Section 6 – UK Renewables
April to June 2019

Key results show:

Renewables' share of electricity generation was 35.5 per cent in 2019 Q2, a record for the second quarter and up 3.5 percentage points on the share in 2018 Q2. This was largely a reflection of increased capacity. **(Chart 6.1)**

Renewable electricity generation was 27.1 TWh in 2019 Q2, an increase of 9.9 per cent on the 24.6 TWh in 2018 Q2, but 14 per cent lower than the previous quarter which had been the second highest on record for renewable electricity generation (31.5 TWh). **(Chart 6.2)**

Onshore wind generation rose by 13 per cent to 6.1 TWh. Offshore wind increased by more than a quarter to 6.0 TWh which was still 30 per cent lower than the previous quarter when average wind speeds were much higher. The largest increase among the other technologies was for plant biomass (mainly wood pellets) which increased by 8.5 per cent to 6.0 TWh due increased capacity. **(Chart 6.2)**

Renewable electricity capacity was 45.9 GW at the end of 2019 Q2, a 7.9 per cent increase on a year earlier, and a 1.9 per cent increase on the previous quarter, with two thirds of the increase on last year's capacity coming from wind. Solar generation decreased 0.3 per cent as the small increase in capacity was offset by lower load factors. **(Chart 6.3)**

The Feed in Tariff (FiT) scheme closed at the end of 2019 Q1. At this point there was 6.6 GW of FiT capacity installed across 986,000 installations. This is subject to further revision. **(Chart 6.5)**

Liquid biofuels consumption increased by 30 per cent, from 462 million litres in 2018 Q2 to 599 million litres in 2019 Q2, boosted by a 53 per cent increase in biodiesel consumption. In 2019 Q2, liquid biofuels represented 3.8 per cent of petrol and diesel consumed in road transport, unchanged from a year earlier. **(Chart 6.6)**

Relevant tables

6.1: Renewable electricity capacity and generation
6.2: Liquid biofuels for transport consumption

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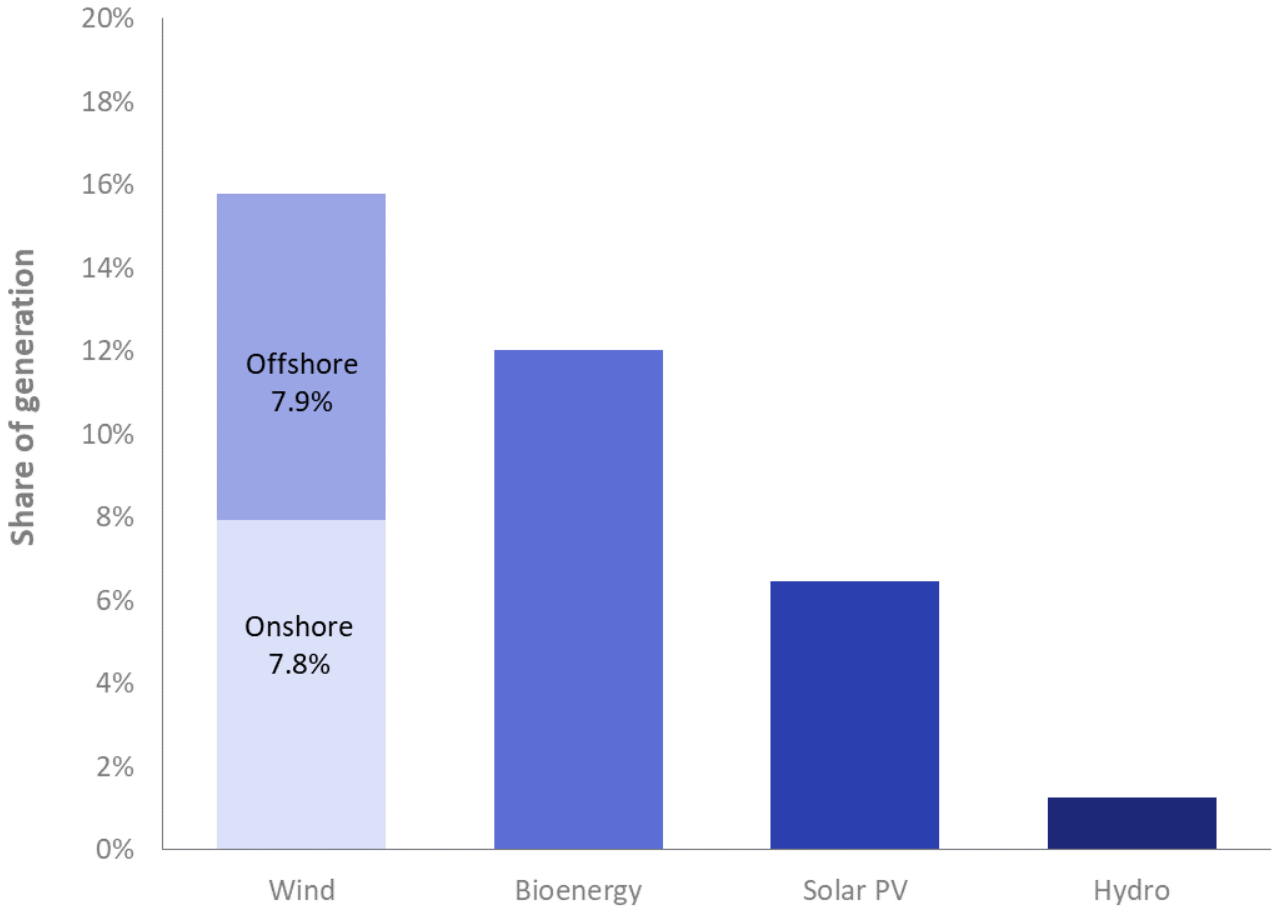
Chart 6.1 Renewables' share of electricity generation (Table 6.1)



