



Renewable Fuel Statistics 2019 Final Report

About this release

This final release covers the supply of renewable fuel in 2019, based on data available on 29th September 2020, which has been reported under the Renewable Transport Fuel Obligation (RTFO).

In this publication

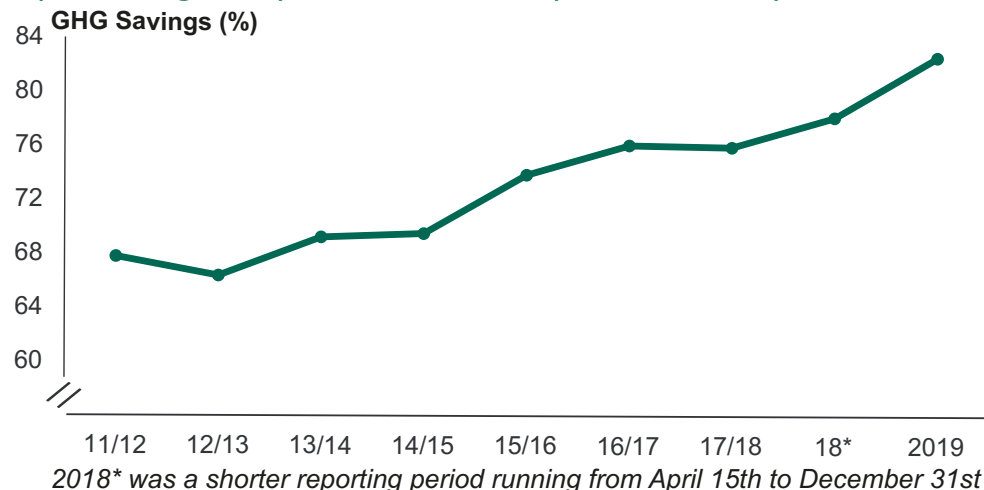
Overview	p2
Long-Term Trends	p3
GHG Saving	p4
Fuel Type	p5
Feedstock	p6
Country of Origin	p9
Suppliers	p11
Development Fuel	p12
Certification	p12
Background Information	p15

Renewable fuels are fuel produced from biomass or some other renewable energy source. They are often blended with conventional fuels such as petrol or diesel, but they produce lower greenhouse gas emissions as their energy is from renewable sources.

In 2019:

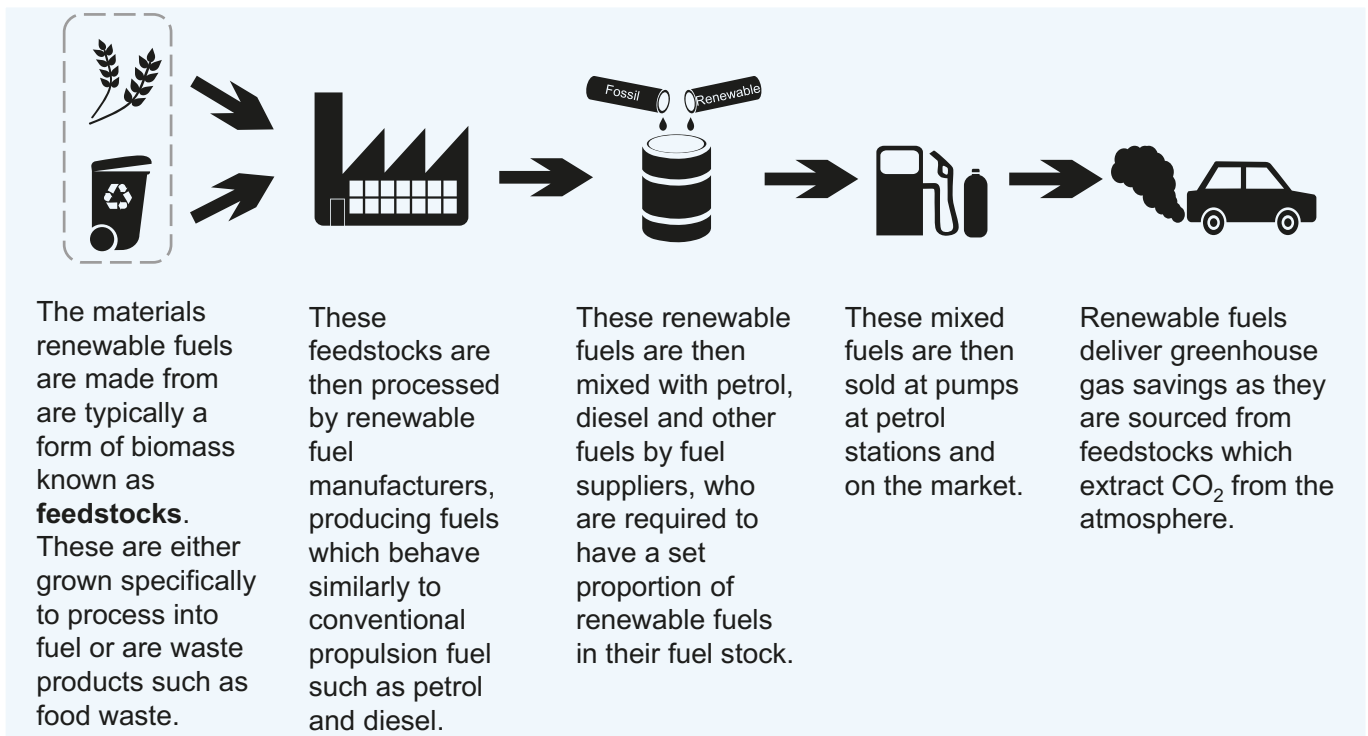
- ▶ **2,680 million litres equivalent (eq.) of renewable fuel** was supplied, which constitutes 5.1% of total road and non-road mobile machinery fuel for the year. This was an increase from 4.0% in 2018*, reflecting the increase in renewable fuel targets under the Renewable Transport Fuel Obligation (RTFO). **2,679 million litres eq.** were verified under the RTFO.
- ▶ With the introduction of development fuels in 2019, **2,716 litres eq.** of hydrogen were verified. All obligated suppliers met their target, however they all achieved this through buying out their obligation.
- ▶ Of this 2,679 million litres eq., an average **greenhouse gas (GHG) saving of 83%** was achieved compared to fossil fuel use (not accounting for indirect land use change (ILUC)).
- ▶ This was an increase in the average GHG savings of renewable fuels from 78% in 2018*, and from 47% since 2008/09.

