

## Section 6 - Renewables

### Key results show:

#### Provisional 2017

Renewable electricity generation in 2017 increased 18.8 per cent compared to 2016, from 83.2 TWh to a record 98.9 TWh, largely due to increased capacity, and higher wind speeds compared to a year earlier. **(Table 6.1)**

Renewables' share of electricity generation was a record 29.4 per cent and an increase of 4.9 percentage points on the 24.5 per cent share in 2016. This reflects the higher renewable generation and slightly lower overall electricity generation in 2017, compared to 2016. **(Table 6.1 and Chart 6.1)**

In 2017, on the 2009 Renewable Energy Directive basis, normalised renewable generation (accounting for variable weather) was a record 28.1 per cent of gross electricity consumption, an increase of 3.5 percentage points on 2016's share. **(Table 6.1)**

Renewable electricity capacity was 40.5 GW at the end of 2017, a 13.3 per cent increase (4.8 GW) on a year earlier, largely due to increased wind (both onshore and offshore) and solar PV capacity. **(Chart 6.3)**

#### Quarter 4 2017

Renewables' share of electricity generation was 30.2 per cent in 2017 Q4, up 8.2 percentage points on the 22.0 per cent share in 2016 Q4, reflecting higher renewable generation and slightly lower overall electricity generation.

Renewable electricity generation was 27.7 TWh in 2017 Q4, an increase of 35 per cent on 20.5 TWh in 2016 Q4. This was driven by record onshore and offshore wind generation, a result of increased capacity, and higher wind speeds in 2017 Q4 compared to the particularly low wind speeds recorded in 2016 Q4. **(Chart 6.2).**

In 2017 Q4, 207 MW of capacity eligible for the Feed in Tariff scheme was installed, increasing total FiTs capacity to 6.3 GW, across 923,029 installations. **(Chart 6.5)**

### Relevant tables

6.1: Renewable electricity capacity and generation

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6.2: Liquid biofuels for transport consumption

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**Table 6.1 Renewable electricity shares – 2016 and 2017 (provisional)**

	<b>2016</b>	<b>2017p</b>
Renewable generation (TWh)	83.2	98.9
Total electricity generation (TWh)	339.4	335.9
<b>International basis</b>	<b>24.5%</b>	<b>29.4%</b>
Normalised renewable generation (TWh)	87.1	97.8
Gross electricity consumption (TWh)	354.0	347.8
<b>2009 Renewable Energy Directive basis</b>	<b>24.6%</b>	<b>28.1%</b>

In 2017, renewables' share of electricity generation increased to 29.4 per cent, due to increased capacity and higher wind speeds compared to 2016. Overall electricity generation fell by 4.9 per cent; which increased renewables share only slightly, by 0.3 percentage points.

Total electricity generated from renewables in 2017 increased by 18.8 per cent on 2016, from 83.2 TWh to a record 98.9 TWh. Normalised renewable generation rose from 87.1 TWh in 2016 to 97.8 TWh in 2017.

On the 2009 Renewable Energy Directive (RED) basis, the electricity share was 28.1 per cent, compared with 24.6 per cent in 2016. The RED measure uses normalised wind and hydro generation, to account for variable generation due to weather conditions. Under this measure, wind and hydro generation were lowered (due to higher than average load factors in 2017), a reversal of 2016.

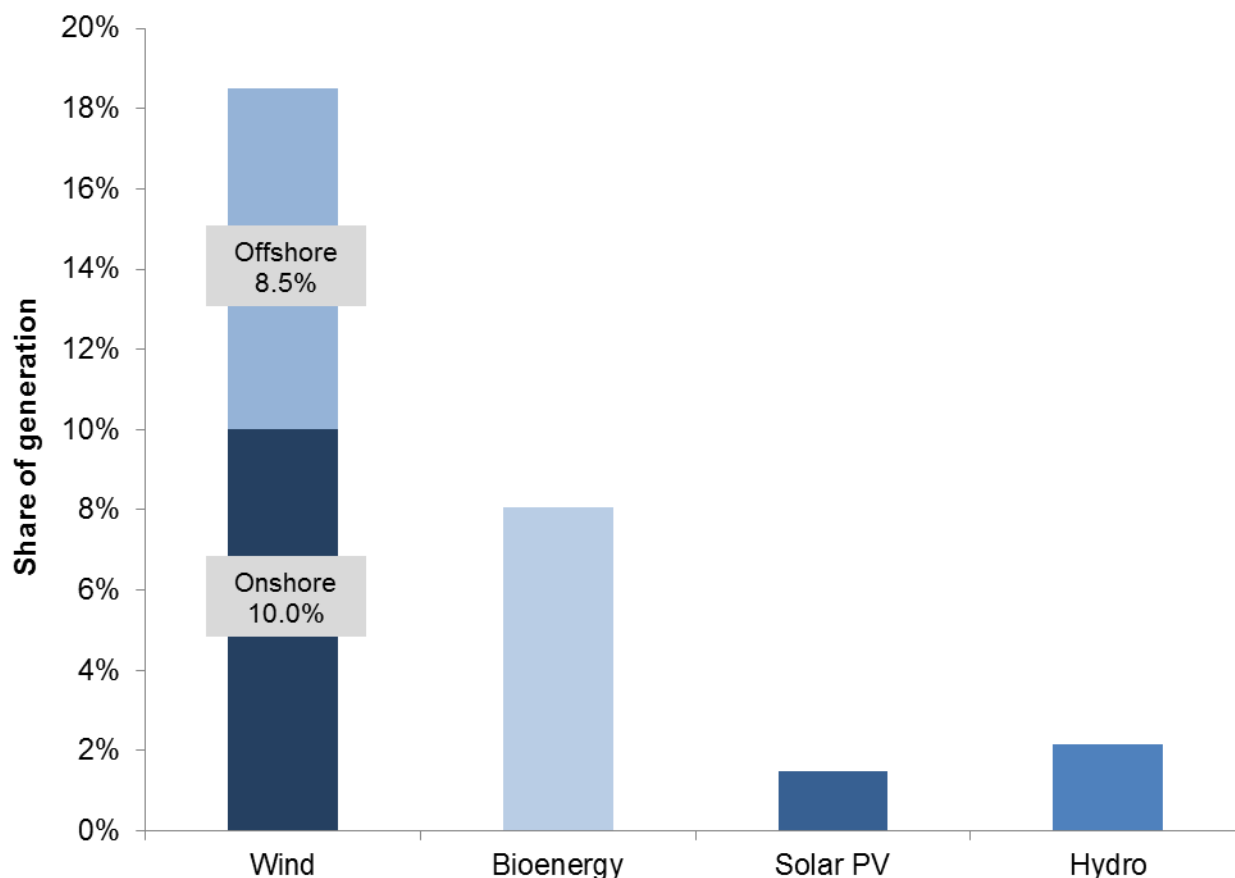
For more information on normalisation, and the various measures of renewable electricity's shares, please see June 2017's "Renewable energy in 2016", at:

[www.gov.uk/government/statistics/energy-trends-june-2017-special-feature-article-renewable-energy-in-2016](http://www.gov.uk/government/statistics/energy-trends-june-2017-special-feature-article-renewable-energy-in-2016)

In 2017 Q4, renewables' share of electricity generation increased by 8.2 percentage points to 30.2 per cent, from the 22.0 per cent share in 2016 Q4. Total electricity generation and electricity demand figures (all generating companies) can be found in tables ET 5.1 and ET 5.2, at:

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

Overall quarterly electricity generation was 91.7 TWh in 2017 Q4, down by 1.4 per cent on a year earlier (as a result of lower demand, partly due to higher average daily temperatures, which were on average 0.7 degrees higher than the long term mean, and 0.3 degrees higher than a year earlier). Lower electricity generation contributed 0.4 percentage points of the 8.2 percentage point increase in renewables share of generation.