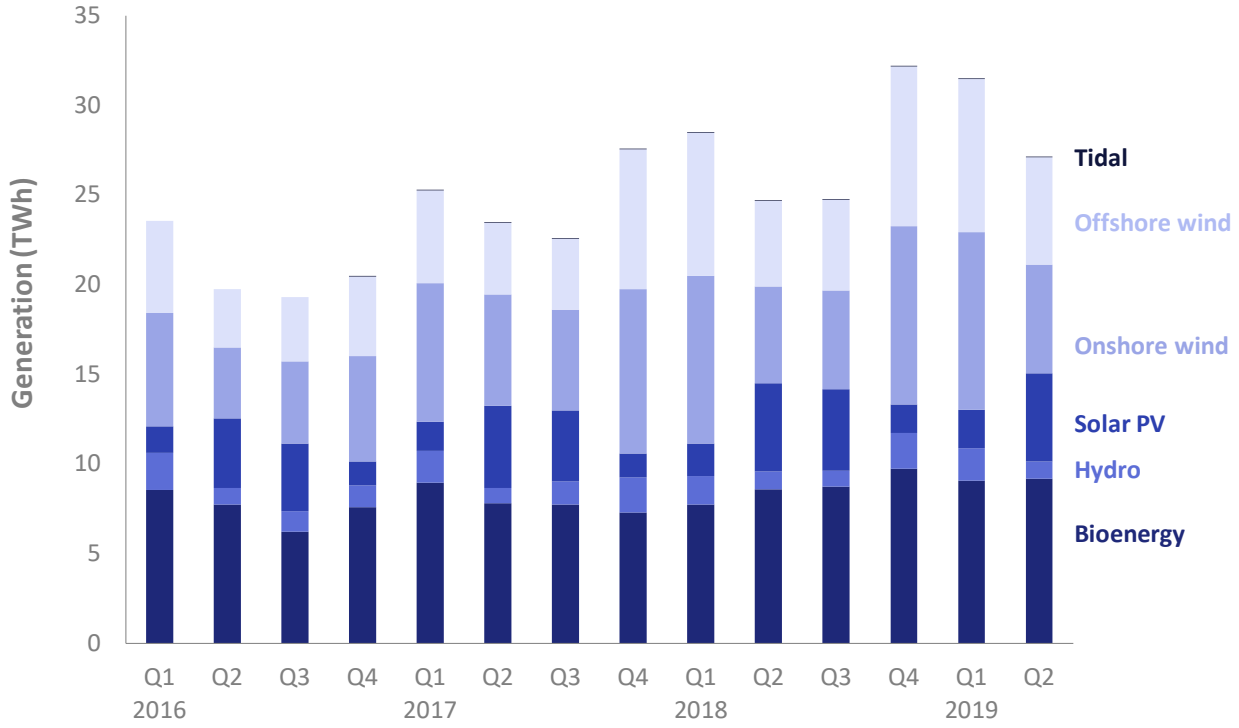
Renewables' share of electricity generation increased to 35.5 per cent in 2019 Q2 from 32.0 per cent in 2018 Q2 which at the time was a record. The share in 2019 Q2 is the highest on record for the second quarter of the year. However, the share of generation fell by 0.3 percentage points from 2019 Q1 when higher wind speeds had boosted renewable generation.

