,748	3,306	1,138	164	17,141
Total Electricity	consumption	309,676	32,001	15,818	7,962	253,895	312,194	30,746	19,186	7,997	254,265
Electricity sales	(public supply) [B]	291,353	26,882	16,791	6,842	240,838	289,337	26,282	19,030	6,485	237,539
Statistical differen	ence	-108	2,592	-2,286	973	-1,387	1,109	1,158	-982	1,347	-415
between calcula	ated consumption [A] and sales [B]										

Table 2: Generation of electricity by fuel in Scotland, Wales, Northern Ireland and England, 2012 to 2015 *GWh*

					GVVII								
				2012			2013						
					Northern					Northern			
		UK total	Scotland	Wales	Ireland		UK total	Scotland	Wales	Ireland	England		
Major power	Coal	140,164	11,867	10,824	2,367	115,105	130,204	10,802	11,478	2,606	105,319		
producers:	Oil	1,132	155	0	44	933	745	161	0	20	563		
	Gas	86,229	3,680	4,737	3,609	74,204	82,891	3,497	3,432	3,457	72,505		
	Nuclear	70,405	17,050	4,141	0	49,214	70,607	18,498	4,326	0	47,783		
	Thermal renewables	6,067	422	104	0	5,542	9,285	360	129	0	8,796		
	Other thermal	-	-	-	-	-	522	0	0	0	522		
	Hydro natural flow	4,169	3,859	287	0	24	3,609	3,412	175	0	22		
	Hydro pumped storage	2,966	610	2,357	0	0	2,904	620	2,283	0	1		
	Non thermal renewables	17,137	7,181	1,149	553	8,253	23,958	9,428	1,200	622	12,708		
	Total	328,270	44,823	23,598		253,275	324,725	46,778	23,024	6,706			
Other	Coal	2,992	25	0	39	2,928	83	19	0	39			
Generators:	Oil	1,439	449	56	36	899	1,321	434	49	38	801		
	Gas	13,931	1,959	1,125	124	10,724	12,952	1,943	907	102	10,000		
	Thermal renewables	8,581	1,063	466	109	6,943	8,878	999	490	134	7,255		
	Other thermal	1,767	27	454	0	1,286	1,390	33	594	0	763		
	Hydro natural flow	1,116	980	51	21	64	1,095	951	52	21	71		
	Non thermal renewables	4,054	1,181	377	494	2,002	6,452	1,798	615	737	3,302		
	Wastes	1,429	14	0	0	1,415	1,481	8	0	0	1,473		
	Total	35,309	5,697	2,529	822	26,260	33,653	6,185	2,706	1,072	23,689		
Total generat	tion by fuel	363,579	50,520	26,127	7,396	279,535	358,378	52,963	25,730	7,778	271,906		
within	-		·	·	•								
which: Ren	ewables Hydro	5,285	4,838	337	21	88	4,704	4,363	227	21	93		
	Wind, wave, solar	21,191	8,362	1,527	1,047	10,255	30,410	11,227	1,815	1,360	16,010		
	Other	14,648	1,485	570	109	12,484	18,163	1,359	619	134	16,051		
	Total	41,124	14,685	2,434	1,177	22,828	53,278	16,949	2,661	1,515	32,153		
Renewables	eligible under the renewables												
obligation		36,647	11,927	2,265	1,177	21,279	44,958	13,979	2,107	1,414	27,458		
Percentage	Coal	39.4%	23.5%	41.4%	32.5%	42.2%	36.4%	20.4%	44.6%	34.0%	38.7%		
shares of	Oil	0.7%	1.2%	0.2%	1.1%	0.7%	0.6%	1.1%	0.2%	0.7%	0.5%		
generation:	Gas	27.5%	11.2%	22.4%	50.5%	30.4%	26.7%	10.3%	16.9%	45.8%	30.3%		
	Nuclear	19.4%	33.7%	15.8%	0.0%	17.6%	19.7%	34.9%	16.8%	0.0%	17.6%		
	Hydro natural flow	1.5%	9.6%	1.3%	0.3%	0.0%	1.3%	8.2%	0.9%	0.3%	0.0%		
	Other renewables	9.9%	19.5%	8.0%	15.6%	8.1%	13.6%	23.8%	9.5%	19.2%	11.8%		
	Other	1.7%	1.3%	10.8%	0.0%	1.0%	1.8%	1.2%	11.2%	0.0%	1.0%		
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		