**Chart 6.1 Renewables' share of electricity generation – 2017 Q4** ([Table 6.1](#))

In 2017, generation from onshore wind increased by 37 per cent, from 21.0 TWh in 2016 to a record 28.7 TWh. Onshore wind generation also reached a record level, increasing by 27 per cent, from 16.4 TWh to 20.9 TWh. This was due to increased capacity, and higher wind speeds compared to 2016, which had wind speeds 0.5 knots lower than the 10 year average.

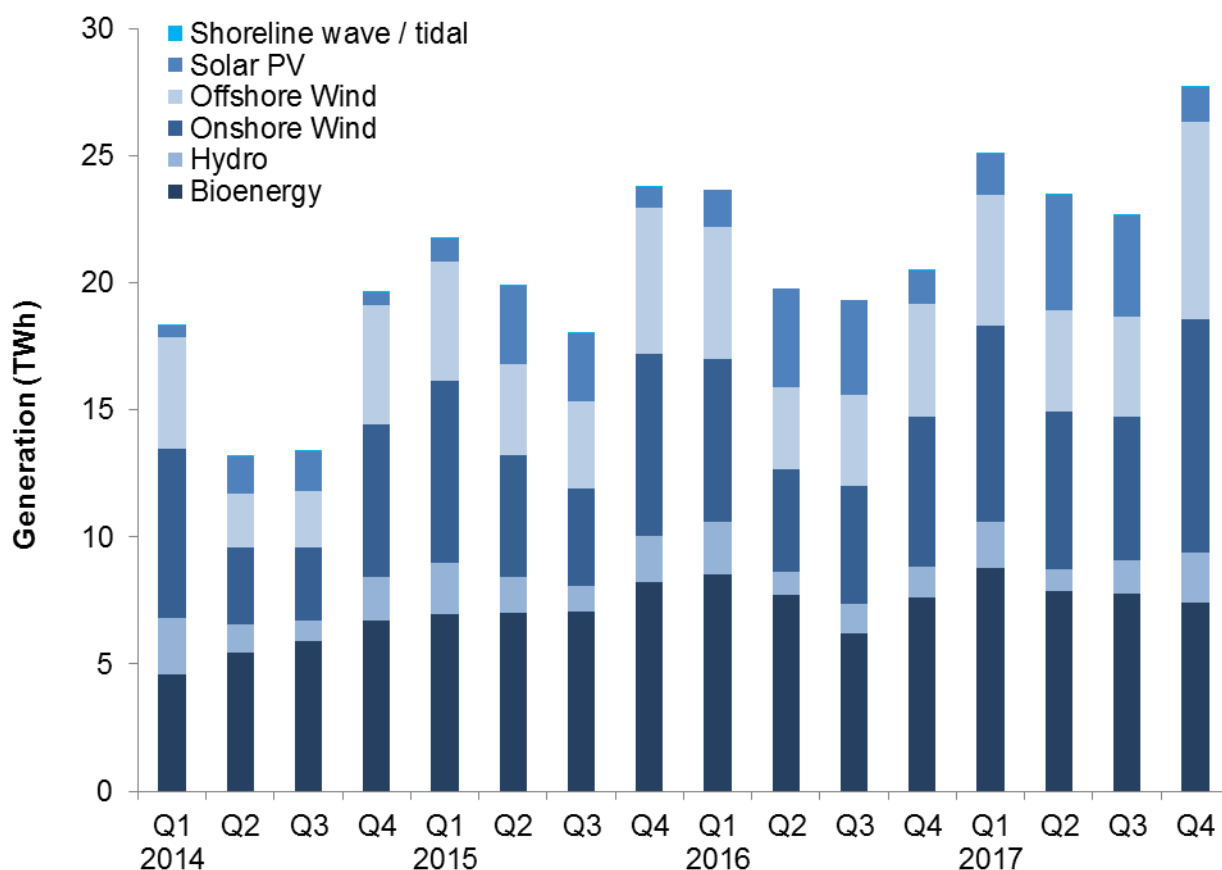
Hydro generation increased by 10 per cent compared to 2016, from 5.4 TWh to 5.9 TWh, with a small increase in capacity offsetting a 0.6 per cent decrease in average rainfall on a year earlier.

In 2017, generation from bioenergy<sup>1</sup> increased by 5.9 per cent, from 30 TWh in 2016 to a record 31.8 TWh. Within this figure, generation from waste increased by 27 per cent, and generation from anaerobic digestion increased by 18 per cent, both partly due to increased capacity. Generation from sewage gas, plant and animal biomass all increased, by 11 per cent, 5.6 per cent and 0.6 per cent, respectively. These combined increases exceeded the large fall in generation from co-firing with fossil fuels (-34 per cent) and landfill gas (-9.7 per cent). Co-firing with fossil fuels fell to a new record low of 77 GWh, as generation from coal-fired power stations fell.

In 2017, 32 per cent of renewables generation was from bioenergy, 29 per cent from onshore wind, 21 per cent from offshore wind, 12 per cent from solar PV, and 6.0 per cent from hydro.

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

<sup>1</sup> landfill gas, sewage gas, biodegradable municipal solid waste, plant biomass, animal biomass, anaerobic digestion and co-firing (generation only)

**Chart 6.2 Renewable electricity generation (Table 6.1)**

Total electricity generated from renewables in 2017 Q4 was up by 35 per cent on 2016 Q4, from 20.5 TWh to 27.7 TWh, driven by increased, and record, generation from wind.