The increased share on a year earlier mostly reflects increased capacity, particularly in offshore wind and plant biomass, as well as lower overall generation.

Total electricity generated from renewables in 2019 Q2 was up by 2.4 TWh (9.9 per cent) on 2018 Q2, to 27.1 TWh, but remained 4.4 TWh (14 per cent) lower than previous quarter which had been the second highest on record at 31.5 TWh. As a result, the percentage share of electricity generated from renewables decreased from the previous quarter of 2019 but only by 0.3 percentage points, lower renewable generation was partly offset by lower total electricity generation.

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

Chart 6.2 Renewable electricity generation (Table 6.1)



In 2019 Q2, electricity generated from onshore wind increased by 13 per cent, from 5.4 TWh in 2018 Q2 to 6.1 TWh. Generation from offshore wind saw an even greater increase, up by 25 per cent (1.2 TWh), to 6.0 TWh but still 30 per cent lower than the previous quarter when average wind speeds were much higher. Wind speeds in 2019 Q2, at 7.6 knots, were broadly stable with the same quarter of 2018, but both were lower than the long-term mean (8.4 knots) - see Energy Trends table 7.2 at: www.gov.uk/government/statistics/energy-trends-section-7-weather.

Generation from solar photovoltaics was at a similar level to 2018 Q2, decreasing by 0.3 per cent to 4.9 TWh. An increase in capacity of 2.8 per cent was offset by average daily sun hours being down from 6.7 hours in 2018 Q2 to 6.0 hours in 2019 Q2 - see Energy Trends table 7.3.