Figure 1: Average greenhouse gas savings of renewable fuel (excluding ILUC), 2011/12 to 2019 (table [RF_0114](#))



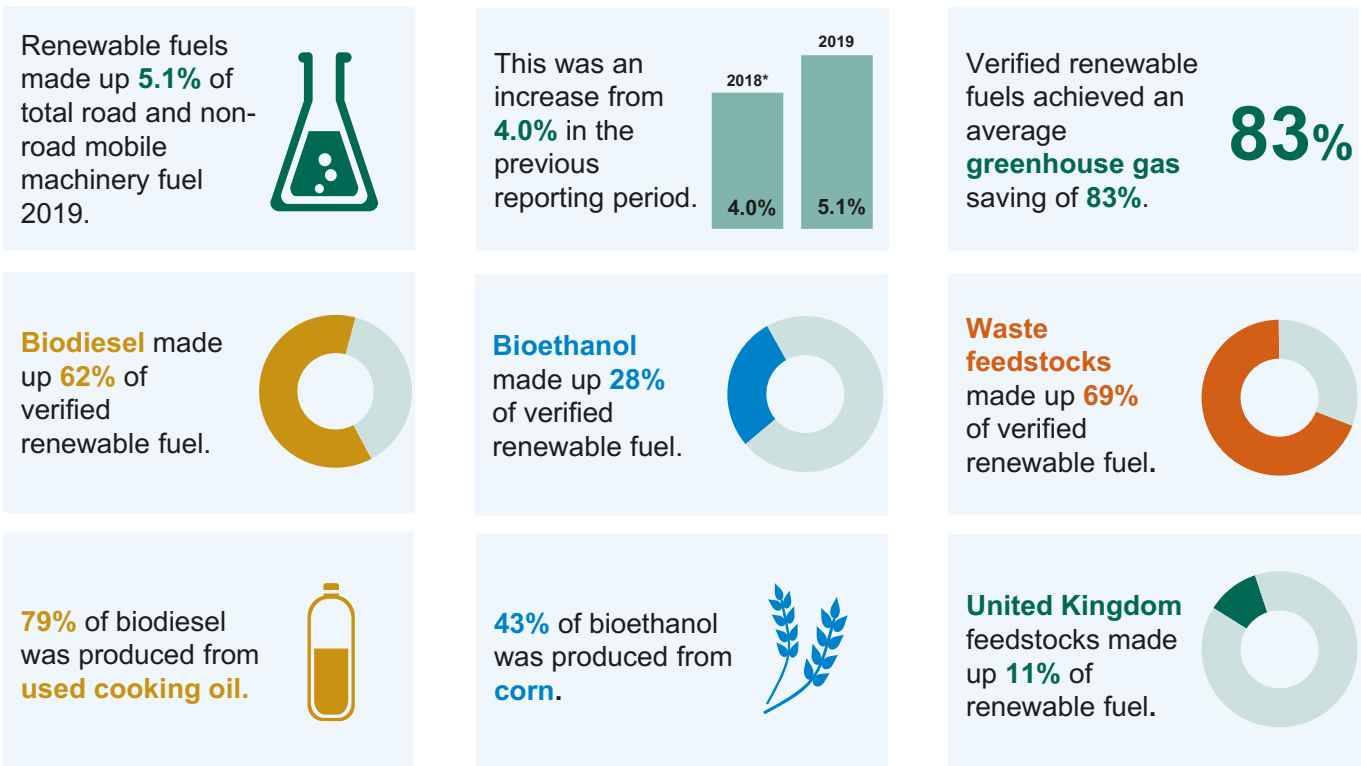
Overview

Figure 2: What is a renewable fuel?



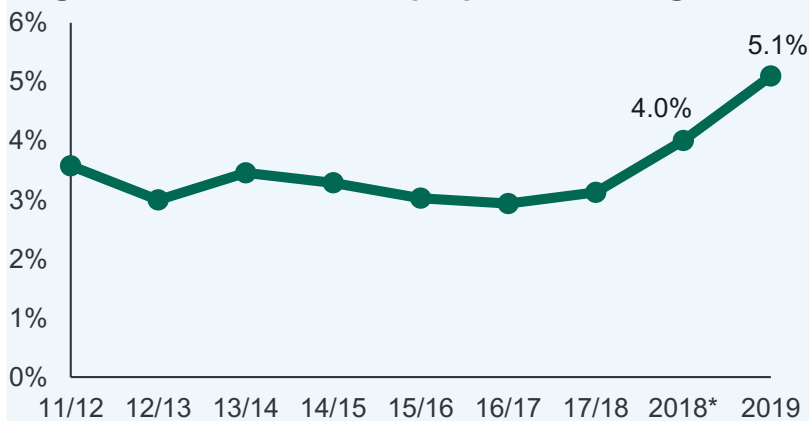
Some renewable fuels have a significantly different production process, in particular Renewable Fuels of Non-Biological Origin (RFNBOs). For more information see the Notes and Definitions.

Figure 3: Highlights – 2019



Long-Term Trends

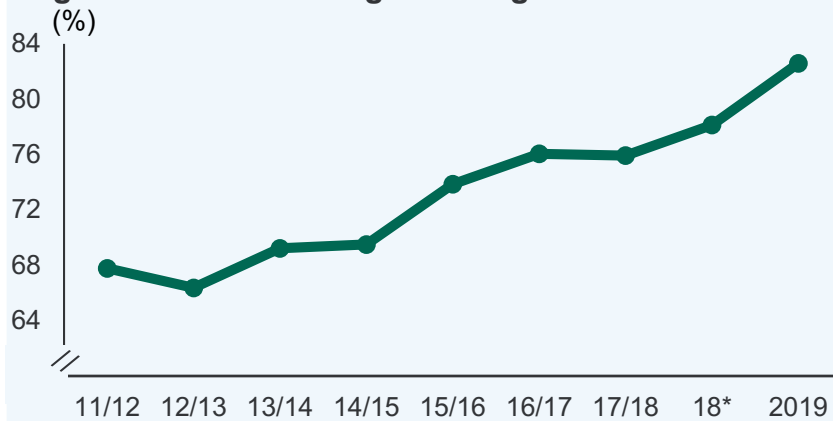
Figure 4: Renewable fuel proportion amongst all fuel



5.1%

Renewable fuel as a proportion of total fuel in 2019

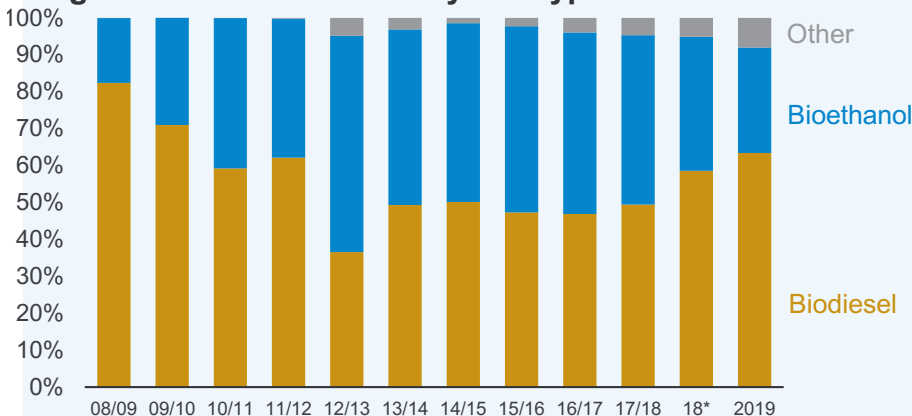
Figure 5: Greenhouse gas savings



83%

The average greenhouse gas savings from renewable fuel in 2019

Figure 6: Renewable fuel by fuel type



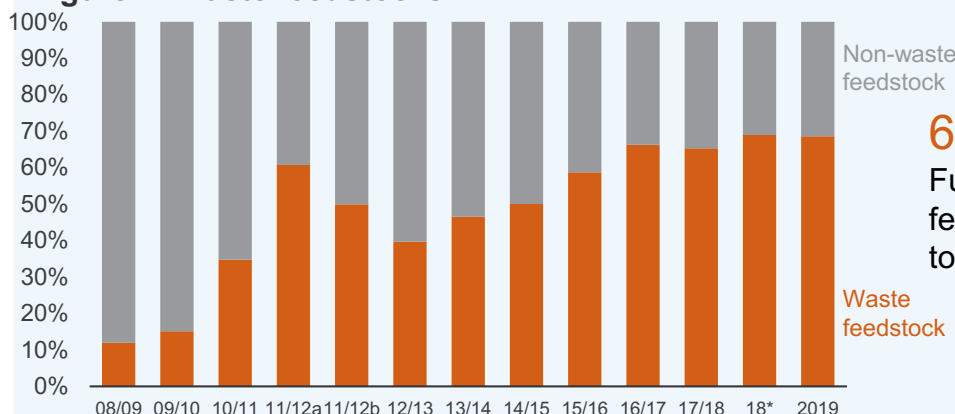
28%

Bioethanol as a proportion of renewable fuel in 2019

62%

Biodiesel as a proportion of renewable fuel in 2019

Figure 7: Waste feedstocks



69%

Fuels derived from waste feedstocks as a proportion of total renewable fuel in 2019

Greenhouse Gas Savings

GHG savings represent the difference in GHG emissions between using renewable fuel as opposed to the conventional fuel which they replace. The [Motor Fuel GHG Emissions Reporting Regulations](#) set obligations for fuel suppliers to reduce their average GHG intensity.