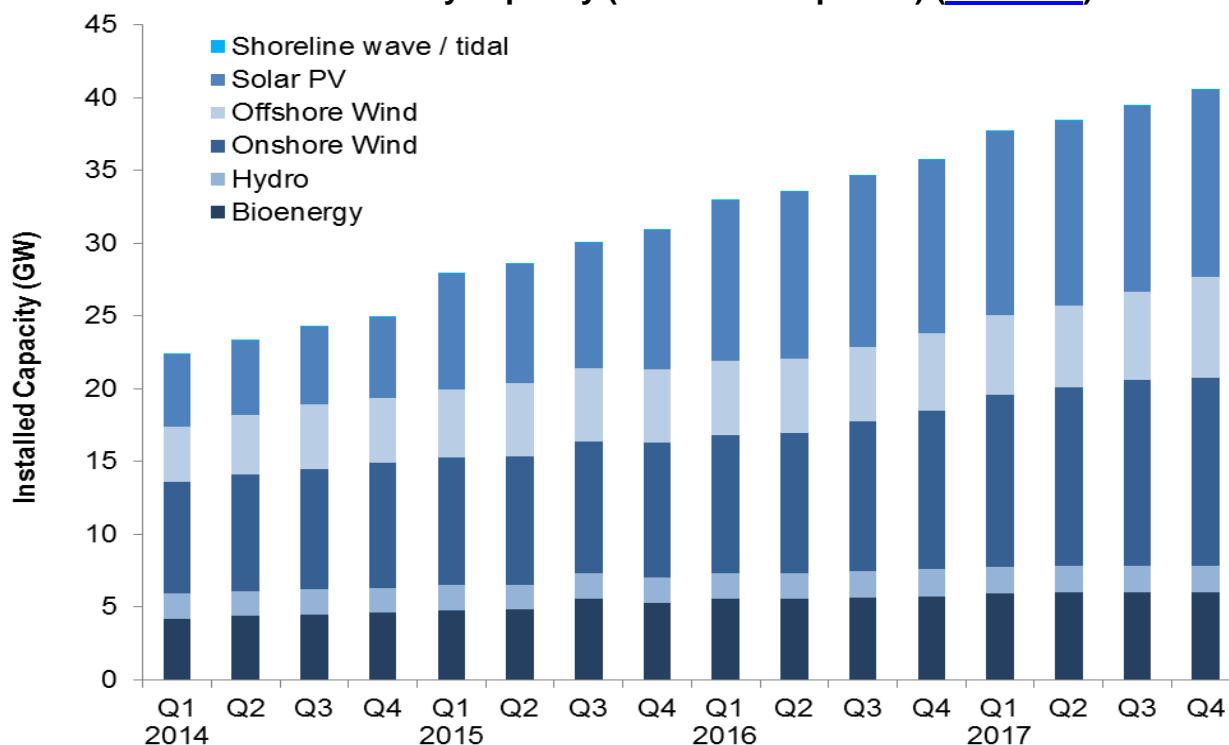
In 2017 Q4, generation from onshore wind increased by 55 per cent to a record 9.2 TWh. Generation from offshore wind increased by 76 per cent, from 4.4 TWh to a record 7.8 TWh. The increase in generation from both onshore and offshore wind was due to increased capacity coming online throughout 2017, and higher wind speeds compared to 2016 Q4, which saw the lowest wind speeds recorded over the last 15 years. See Energy Trends table 7.2 at: [www.gov.uk/government/statistics/energy-trends-section-7-weather](http://www.gov.uk/government/statistics/energy-trends-section-7-weather).

Solar PV generation increased slightly, by 1.6 per cent. Although there was 7.8 per cent of additional capacity in 2017 Q4 compared to a year earlier, the effect of this was reduced by lower load factors, a result of 0.4 less sun hours per day than 2016 Q4.

Generation from bioenergy fell by 2.9 per cent, from 7.6 TWh in 2016 Q4 to 7.4 TWh in 2017 Q4, due to maintenance outages at Drax's biomass units. Within bioenergy, generation from co-firing was down 47 per cent on 2016 Q4, due to a reduction in generation from coal.

In 2017 Q4, hydro generation increased by 62 per cent on a year earlier to 2.0 TWh, the highest Q4 level since 2011. Rainfall (in the main hydro catchment areas) in Q4 was up 54 per cent on 2016 Q4 (the driest Q4 in the last 17 years).

In 2017 Q4, onshore wind had the largest share of generation (33 per cent), with 28 per cent from offshore wind, 27 per cent from bioenergy, 7.1 per cent from hydro and 4.9 per cent from solar PV.

**Chart 6.3 Renewable electricity capacity (as at end of quarter) (Table 6.1)**

At the end of 2017 Q4, the UK's renewable electricity capacity totalled 40.5 GW, an increase of 13 per cent (4.8 GW) on that installed at the end of 2016 Q4, and up 2.7 per cent (1.1 GW) on that installed at the end of the previous quarter. At the end of 2017 Q4, onshore wind had the highest share of capacity at 32 per cent (12.9 GW), followed by solar photovoltaics at 32 per cent (12.8 GW), offshore wind (17 per cent), bioenergy (15 per cent) and hydro (4.6 per cent).

During 2017, onshore wind capacity increased by 1.9 GW, with several large sites opening, or continuing to expand during the year, including the majority of the 239 MW Kilgallioch site and the 173 MW extension to Clyde (both in Scotland). The final third of Wales's largest onshore wind farm, Pen y Cymoedd (228 MW), also came online. Offshore wind capacity increased by 1.7 GW, also a result of several large sites opening, and expanding throughout the year. Key sites which came online during 2017 were Race Bank (573 MW capacity), and the first half of the 660 MW (on completion) of the Walney extension; as well as the 402 MW Dudgeon and final 59 MW of the 259 MW Burbo Bank Extension, the first two offshore wind sites supported under CfD.

Solar PV capacity increased by 0.9 GW during 2017, compared to a 2.4 GW increase during 2016. The majority of growth came from sites accredited under the Renewables Obligation (RO), mainly in 2017 Q1, ahead of the final closure of the RO to grace period qualifying<sup>2</sup> small solar, as well as an increase in small scale Feed in Tariff<sup>3</sup> sites, and a second solar farm under Contracts for Difference (CfD).