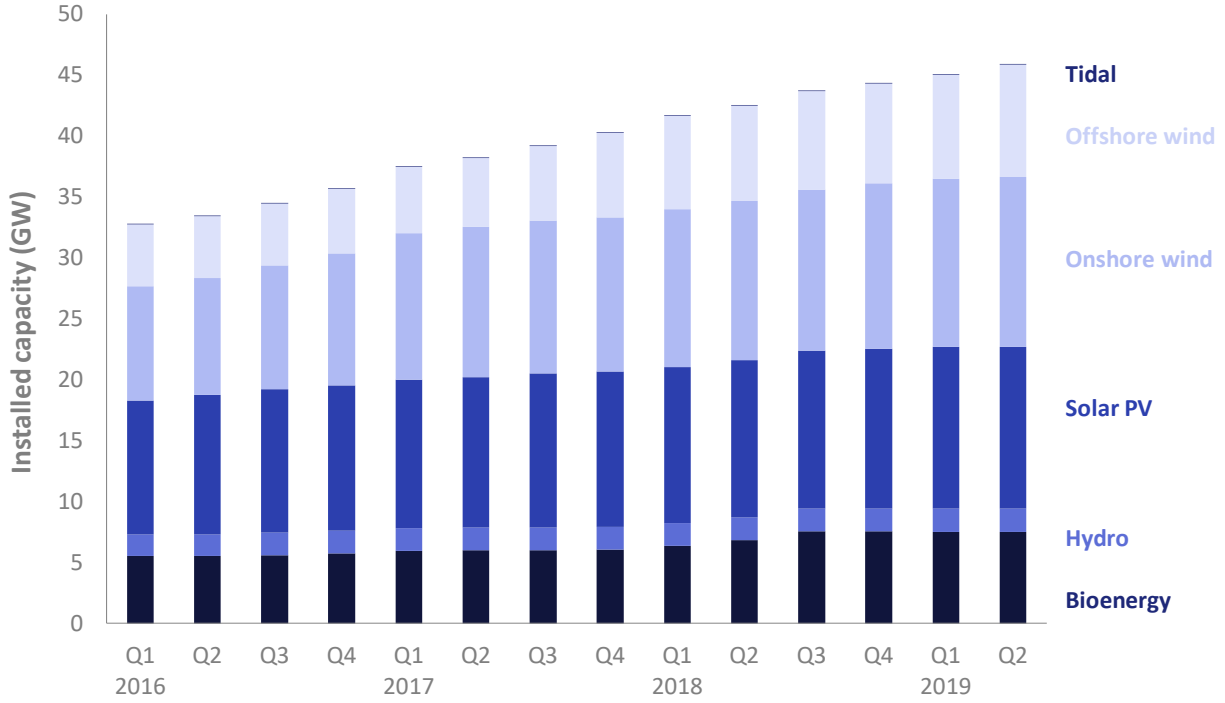
Hydro generation dropped 5.5 per cent but remains at 1.0 TWh when rounded. Generation fell despite a small increase in capacity of 0.7 per cent and an increase in average rainfall (in the main hydro catchment areas) of 2.4 per cent. However, actual generation depends on the precise location and timing of rainfall, as well as other conditions including vegetation and soil saturation. Average rainfall fell by 62 per cent on April of last year while rainfall in June 2019 was more than double that of June 2018 - see Energy Trends table 7.4.

In 2019 Q2, generation from bioenergy[1], at 9.2 TWh, was up by 7.2 per cent on a year earlier. Within this, the largest increase came from plant biomass (mainly wood pellets) which was up by 0.5 TWh (8.5 per cent) on 2018 Q2. These increases were partially offset by reduced generation from landfill gas and anaerobic digestion.

Bioenergy had the largest share of renewable generation (34 per cent), 22 per cent came from onshore wind as well as 22 per cent from offshore wind, 18 per cent from solar PV and 3.5 per cent from hydro.

[1] Bioenergy consists of: landfill gas, sewage gas, biodegradable municipal solid waste, plant biomass, animal biomass, anaerobic digestion and co-firing (generation only)

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



At the end of 2019 Q2, the UK's renewable electricity capacity totalled 45.9 GW, an increase of 7.9 per cent on that installed at the end of 2018 Q2, and 1.9 per cent higher than the previous quarter.

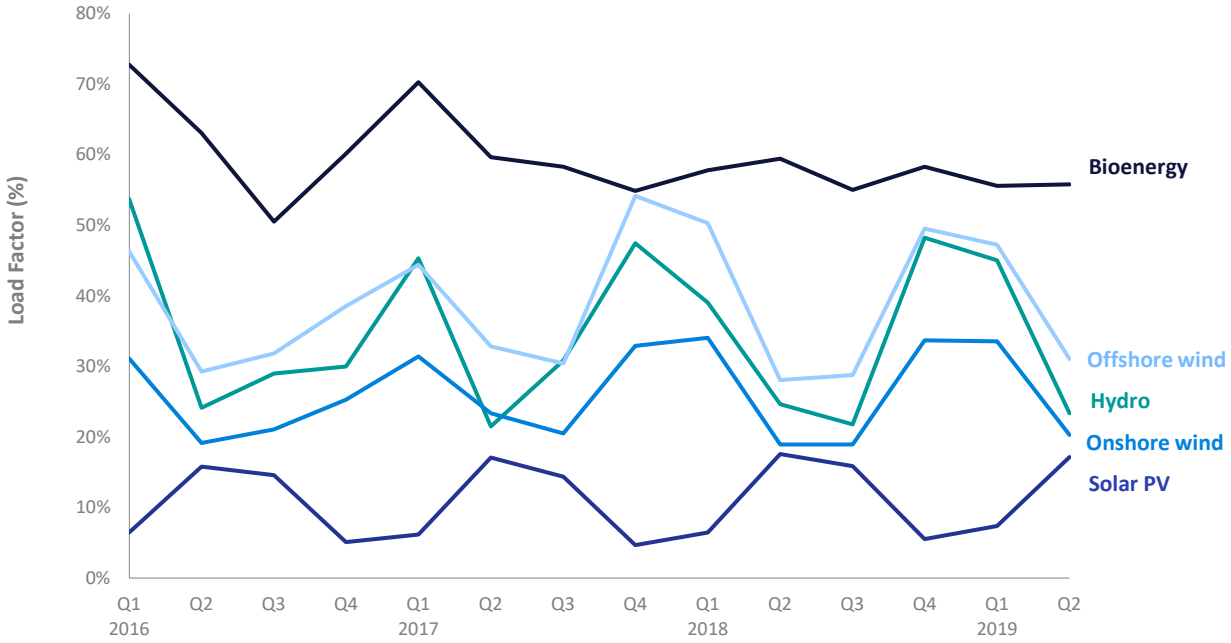
At the end of 2019 Q2, wind accounted for just over a half of total renewable generating capacity with around 30 per cent for onshore wind and 20 per cent for offshore wind. After onshore wind, solar PV had the highest share of renewable technologies at 29 per cent. Bioenergy represented 16 per cent of capacity and hydro 4 per cent.