Indirect Land Use Change (ILUC)

Relates to the unintended consequences of changing land use for renewable fuel production. For example the expansion of crop land for feedstocks driving deforestation elsewhere. This reduces the GHG savings from the renewable fuel produced.

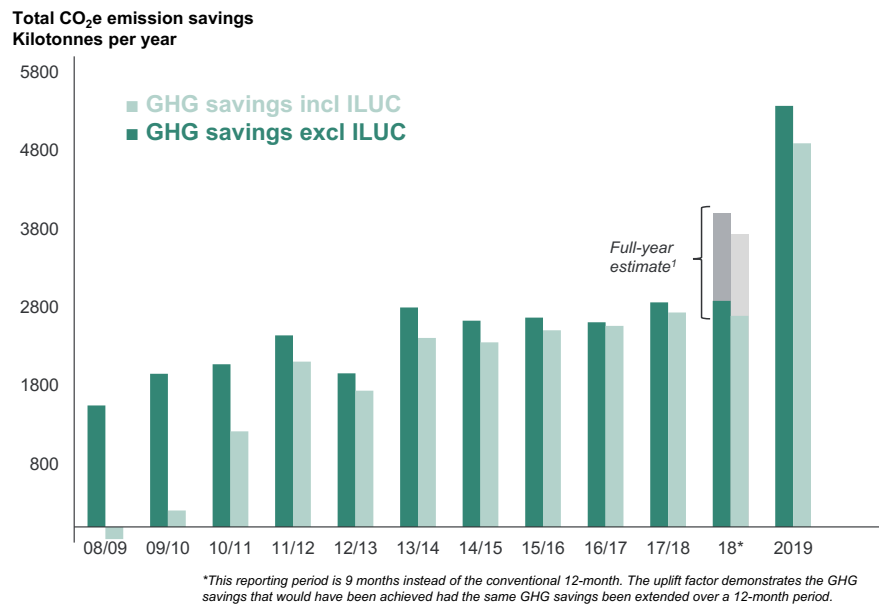
Note on figures

The average car's GHG emissions was 2.11t CO₂e per year in 2018, the most recent year with final GHG estimates ([BEIS GHG Inventory](#))

Greenhouse Gas Savings

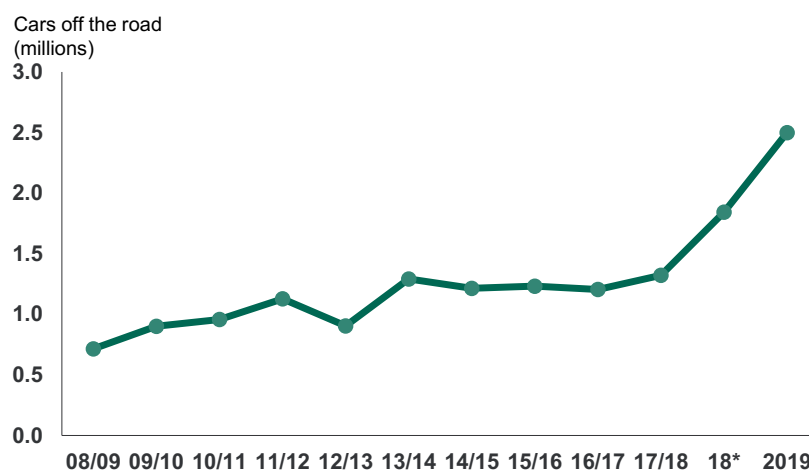
An aggregated GHG saving of 83% was achieved when compared to fossil fuels. This amounts to a GHG saving of 5,368 kt CO₂ equivalent emissions compared to conventional fuel. Accounting for indirect land-use change (ILUC) reduces this GHG saving to 77%.

Figure 8: Greenhouse gas saving delivered by renewable fuel supplied to the UK, 2008/09 to 2019 (table [RF_0114](#))



This saving of 5,368 kt CO₂ equivalent is equivalent to taking 2.5 million cars off the road for a full year. This drops to 2.3 million cars if ILUC is accounted for.

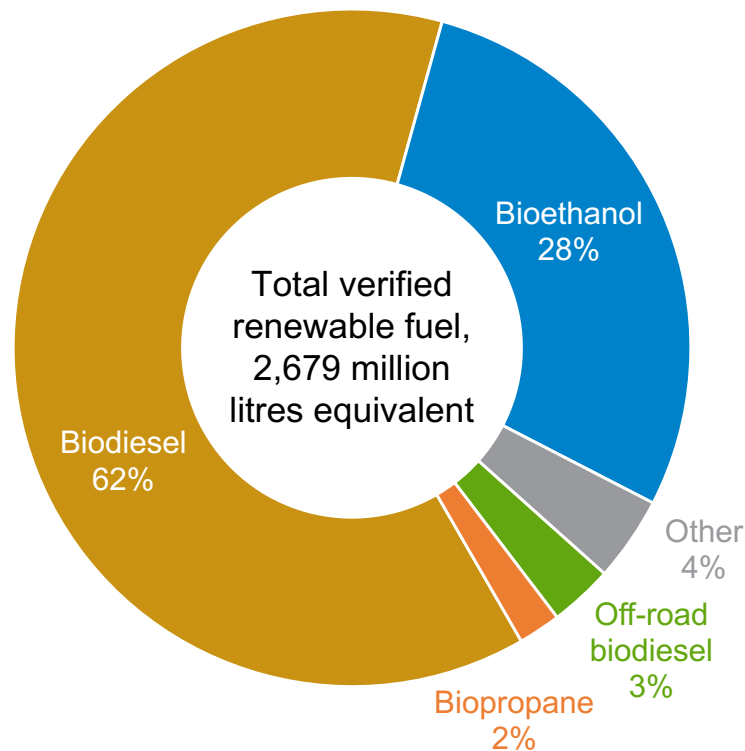
Figure 9: Greenhouse gas savings - equivalent number of average cars taken off the road, 2008/09 to 2019 (table [RF_0114](#))



Under the GHG Reporting Regulations, in 2019 fuel suppliers were obligated to achieve an average 4% reduction in GHG emissions for their total fuel supply, compared to a baseline set in the Regulations. In 2019, suppliers have surpassed this with an overall 4.4% reduction.