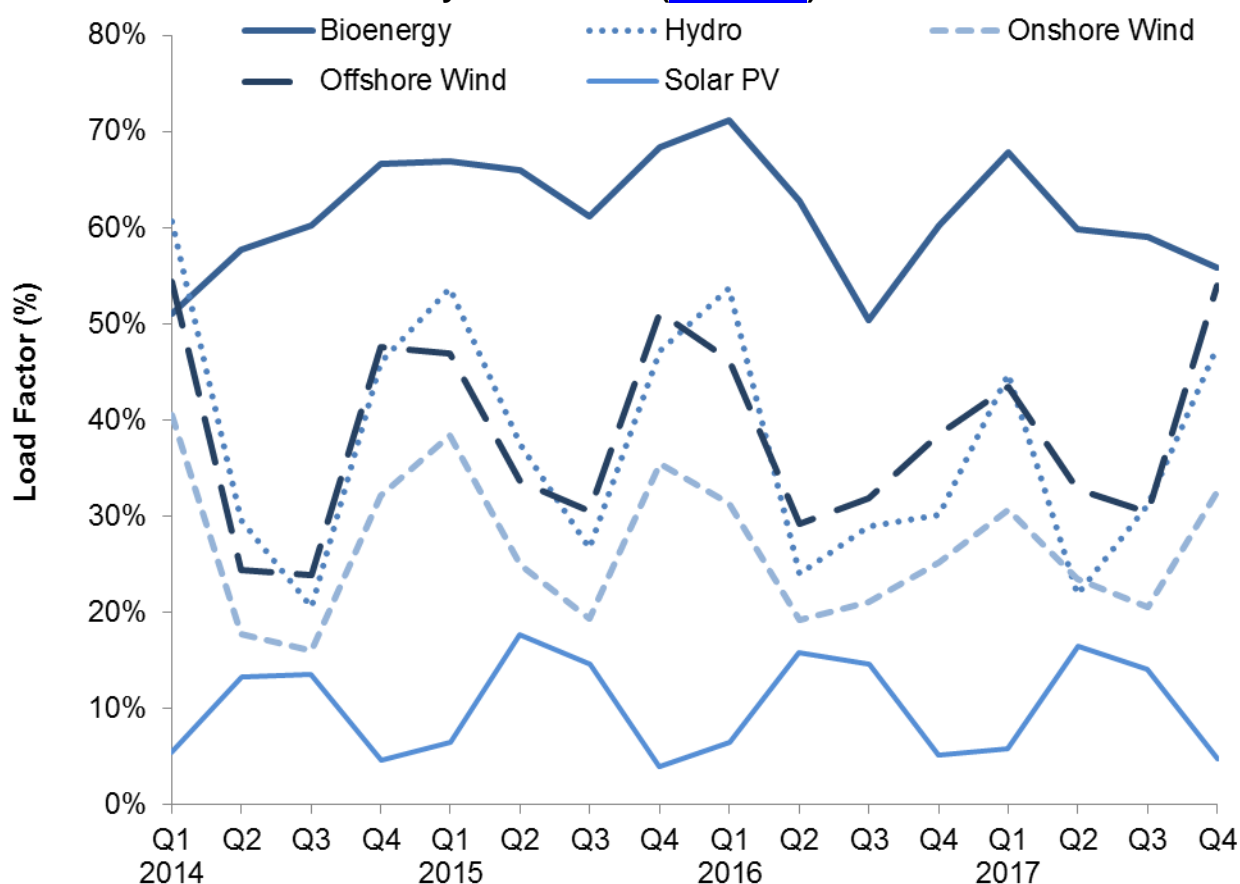
Bioenergy capacity increased by 4.2 per cent (241 MW), mostly due to a 145 MW plant biomass capacity increase (including the 40 MW Margam plant in Wales).

<sup>2</sup> The Renewables Obligation (RO) closed to all large-scale (>5 MW) on 31 March 2015 and small-scale (up to 5 MW) solar on 31 March 2016. Certain installations meeting investment or planning criteria were given year long extensions ("grace periods") to these deadlines, with the commissioning deadline for qualifying small solar sites 31 March 2017. Further details are available at: [www.ofgem.gov.uk/environmental-programmes/ro/about-ro/ro-closure](http://www.ofgem.gov.uk/environmental-programmes/ro/about-ro/ro-closure)

<sup>3</sup> To note that renewable generation and capacity figures include installations accredited on all support schemes (Renewables Obligation, Feed in Tariffs, Contracts for Difference), as well as those not eligible for support or are commissioned but awaiting support accreditation. This should particularly be noted for solar PV (and onshore wind), where figures consist of many installations across several or all of these categories.

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**Chart 6.4 Renewable electricity load factors (Table 6.1)**



In 2017, onshore wind's load factor averaged 27.6 per cent, a 3.9 percentage point increase on 2016's six-year low. Load factors for offshore wind increased by 2.9 percentage points from a four-year low of 36.0 per cent, to 38.9 per cent. Average wind speeds in 2017, at 8.8 knots, were 0.4 knots higher than in 2016, but 0.1 knots lower than the 10-year average.

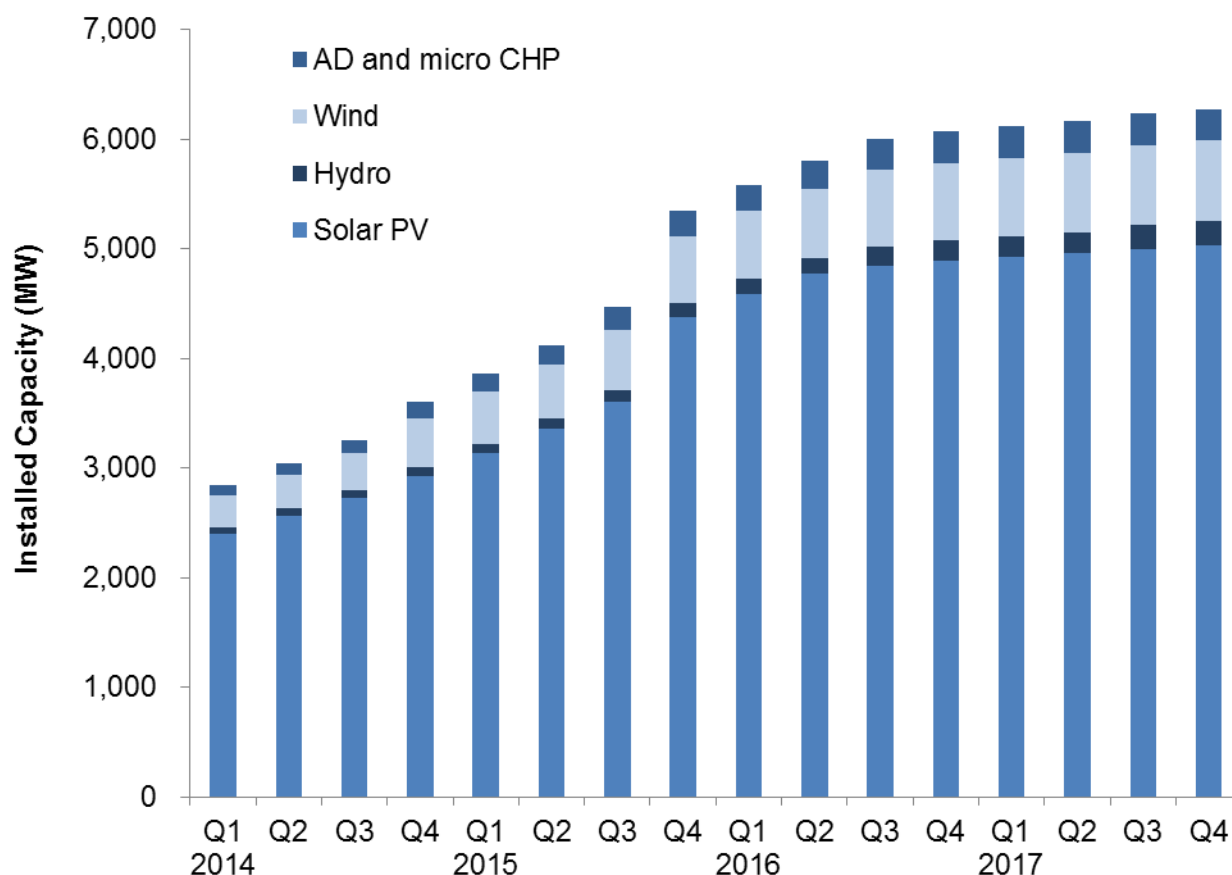
Hydro's load factor in 2017 increased by 2.6 percentage points, from 34.0 per cent in 2016 to 36.6 per cent in 2017.