Table 2	continued: Generation of	electricit	y by fuel	in Sco	tland, W	ales, Nor	thern Irelar	nd and En	gland, 20	012 to 2015	GW h
			2014						2015		
					Northern					Northern	
		UK total	Scotland	Wales	Ireland	England	UK total	Scotland	Wales	Ireland	England
Major power	Coal	100,158	10,152	7,478	2,159	80,369	75,563	8,306	8,021	2,110	57,127
producers:	Oil	530	181	0	23	326	683	143	0	22	518
	Gas	88,871	880	4,187	3,679	80,126	88,461	126	4,186	4,042	80,106
	Nuclear	63,748	16,633	1,953	0	45,161	70,345	17,763	3,886	0	48,696
	Thermal renewables	12,707	375	74	0	12,258	17,694	397	83	0	17,214
	Other thermal	528	0	0	0	528	689	0	0	0	689
	Hydro natural flow	4,635	4,391	213	0	30	4,907	4,609	273	0	24
	Hydro pumped storage	2,883	494	2,389	0	0	2,739	523	2,217	0	0
	Non thermal renewables	26,763	9,770	1,702	660	14,632	34,662	11,445	2,785	735	19,697
	Total	300,823	42,876	17,997	6,520	233,430	295,742	43,312	21,451	6,908	224,071
Other	Coal	72	0	0	39	33	66	0	0	38	28
Generators:	Oil	1,366	640	43	39	644	1,450	693	30	42	685
	Gas	12,024	1,844	853	105	9,222	11,574	1,787	692	118	8,977
	Thermal renewables	9,977	1,353	495	166	7,962	11,695	1,464	940	270	9,021
	Other thermal	1,486	135	621	0	730	1,192	207	594	0	390
	Hydro natural flow	1,258	1,045	62	28	123	1,382	1,148	78	29	127
	Non thermal renewables	9,245	2,028	864	840	5,512	13,211	2,564	762	1,203	8,681
	Wastes	1,923	22	0	0	1,901	2,784	25	0	0	2,759
T. (.)	Total	37,352	7,068	2,938	1,219	26,127	43,353	7,888	3,096	1,700	30,669
Total genera	ation by fuel	338,175	49,944	20,935	7,739	259,556	339,095	51,200	24,548	8,608	254,740
within	Davis versible a Theolog	F 000	F 400	070	00	450	0.000	F 7F7	050	00	454
<i>which:</i> F	Renewables Hydro	5,893	5,436	276	28	153	6,289	5,757	352	29	151
	Wind, wave, solar	36,008	11,798	2,566	1,500	20,144	47,872	14,009	3,547	1,938	28,378
	Other	22,684	1,728	569	166	20,220	29,388	1,861	1,023	270	26,235
	Total	64,584	18,962	3,411	1,695	54,727	83,550	21,627	4,921	2,237	54,764
	eligible under the renewables	50.457	45.004	0.000	4.500	00.000	07.040	47.070	4.044	0.047	44.400
obligation		53,157	15,094	2,628	1,563	33,869	67,813	17,073	4,211	2,047	44,482
Percentage	Coal	29.6%	20.3%	35.7%	28.4%	31.0%	22.3%	16.2%	32.7%	24.9%	22.4%
shares of	Oil	0.6%	1.6%	0.2%	0.8%	0.4%	0.6%	1.6%	0.1%	0.7%	0.5%
generation:	Gas	29.8%	5.5%	24.1%	48.9%	34.4%	29.5%	3.7%	19.9%	48.3%	35.0%
	Nuclear	18.9%	33.3%	9.3%	0.0%	17.4%	20.7%	34.7%	15.8%	0.0%	19.1%
	Hydro natural flow	1.7%	10.9%	1.3%	0.4%	0.1%	1.9%	11.2%	1.4%	0.3%	0.1%
	Other renewables	17.4%	27.1%	15.0%	21.5%	15.6%	22.8%	31.0%	18.6%	25.6%	21.4%
	Other	2.0%	1.3%	14.4%	0.0%	1.2%	2.2%	1.5%	11.5%	0.0%	1.5%
	Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%