Fuel Type

Figure 10: Volume of verified renewable fuel by fuel type (table [RF_0105a](#))

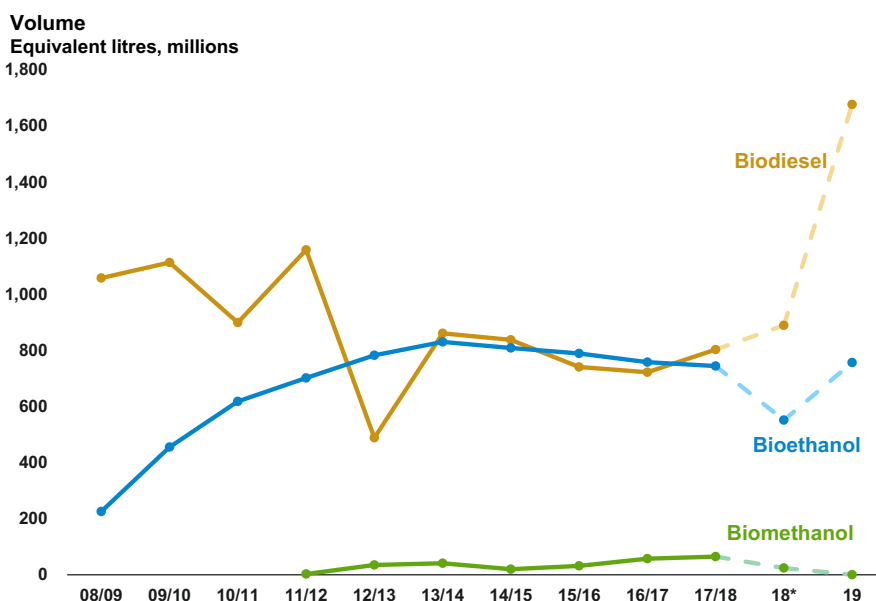


A further 1.6 million litres (0.1%) was supplied but was not verified, and did not receive RTFCs (see pages 12/13).

The overall volume of renewable fuel in 2019 (2,679 million litres eq.) was higher than the volume in the short 2018* year (1,518 million litres eq., which was a 9 month period). The proportion (by volume) of renewable fuel out of total road and non-road machinery fuel, has increased from 4% in 2018* to 5.1% in 2019.

Of the 2,679 million litres eq. of renewable fuel, biodiesel made up 62%, bioethanol made up 28%, off-road biodiesel made up 3% and biopropane made up 2%. There were also small volumes of biomethane, biopetrol and diesel of biological origin.

Figure 11: Supply of selected renewable fuels to the UK by fuel type, 2008/09 to 2019 (table [RF_0105b](#))



Renewable fuel trends

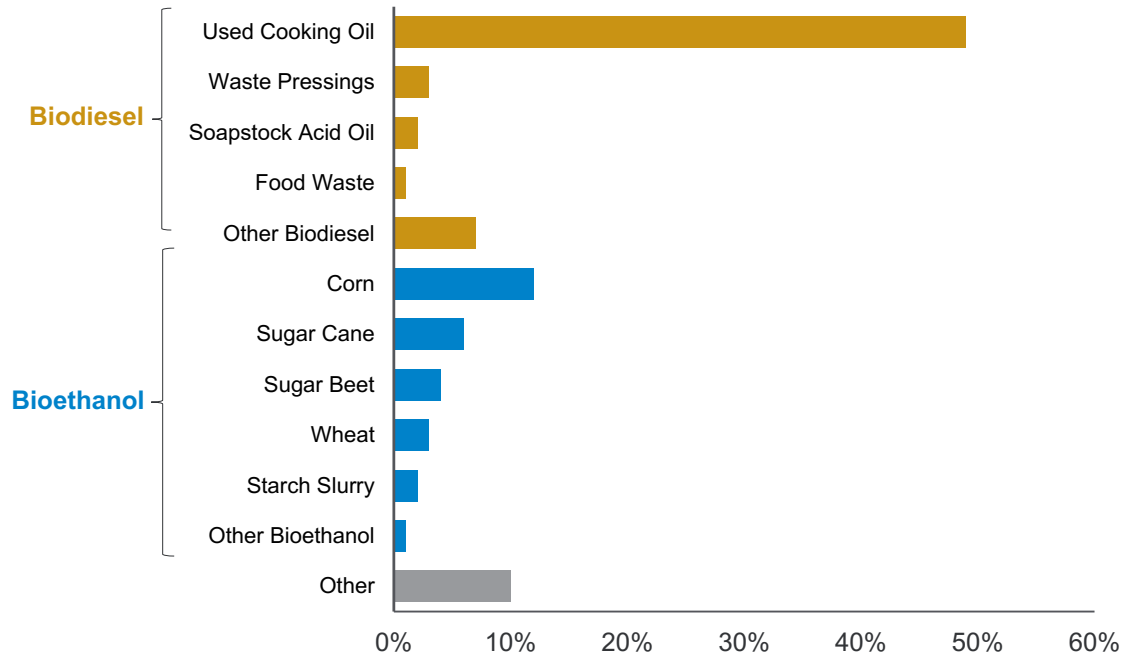
Volumes of bioethanol are comparable to levels in 2017/18. Volumes of biodiesel have risen to a new peak since 2011/12. The supply of biomethanol decreased further in 2019, reversing the increasing trend seen since 2011/12. Biopropane has increased to 2% of all renewable fuel in 2019, compared to 1% in 2018*.

Feedstocks

Any renewable resource that can be used directly as an energy source, or converted to a transport fuel or other energy product.

Feedstock

Figure 12: Supply of verified renewable fuel to the UK by feedstock and fuel type (table [RF_0105a](#))