Onshore wind's load factor in 2017 Q4 stood at a two-year high of 32.5 per cent, a 7.2 percentage point increase on a year earlier. Offshore wind's load factor increased by 15.5 percentage points compared to 2016 Q4, from 38.5 per cent, to 54.0 per cent, the second highest load factor recorded in 8 years and the highest since 2014 Q1. Average wind speeds were 9.5 knots, 1.8 knots higher than in the same period a year earlier.<sup>4</sup>

Hydro's load factor in 2017 Q4 was 47.6 per cent, a 17.5 percentage point increase on a year earlier, due to 54 per cent more rainfall (in the main hydro catchment areas) than 2016 Q4, and rainfall in October over three times higher than a year earlier.

Bioenergy's load factor fell to 55.8 per cent in 2017 Q4, down from 59.0 per cent the previous quarter and 4.4 percentage points lower than a year earlier, as the biomass units at Drax power station suffered maintenance outages.

<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.

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

At the end of 2017 Q4, 6.3 GW of capacity was installed and eligible for the GB Feed in Tariff (FiT) scheme<sup>5</sup>. This was an increase of 0.6 per cent (38 MW) on that installed at the end of 2017 Q3, and 3.4 per cent (207 MW) higher than the amount installed at the end of 2016 Q4. Two-thirds of FiT capacity installed across the year was solar PV.

In terms of number of installations, at the end of 2017 Q4, there were 923,029 installed and eligible for the FiT scheme, a 0.9 per cent increase on the 914,622 installed at the end of the previous quarter, and a 4.0 per cent increase on the 887,912 installations a year earlier.

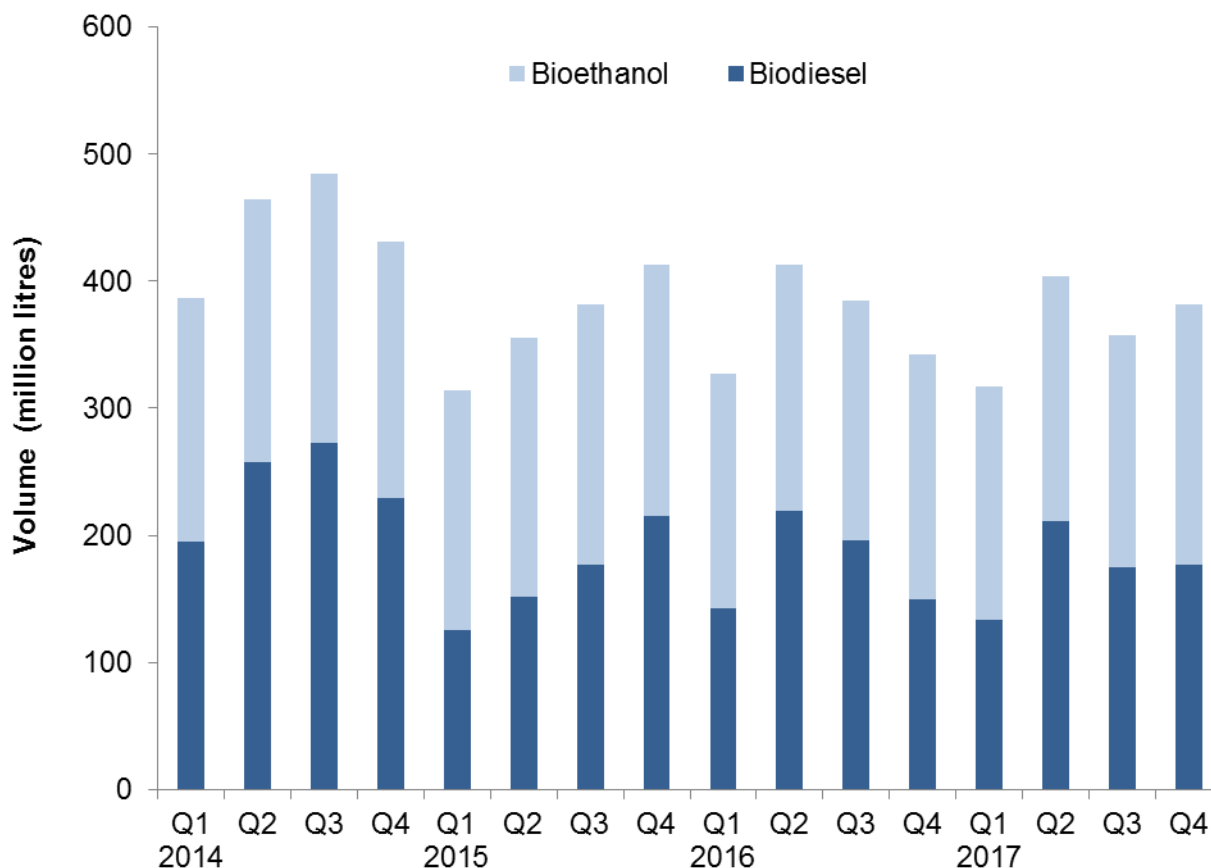
Solar photovoltaics (PV) represent the majority of both installations and installed capacity confirmed on FiTs, making up, respectively, 99 per cent and 80 per cent of the total.

Renewable installations eligible for FiTs (all except Micro CHP) represented 15 per cent of all renewable installed capacity.

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)

<sup>5</sup> Data are for schemes accredited under the Microgeneration Certification Scheme (MCS) and ROOFIT, which are pre-requisites for registering for the FiT scheme; not all of these installations will eventually be confirmed onto the FiT scheme.

**Chart 6.6 Liquid biofuels for transport consumption (Table 6.2)**

In 2017, 1,460 million litres of liquid biofuels were consumed in transport, a decrease of 0.5 per cent on 2016's 1,467 million litres. Bioethanol consumption increased, by 0.6 per cent, from 759 million litres to 764 million litres. Biodiesel consumption fell by 1.7 per cent, from 708 million litres in 2015 to 696 million litres in 2017.