Compared with 2019 Q2, the largest increase in absolute terms was in offshore wind capacity which rose by 18 per cent to 9.2 GW. The largest sites to be added over the 12 months are Hornsea and Beatrice. Hornsea started generating in 2019 Q1 and further capacity came online in 2019 Q2 to bring total capacity to 665 MW. Beatrice also came online in stages; capacity has been added in each of the last four quarters and stood at 588 MW when the project was completed in 2019 Q2. Onshore wind capacity increased by around 0.9 GW, there were 34 new sites in Q2, the largest of which were Kype Muir (88 MW), Middle Muir (51 MW) and Clocaenog Forest (18 MW).

Plant biomass capacity increased by 8.5 per cent to 6.0 GW, mainly due to the conversion to biomass of Lynemouth power station. Solar PV capacity increased by 2.8 per cent to 13.3 MW. The increases in Solar PV capacity are slower than the rapid expansion seen in 2010–2016, partly due to the closure of the Renewables Obligation (RO) and Feed in Tariffs (FiTs) at the end of March this year. Please note that small scale schemes that are not supported by government subsidy schemes or have not registered with the MCS are not included in these figures. As a result, the solar PV capacity and generation figures are likely to be underestimated. We are looking at options for extending our data coverage.

Chart 6.4 Renewable electricity load factors (Table 6.1)

Load factors are calculated as electricity generated by a technology as a proportion of maximum potential generation over the period, given the installed capacity.



In 2019 Q2, onshore wind's load factor increased by 1.3 percentage points, from 18.9 per cent in 2018 Q2 to 20.3 per cent. Offshore wind's load factor increased by 3.0 percentage points, from 28.1 per cent in 2018 Q2 to 31.0 per cent in 2019 Q2. Load factors were dampened in 2018 Q2 as several new sites came online partway through the quarter[2].