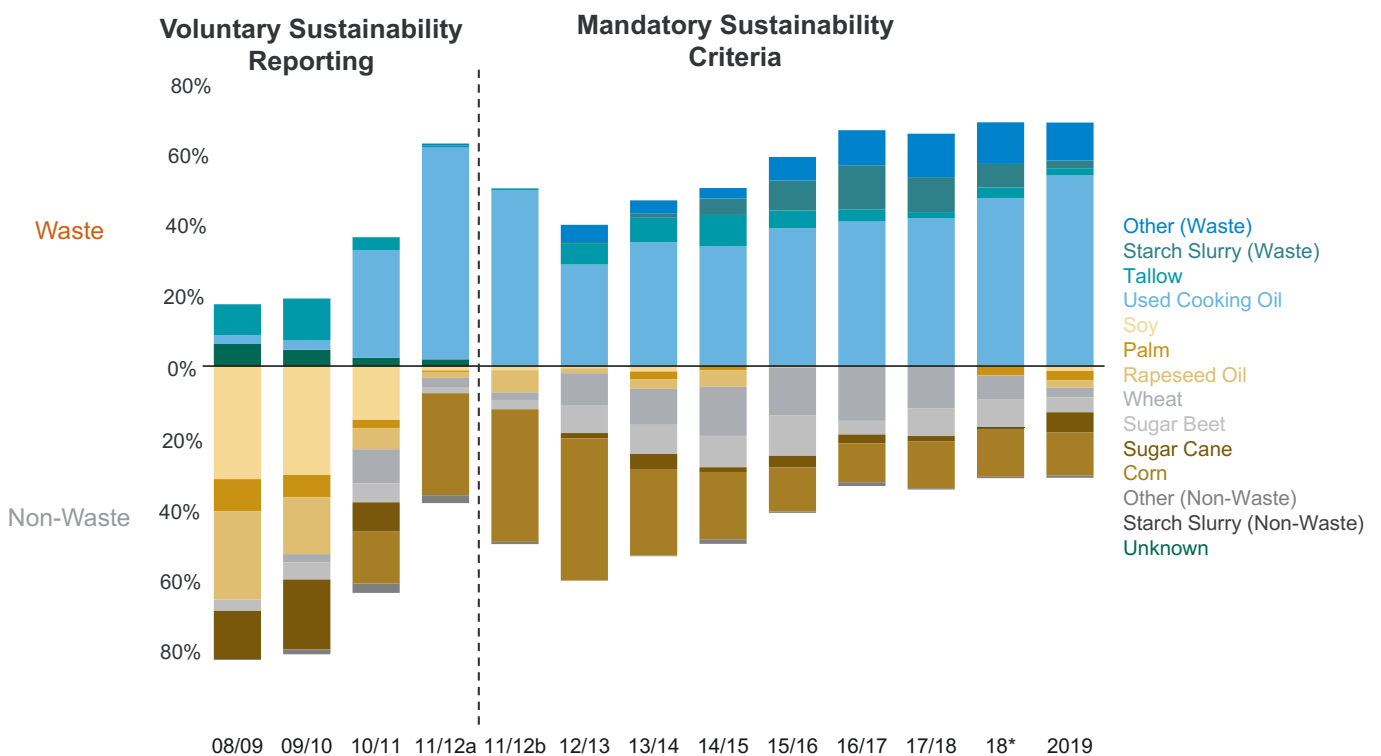


The majority (54%) of renewable fuel was produced from used cooking oil (UCO). UCO comprised 79% of biodiesel.

For bioethanol, the largest feedstock was corn (43%). Corn-based bioethanol comprised 12% of total renewable fuel.

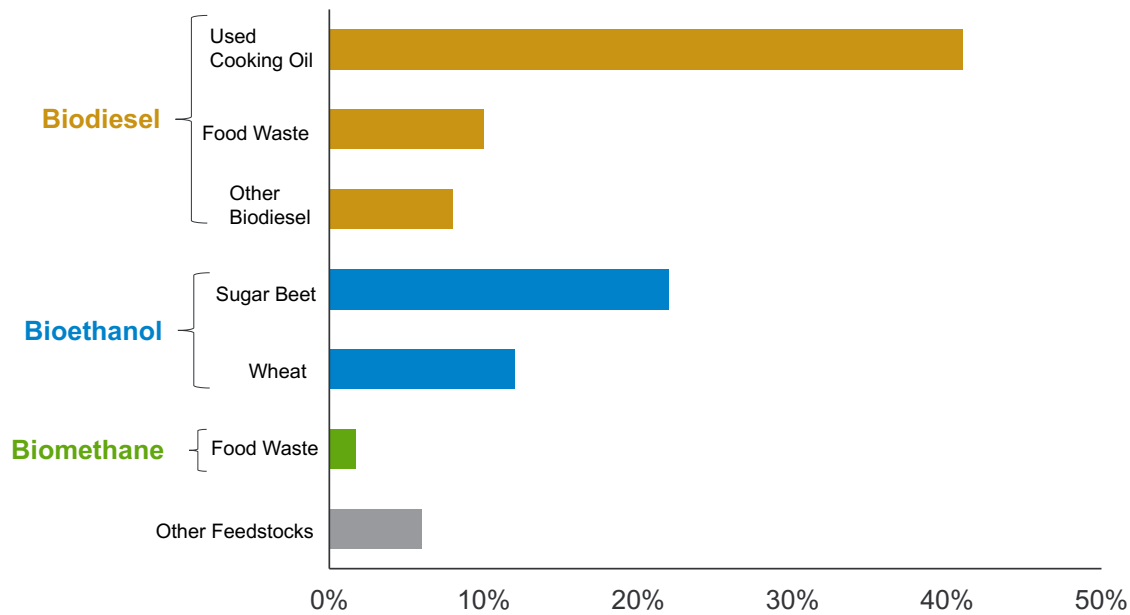
Though the feedstock mix has changed over time, used cooking oil has remained the most common feedstock for renewable fuel supplied to the UK since 2010/11.

Figure 13: Supply of renewable fuel to the UK by feedstock, 2008/09 to 2019 (table [RF_0105a](#))



UK Feedstock

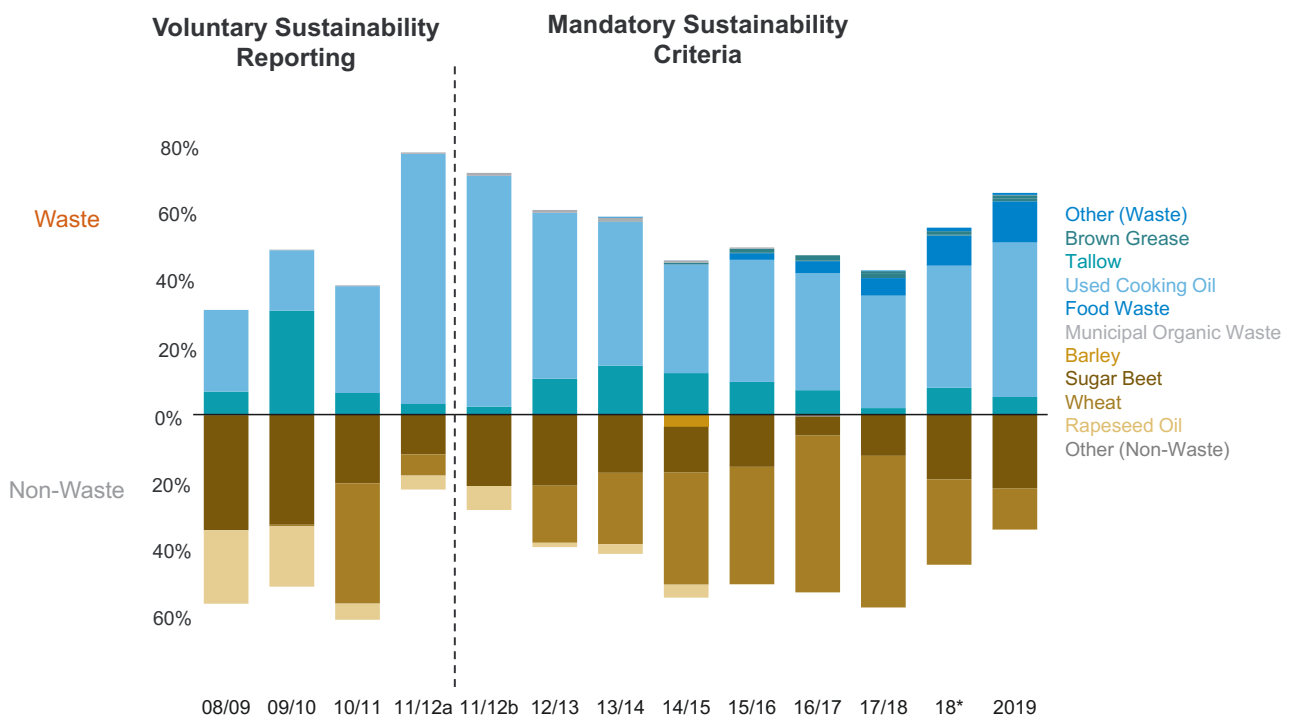
Figure 14: UK origin renewable fuel by feedstock (table [RF_0105a](#))



Of the 289 million litres eq. of renewable fuel produced from UK origin feedstock, the most common feedstock and fuel type was biodiesel from used cooking oil (118 million litres, 41% of renewable fuel from UK origin feedstock). The most common source of bioethanol from UK origin feedstock was sugar beet (64 million litres, 22% of renewable fuel from UK origin feedstock).

Renewable fuels from UK feedstocks made up 11% of total renewable fuels in 2019. 66% of UK origin renewable fuel was produced from a waste feedstock, up from 55% in 2018*.