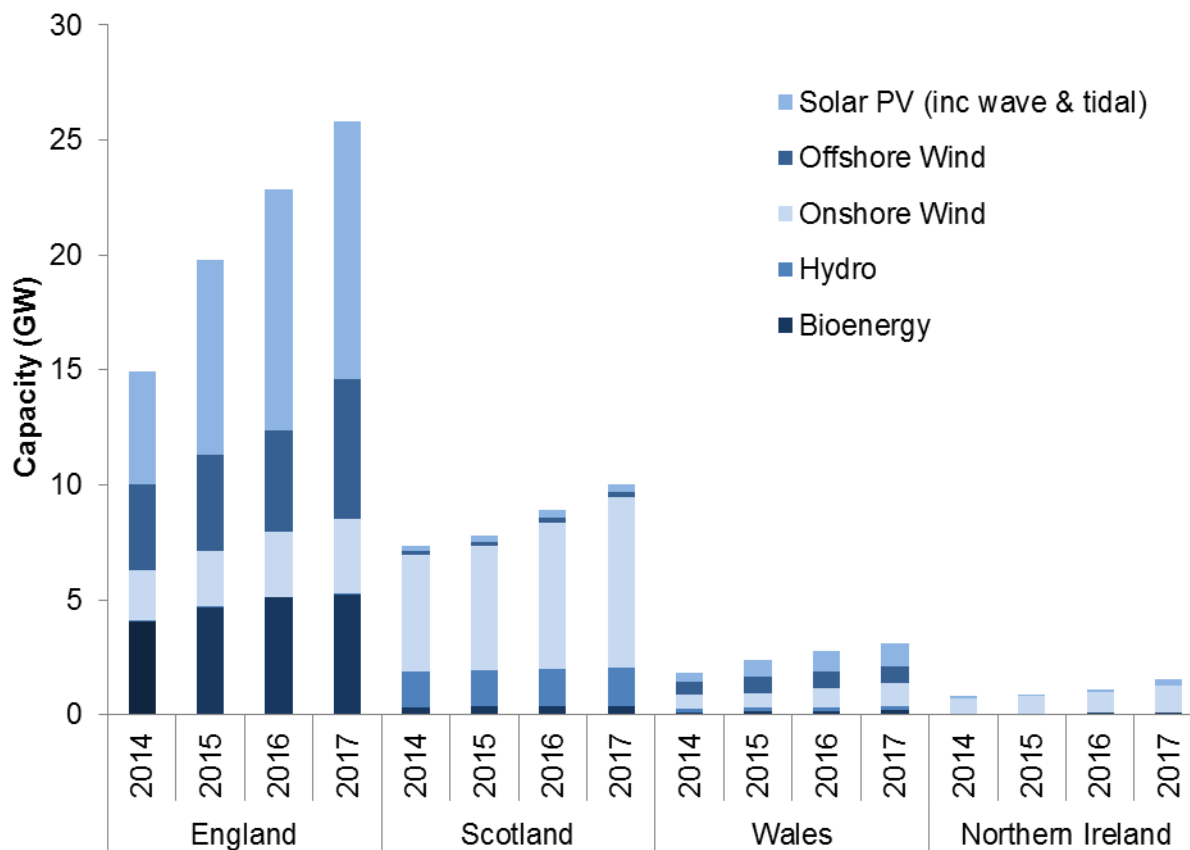
In 2017, bioethanol contributed to 52 per cent of biofuel consumption, compared with 48 per cent from biodiesel. This split is equivalent to that recorded in 2016.

In 2017, in volume terms, bioethanol accounted for 4.5 per cent of motor spirit, and biodiesel 2.3 per cent of total diesel; the combined contribution to total road fuels was 3.1 per cent, equivalent to 2016.

In 2017 Q4, 382 million litres of liquid biofuels were consumed in transport, an increase of 12 per cent on the 342 million litres in 2016 Q4. Biodiesel consumption increased by 18 per cent, from 150 million litres, the lowest Q4 for four years, to 177 million litres. Bioethanol consumption in 2016 Q4 increased by 6.7 per cent, from 192 million litres, the lowest Q4 in 5 years, to 205 million litres in 2017 Q4.

In 2017 Q4, the largest share of consumption was from bioethanol (54 per cent), with the remaining 46 per cent from biodiesel. Biodiesels share increased 2 percentage points on a year earlier.



**Chart 6.7 Renewable electricity capacity, by UK country**

At the end of 2017, England's renewable electricity capacity was 25.8 GW, an increase of 13 per cent (2.9 GW) on that at the end of 2016, with offshore wind (1.6 GW), solar (0.7 GW) and onshore wind (0.4 GW) being the main contributors to the increase.

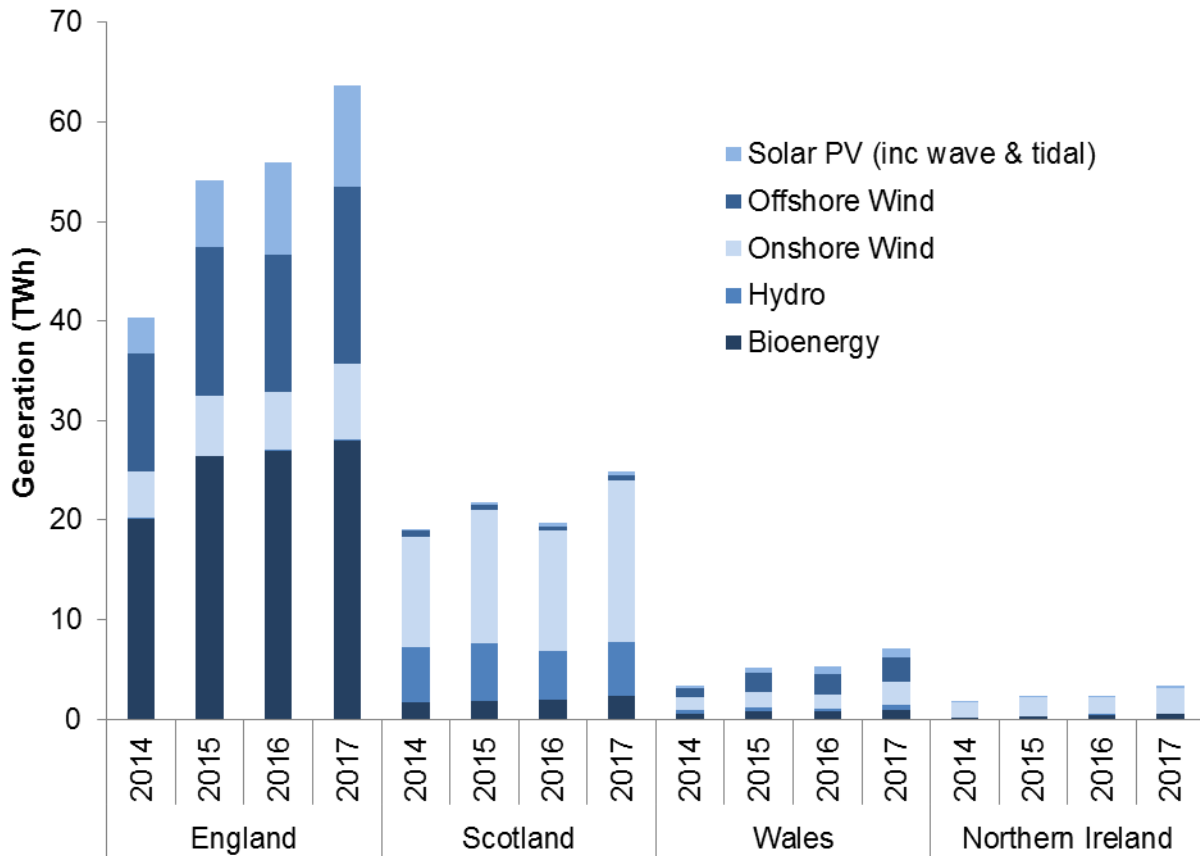
Scotland's capacity was 9.9 GW, an increase of 16 per cent (1.4 GW) on a year earlier, 95 per cent of this increase was due to additional onshore wind capacity.