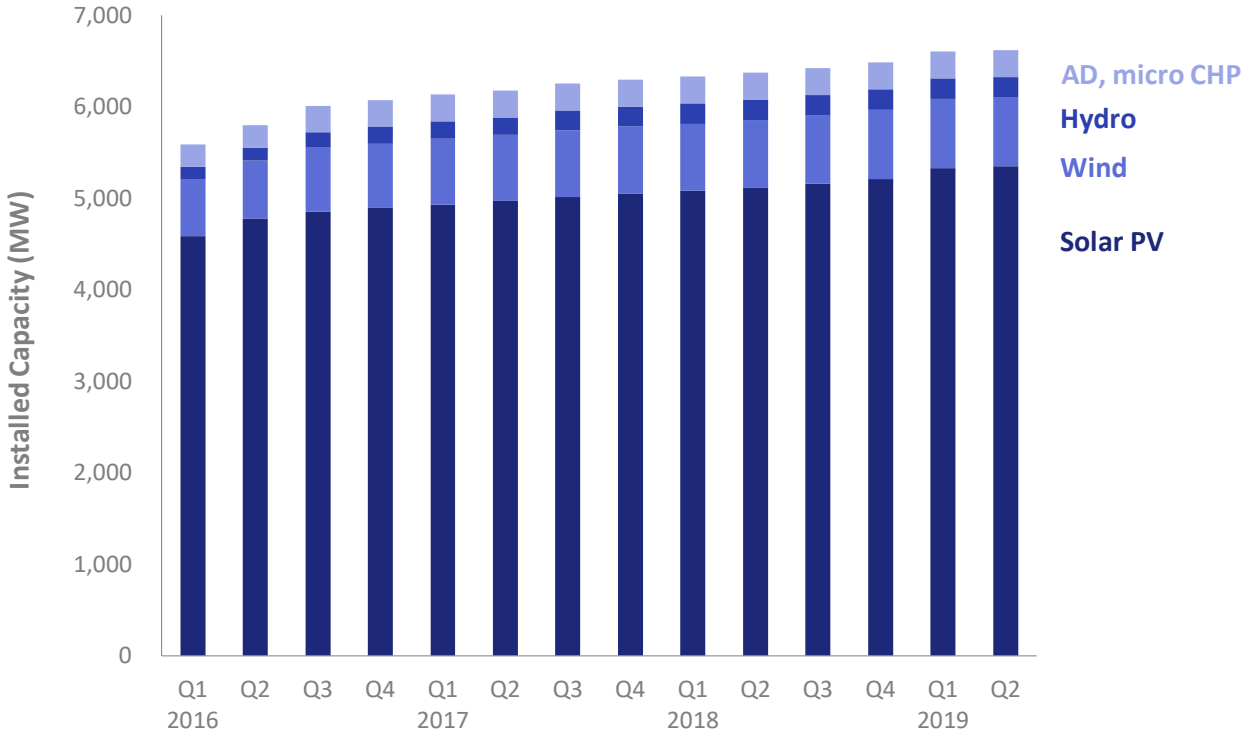
The load factor for solar PV fell from 17.6 per cent in 2018 Q2 to 17.2 per cent in 2019 Q2 as average sun hours fell from 6.7 per day to 6.0 per day.

Hydro's load factor in 2019 Q2 decreased by 1.2 percentage points, from 24.6 per cent in 2018 Q2 to 23.4 per cent despite an increase in average rainfall of 2.4 per cent. Quarterly load factors are affected by the timing of rainfall as there is a lag between rain falling and generation. Average rainfall in April was half of that of April last year but rainfall in June was more than double June 2018.

For plant biomass, the load factor in 2019 Q2, at 63.0 per cent, down 10 percentage points on a year earlier. However, this was higher than the previous quarter by 1.1 percentage points. Load factors have been affected by the conversion of another unit to biomass at Drax, the largest biomass power station in the UK.

[2] 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)



The GB Feed in Tariff (FiT) scheme[3] closed to new entrants at the end of March 2019. However, the number of installations accredited on FiTs at this point is still subject to revision as Ofgem update the records on its Central FiTs Register.

Revised data shows that there were over 986,000 installed and eligible for the FiT scheme, when the scheme closed at the end of Q1 2019. Renewable installations eligible for FiTs (all except MicroCHP) represented 14 per cent of all renewable installed capacity.

Solar photovoltaics (PVs) represent the majority of both installations and installed capacity on FiTs, with respectively 99 per cent and 81 per cent of the total. Nearly half of FiT-eligible PV installations are sub-4 kW retrofitted schemes, 2,596 MW (49 per cent) in 2019 Q1.