Figure 15: UK origin renewable fuel by feedstock, 2008/09 to 2019 (table [RF_0105a](#))



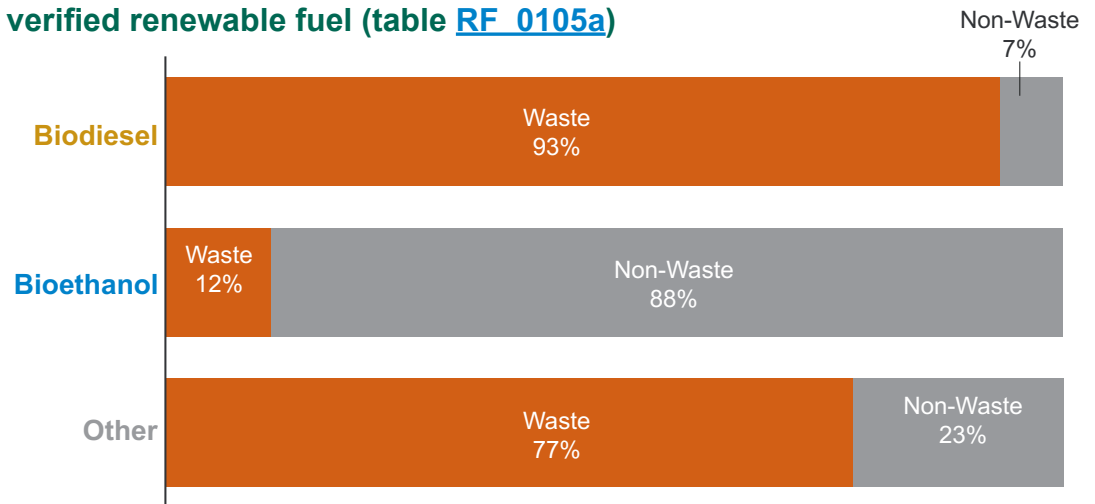
Waste Feedstocks

Renewable fuel produced from waste feedstocks typically delivers greater greenhouse gas savings than fuel derived from feedstocks produced specifically to be made into renewable fuel. Therefore they are encouraged under the RTFO and are typically awarded double counting certificates.

Waste Feedstock and Origin

Waste feedstocks are further incentivised under the RTFO, with the awarding of double-counting certificates for renewable fuel derived from them. Renewable fuel from waste feedstocks totalled 1,838 million litres eq. in 2019. Waste feedstocks made up two thirds (69%) of all verified renewable fuel so far this year. Waste feedstocks have been used more in biodiesel production (93%), than in bioethanol production (12%).

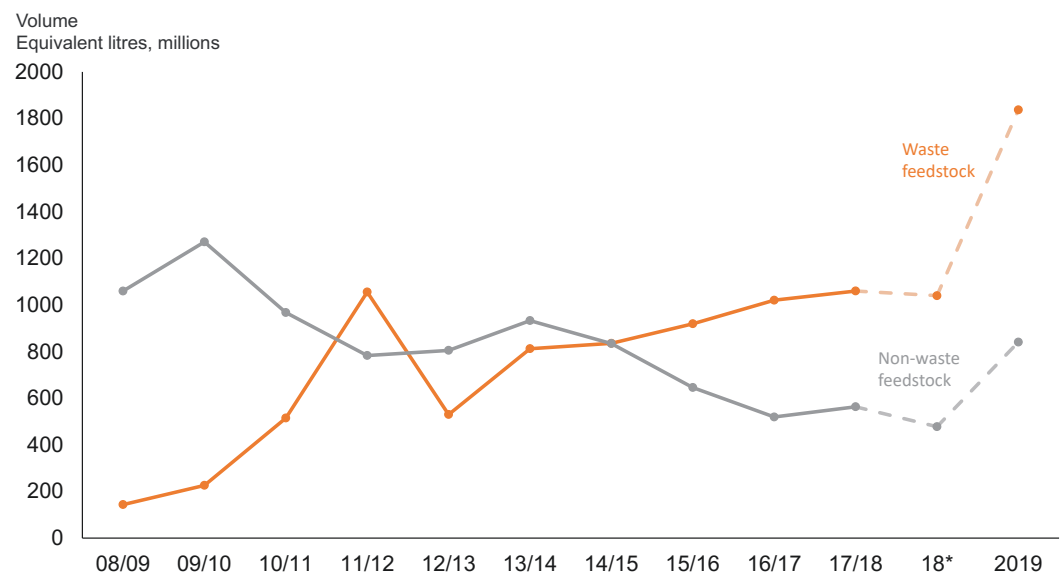
Figure 16: Proportion of waste and non-waste feedstock amongst verified renewable fuel (table [RF_0105a](#))



Trends

Waste-derived fuels have been increasing over time. A larger volume was supplied this period than the previous reporting period (which was a shorter period) but the proportion of fuel from waste feedstocks stayed stable at 69% in 2019.

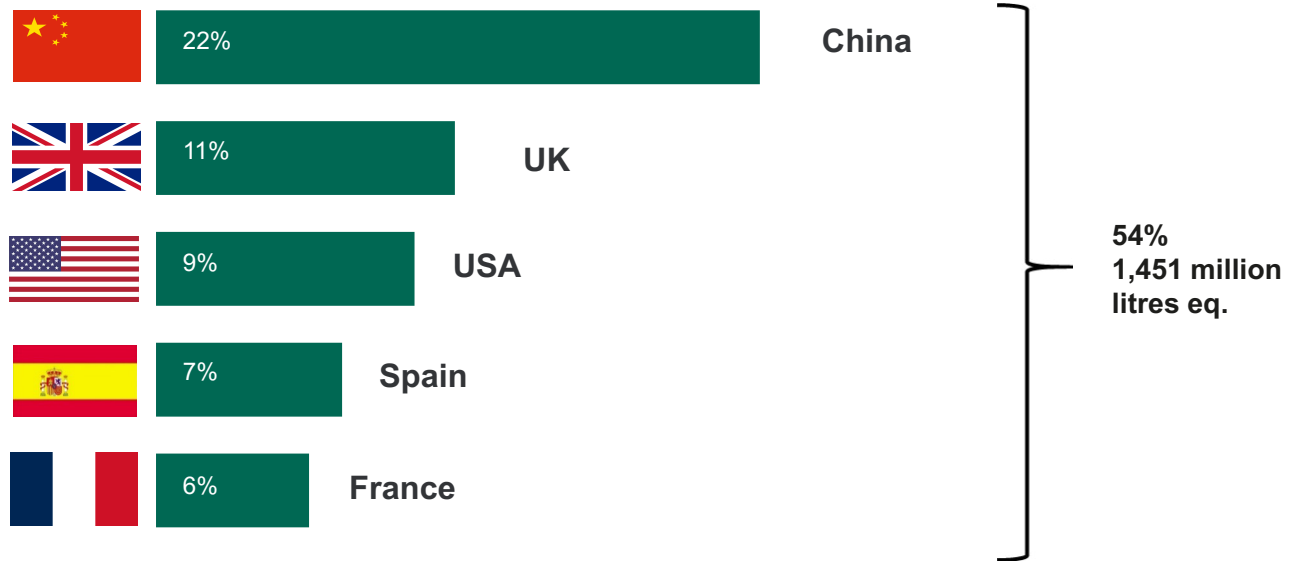
Figure 17: Renewable Fuels from waste and non-waste feedstock, 2008/09 to 2019 (table [RF_0105b](#))



Country of Origin

Figure 18: Top 5 countries supplying verified renewable fuel to the UK in 2019

(table [RF_0105a](#))