Wales's capacity was 3.1 GW, an increase of 10 per cent (0.3 GW) on that at the end of 2016, with 64 per cent of this increase due to additional onshore wind capacity.

Northern Ireland's capacity was 1.5 GW, an increase of 36 per cent (0.4 GW) on a year earlier, with 67 per cent of this increase attributable to new wind farms, and 29 per cent due to new solar capacity (both small and large solar).

At the end of 2017, England accounted for 64 per cent of UK renewable electricity capacity; Scotland's share was 25 per cent, Wales's was 7.7 per cent and Northern Ireland's stood at 3.7 per cent.

Quarterly renewable electricity statistics by UK country can be found in table ET 6.1, at: [www.gov.uk/government/statistics/energy-trends-section-6-renewables](http://www.gov.uk/government/statistics/energy-trends-section-6-renewables)

**Chart 6.8 Renewable electricity generation, by UK country**

In 2017, renewable electricity generation in England was 63.7 TWh, an increase of 14 per cent (7.7 TWh) on 2016. Of this extra generation, 5.8 TWh came from onshore and offshore wind, due to increased capacity, and higher wind speeds compared to 2016.

Generation in Scotland was 24.8 TWh, an increase of 26 per cent (5.1 TWh) on 2016; 4.2 TWh of this additional generation was from onshore wind.

Generation in Wales was 7.0 TWh, an increase of 34 per cent (1.8 TWh) on 2016. An increase in wind generation by 1.4 TWh contributed to 80 per cent of this increase.

Generation in Northern Ireland was 3.3 TWh, an increase of 42 per cent (1.0 TWh) on 2016, 0.8 TWh (82 per cent) of this increase was from onshore wind.

In 2017, England accounted for 64 per cent of UK renewable electricity generation; Scotland's share was 25 per cent, Wales's was 7.1 per cent and Northern Ireland's 3.3 per cent.

## 6 RENEWABLES

Table 6.1. Renewable electricity capacity and generation

	2016	2017 p	per cent change	2015	2016	2016	2016	2016	2017	2017	2017	2017	per cent change <sup>11</sup>
				4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter	1st quarter	2nd quarter	3rd quarter	4th quarter p	
<b>Cumulative Installed Capacity<sup>1</sup></b>													<b>MW</b>
Onshore Wind	10,924	12,862	+17.7	9,222	9,479	9,633	10,295	10,924	11,799r	12,233r	12,725r	12,862	+17.7
Offshore Wind	5,294	6,975	+31.8	5,094	5,094	5,094	5,094	5,294	5,455	5,653	6,101	6,975	+31.8
Shoreline wave / tidal	13	18	+36.4	9	8	8	8	13	18r	18r	18r	18	+36.4
Solar photovoltaics	11,899	12,760	+7.2	9,535	11,008	11,469	11,742	11,899	12,618r	12,660r	12,715r	12,760	+7.2
Small scale Hydro	358	397	+10.8	299	307	311	343	358	362r	366r	395r	397	+10.8
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	1,062	1,066	+0.4	1,061	1,062	1,062	1,062	1,062	1,066r	1,066r	1,066r	1,066	+0.4
Sewage sludge digestion	257	271	+5.4	231	257	257	257	257	271r	271r	271r	271	+5.4
Energy from waste	1,017	1,054	+3.7	925	934	934	983	1,017	1,054	1,054	1,054	1,054	+3.7
Animal Biomass (non-AD) <sup>2</sup>	129	129	-	111	129	129	129	129	129	129	129	129	-
Anaerobic Digestion	420	461	+9.6	323	370	377	405	420	457r	460r	460r	461	+9.6
Plant Biomass <sup>3,6</sup>	2,850	2,995	+5.1	2,607	2,787	2,787	2,796	2,850	2,942r	2,995r	2,995r	2,995	+5.1
<b>Total</b>	<b>35,700</b>	<b>40,464</b>	<b>+13.3</b>	<b>30,893</b>	<b>32,909</b>	<b>33,537</b>	<b>34,591</b>	<b>35,700</b>	<b>37,649r</b>	<b>38,383r</b>	<b>39,408r</b>	<b>40,464</b>	<b>+13.3</b>
Co-firing <sup>4</sup>	13	9	-34.5	21	13	13	13	13	9	9	9	9	-34.5
<b>Generation<sup>5</sup></b>													<b>GWh</b>
Onshore Wind <sup>6</sup>	20,962	28,720	+37.0	7,135	6,406	4,010	4,631	5,915	7,703r	6,180r	5,659r	9,179	+55.2
Offshore Wind <sup>6,7</sup>	16,406	20,885	+27.3	5,757	5,150	3,253	3,584	4,419	5,154r	3,984r	3,951r	7,797	+76.4
Shoreline wave / tidal <sup>6</sup>	0	4	(+)	0	-	-	-	0	0r	0r	2r	1	(+)
Solar photovoltaics <sup>6</sup>	10,420	11,479	+10.2	798	1,464	3,872	3,750	1,335	1,595r	4,572r	3,956r	1,356	+1.6
Hydro <sup>6</sup>	5,395	5,944	+10.2	1,834	2,089	938	1,154	1,214	1,815r	878r	1,282r	1,968	+62.1
Landfill gas <sup>6</sup>	4,703	4,247	-9.7	1,220	1,218	1,171	1,158	1,156	1,092r	1,049r	1,057r	1,049	-9.2
Sewage sludge digestion <sup>6</sup>	950	1,056	+11.1	220	236	251	229	234	267r	271r	258r	260	+10.8
Energy from waste <sup>8</sup>	2,741	3,484	+27.1	688	728	626	677	710	809r	859r	911r	905	+27.5
Co-firing with fossil fuels	117	77	-34.4	55	51	15	5	47	50	0	1	25	-46.6
Animal Biomass (non-AD) <sup>2,6</sup>	650	654	+0.6	165	171	165	140	173	171	164r	142r	177	+2.3
Anaerobic Digestion	2,052	2,423	+18.0	426	482	492	524	554	582r	609r	620r	611	+10.4
Plant Biomass <sup>3,6</sup>	18,829	19,885	+5.6	5,443	5,637	4,981	3,481	4,730	5,808r	4,911r	4,803r	4,363	-7.8
<b>Total</b>	<b>83,225</b>	<b>98,857</b>	<b>+18.8</b>	<b>23,741</b>	<b>23,633</b>	<b>19,773</b>	<b>19,333</b>	<b>20,485</b>	<b>25,046r</b>	<b>23,477r</b>	<b>22,643r</b>	<b>27,691</b>	<b>+35.2</b>
Non-biodegradable wastes <sup>9</sup>	2,742	3,485	+27.1	688	728	626	678	710	809r	859r	911r	905	+27.5
<b>Load Factors<sup>10</sup></b>													
Onshore Wind	23.7%	27.6%		35.4%	31.4%	19.2%	21.0%	25.2%	31.4%	23.5%	20.5%	32.5%	
Offshore Wind	36.0%	38.9%		51.2%	46.3%	29.2%	31.9%	38.5%	44.4%	32.8%	30.4%	54.0%	
Solar photovoltaics	11.1%	10.6%		4.0%	6.5%	15.8%	14.6%	5.1%	6.0%	16.6%	14.1%	4.8%	
Hydro	34.0%	36.6%		47.1%	53.7%	24.1%	29.0%	30.1%	45.8%	21.8%	31.3%	47.6%	
Landfill gas	50.4%	45.6%		52.1%	52.5%	50.5%	49.4%	49.3%	47.5%	45.0%	44.9%	44.6%	
Sewage sludge digestion	44.3%	45.6%		43.1%	44.3%	44.7%	40.3%	41.3%	46.8%	45.8%	43.1%	43.4%	
Energy from waste	32.1%	38.4%		34.1%	35.9%	30.7%	32.0%	32.1%	36.2%	37.3%	39.1%	38.9%	
Animal Biomass (non-AD)	61.7%	57.7%		67.7%	65.4%	58.5%	49.2%	60.7%	61.3%	58.0%	49.6%	62.1%	
Anaerobic Digestion	62.8%	62.8%		61.9%	63.7%	60.4%	60.7%	60.8%	61.4%	60.8%	61.0%	60.1%	
Plant Biomass	78.6%	77.7%		88.5%	95.7%	81.8%	56.5%	75.9%	92.8%	75.7%	72.6%	66.0%	
<b>Total (excluding co-firing and non-biodegradable wastes)</b>	<b>28.4%</b>	<b>29.6%</b>		<b>35.2%</b>	<b>33.8%</b>	<b>27.2%</b>	<b>25.7%</b>	<b>26.3%</b>	<b>31.6%</b>	<b>28.3%</b>	<b>26.4%</b>	<b>31.4%</b>	
<b>Renewable share of electricity generation (%)</b>													
Onshore wind	6.2%	8.6%		8.1%	6.9%	5.1%	6.1%	6.4%	8.3%	8.1%	7.6%	10.0%	
Offshore wind	4.8%	6.2%		6.5%	4.2%	4.7%	4.7%	5.5%	5.5%	5.2%	5.3%	8.5%	
Shoreline wave / tidal	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Solar photovoltaics	3.1%	3.4%		0.9%	1.6%	5.0%	4.9%	1.4%	1.7%	6.0%	5.3%	1.5%	
Hydro	1.6%	1.8%		2.1%	2.3%	1.2%	1.5%	1.3%	2.0%	1.2%	1.7%	2.1%	
Bioenergy	8.9%	9.5%		9.3%	9.2%	9.9%	8.2%	8.2%	9.4%	10.3%	10.4%	8.1%	
<b>All renewables</b>	<b>24.5%</b>	<b>29.4%</b>		<b>26.8%</b>	<b>25.6%</b>	<b>25.3%</b>	<b>25.4%</b>	<b>22.0%</b>	<b>26.9%</b>	<b>30.8%</b>	<b>30.2%</b>	<b>30.2%</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 high-range 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. Generation from FIT schemes is estimated this way.