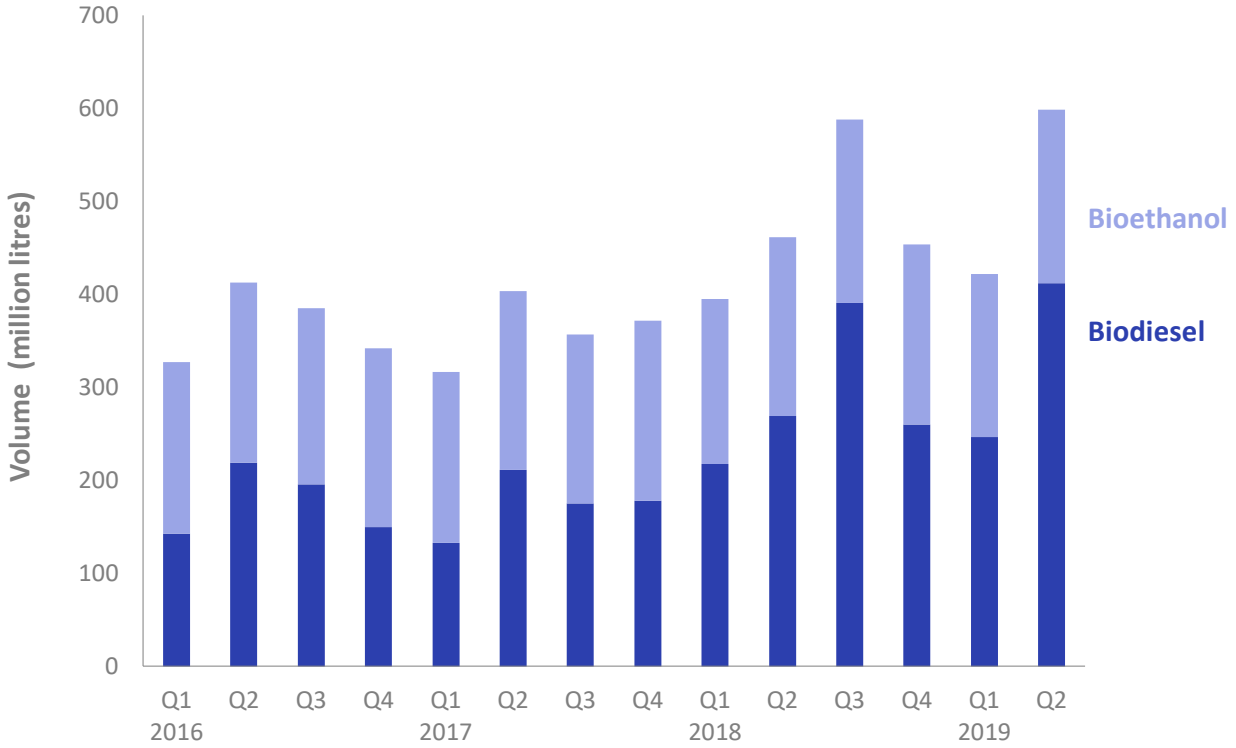
Statistics on Feed in Tariffs can be found at:
www.gov.uk/government/collections/feed-in-tariff-statistics

Following the closure of the FIT scheme to new installations, government laid legislation in June 2019 to introduce a new supplier-led smart export guarantee (SEG) in Great Britain from 1 January 2020. Under the SEG, licensed electricity suppliers (with 150,000 domestic customers or more) are required to offer small-scale low-carbon generators a price per kWh for electricity exported to the grid.

Further information on the SEG is available at: www.gov.uk/government/consultations/the-future-for-small-scale-low-carbon-generation

[3] 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 the second quarter of 2019, 599 million litres of liquid biofuels were consumed in transport, an increase of 30 per cent on the total of 462 million litres in the second quarter of 2018.

Bioethanol consumption fell by 3.1 per cent from 193 million litres in the second quarter of 2018 to 187 million litres. Biodiesel consumption increased by 53 per cent, from 269 million litres in Q2 2018 to a record 412 million litres in Q2 2019.

Biodiesel represented 69 per cent of biofuels consumption, with bioethanol accounting for the remaining 31 per cent.

In the second quarter of 2019, bioethanol accounted for 4.3 per cent of motor spirit, down from 4.5 per cent in Q2 2018. Biodiesel represented 3.5 per cent of diesel (DERV) consumption, the same as in the second quarter of 2018. Their combined contribution also remained unchanged from the same quarter in 2018 at 3.8 per cent.