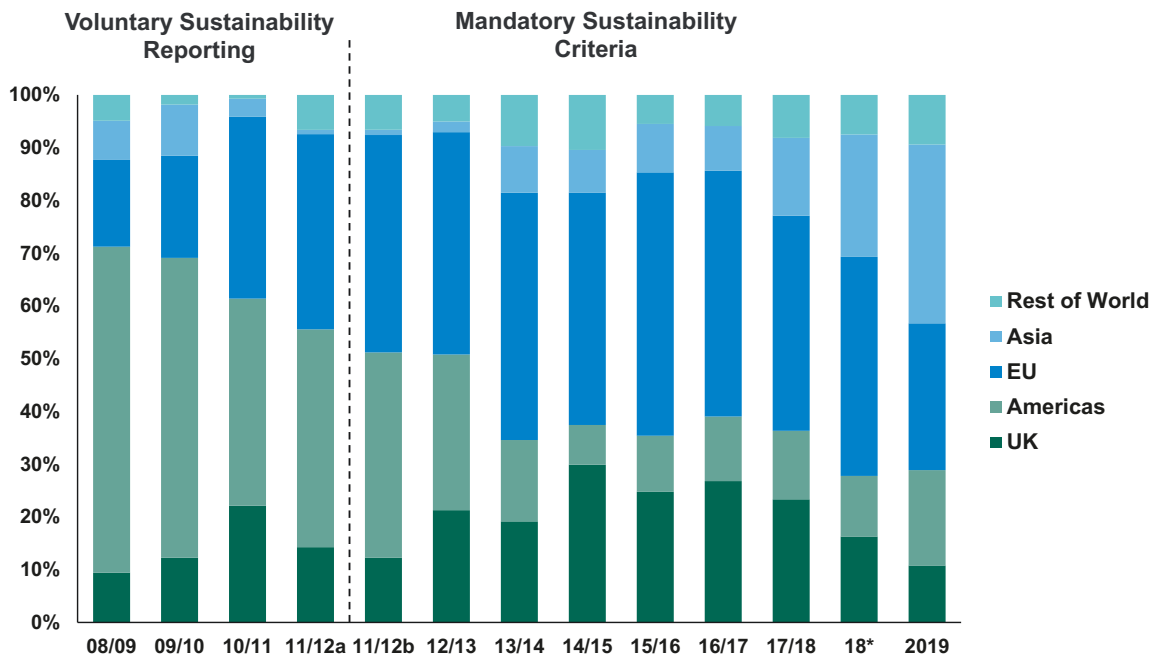


The top five feedstock supplying countries together accounted for 54% of renewable fuel in 2019. Of the 2,679 million litres eq. of renewable fuel supplied so far in 2019, the most widely reported source for biodiesel supplied to the UK (by feedstock and country of origin) was used cooking oil from China (536 million litres, 19% of renewable fuel, 32% total biodiesel).

The most widely reported source for bioethanol supplied to the UK (by feedstock and country of origin) was corn from Ukraine (138 million litres, 5% of renewable fuel, 18% of total bioethanol.)

Figure 19: Proportion of renewable fuel supplied to the UK by region, 2008/09 to 2019

(table [RF_0105b](#))



There was an increase in the proportion of renewable fuel from Asia from 23% in 2018* to 34% in 2019. This was driven largely by increases in biodiesel from used cooking oil from China and Malaysia. The proportion of renewable fuel from the UK decreased from 16% in 2018* to 11% in 2019 and renewable fuel from the Americas had increased from 11% in 2018* to 18% in 2019.

Figure 20: Average greenhouse gas saving by country supplying fuel, 2019 (table [RF_0105a](#))

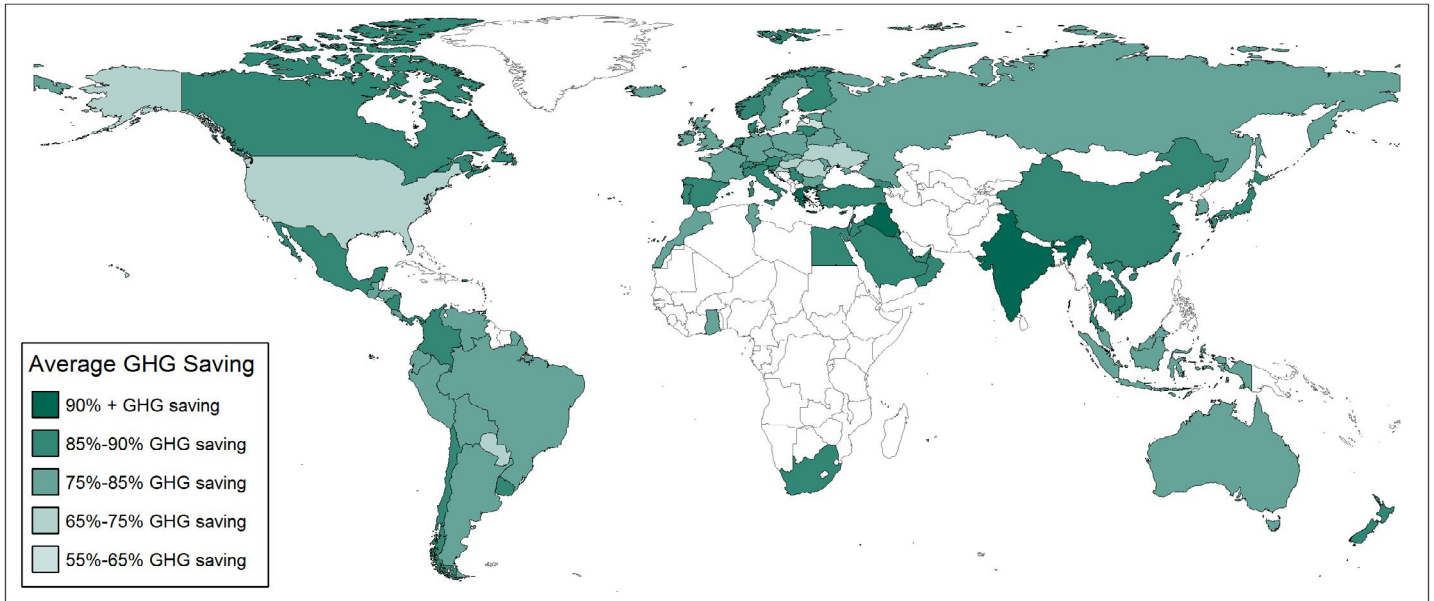


Figure 21: Country of origin of all biodiesel feedstocks, 2019 (table [RF_0105a](#))