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

8. Biodegradable part only, which accounts for 50% from 2015.

9. Non-biodegradable (50%, from 2015) part of Energy from Waste, plus a small quantity of generation from 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:

<https://www.gov.uk/government/statistics/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

	2016	2017 p	per cent change	2015 4th Quarter	2016 1st quarter	2016 2nd quarter	2016 3rd Quarter	2016 4th Quarter	2017 1st Quarter	2017 2nd Quarter	2017 3rd Quarter	2017 4th Quarter p	per cent change <sup>1</sup>
<b>Volume (million litres)</b>													
Bioethanol	759	764	+0.6	198	184	194	189	192	184	193	182r	205	6.7%
Biodiesel	708	696	-1.7	215	143	219	196	150	133	211	175r	177	17.9%
<b>Total biofuels for transport</b>	<b>1,467</b>	<b>1,460</b>	<b>-0.5</b>	<b>413</b>	<b>327</b>	<b>413</b>	<b>385</b>	<b>342</b>	<b>317</b>	<b>404</b>	<b>357r</b>	<b>382</b>	<b>11.6%</b>
<b>Energy (thousand toe)</b>													
<b>Thousand tonnes of oil equivalent</b>													
Bioethanol	428	431	+0.6	112	104	109	107	108	104	109	103r	115	6.7%
Biodiesel	582	572	-1.7	177	117	180	161	123	109	173	144r	145	17.9%
<b>Total biofuels for transport</b>	<b>1,010</b>	<b>1,002</b>	<b>-0.7</b>	<b>288</b>	<b>221</b>	<b>289</b>	<b>268</b>	<b>231</b>	<b>213</b>	<b>282</b>	<b>246r</b>	<b>261</b>	<b>12.7%</b>
<b>Shares of road fuels</b>													
Bioethanol as per cent of Motor Spirit	4.4%	4.5%		4.5%	4.5%	4.4%	4.4%	4.5%	4.6%	4.5%	4.3%	4.8%	
Biodiesel as per cent of DERV	2.4%	2.3%		2.9%	2.0%	2.9%	2.6%	1.9%	1.9%	2.7%	2.3%	2.3%	
<b>Total biofuels as per cent of road fuels</b>	<b>3.1%</b>	<b>3.1%</b>		<b>3.5%</b>	<b>2.9%</b>	<b>3.4%</b>	<b>3.2%</b>	<b>2.8%</b>	<b>2.8%</b>	<b>3.4%</b>	<b>3.0%</b>	<b>3.2%</b>	
<b>Shares of road fuels - % change on quarter in previous year</b>													
Bioethanol as per cent of Motor Spirit				0.0%	-0.1%	-0.2%	-0.3%	-0.1%	0.1%	0.1%	-0.1%	0.3%	
Biodiesel as per cent of DERV				-0.3%	0.2%	0.8%	0.2%	-0.9%	-0.1%	-0.1%	-0.3%	0.4%	
<b>Total biofuels as per cent of road fuels</b>				<b>-0.2%</b>	<b>0.0%</b>	<b>0.4%</b>	<b>0.0%</b>	<b>-0.7%</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>-0.2%</b>	<b>0.3%</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)