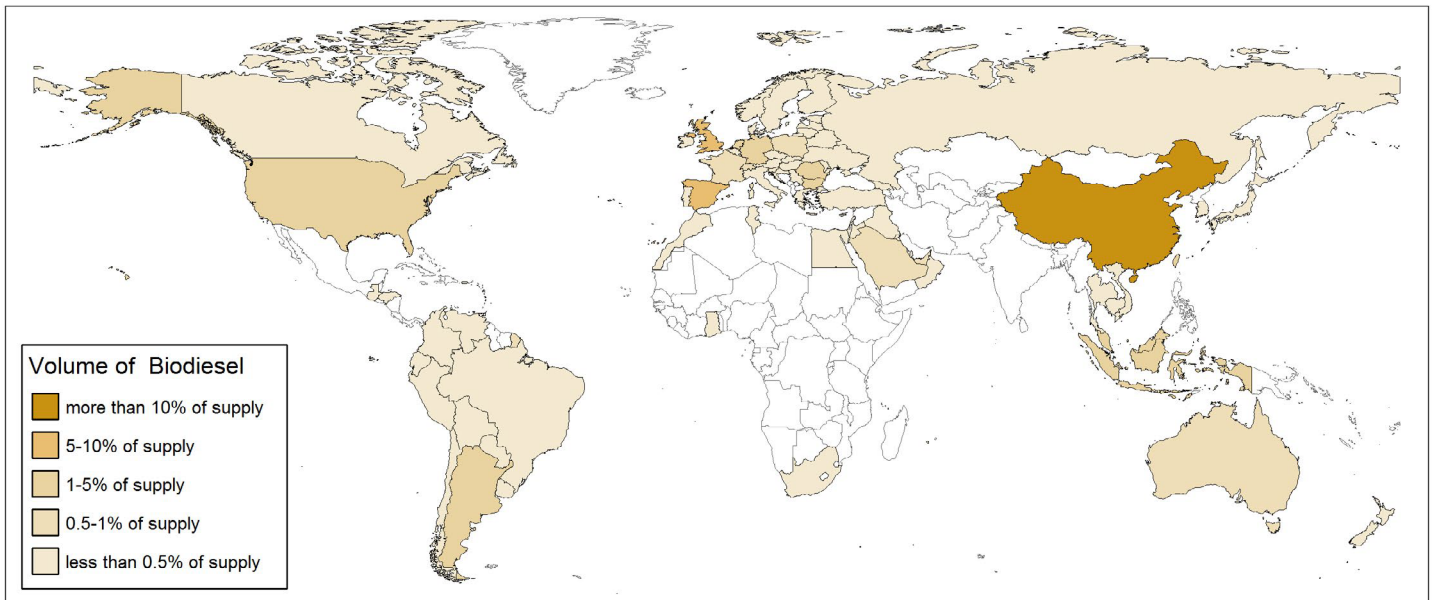
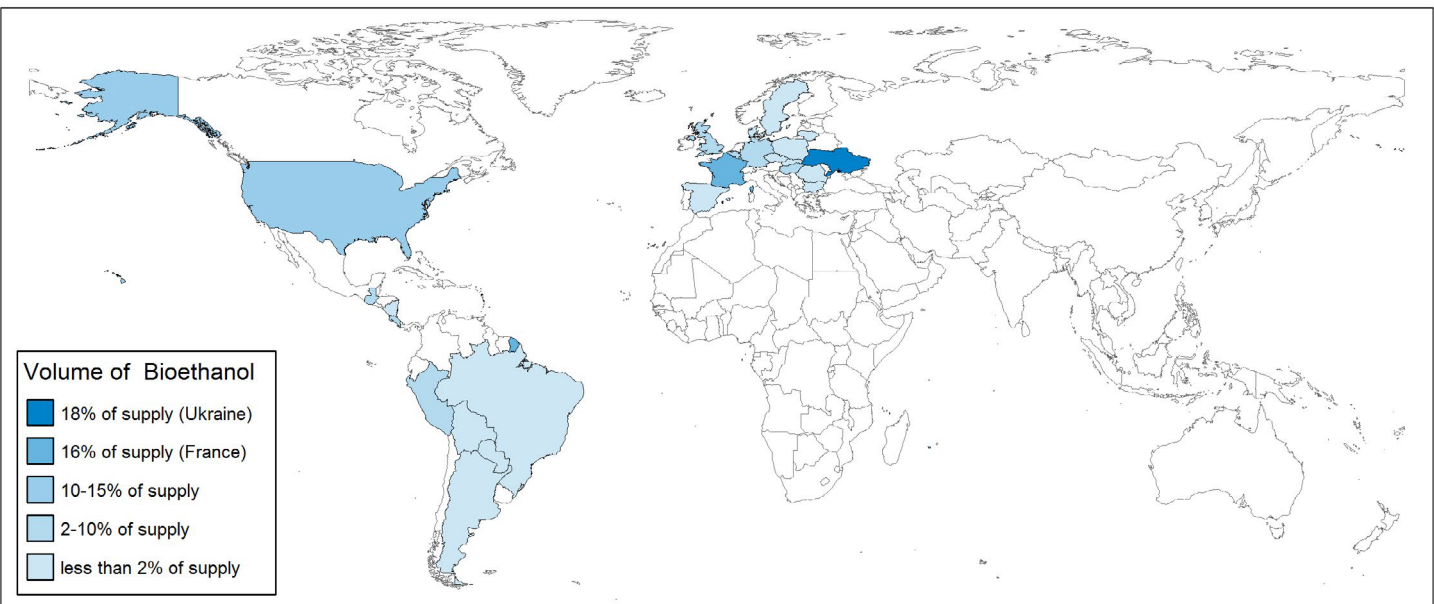


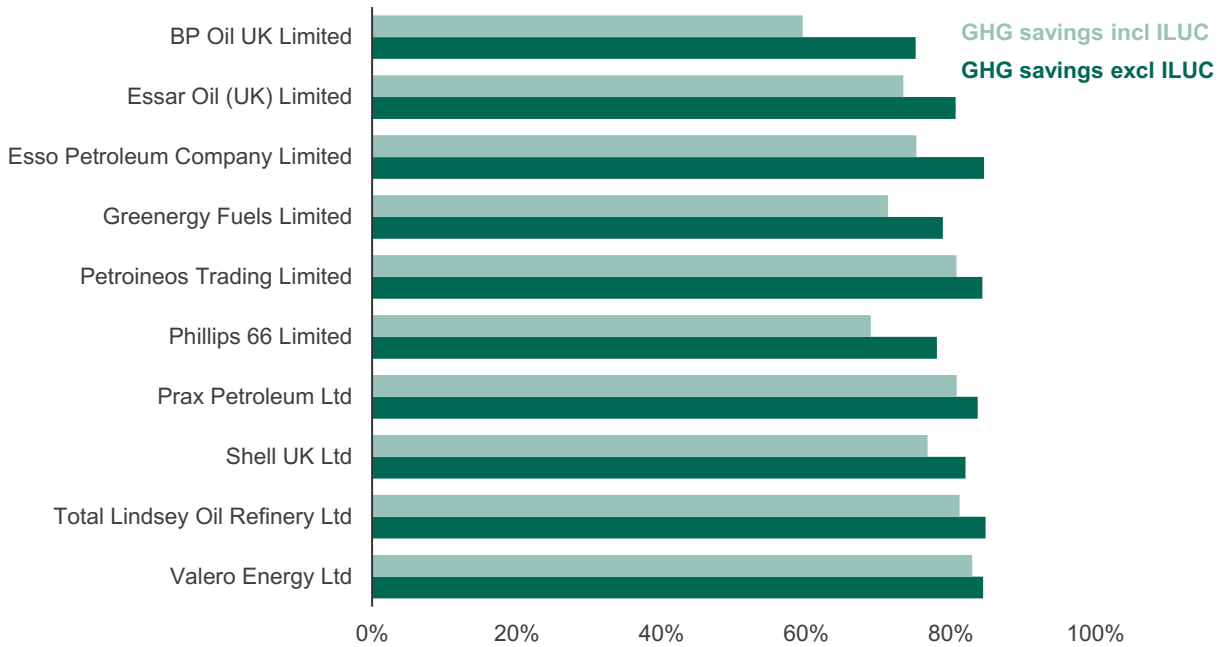
Figure 22: Country of origin of all bioethanol feedstocks, 2019 (table [RF_0105a](#))



Supplier Information

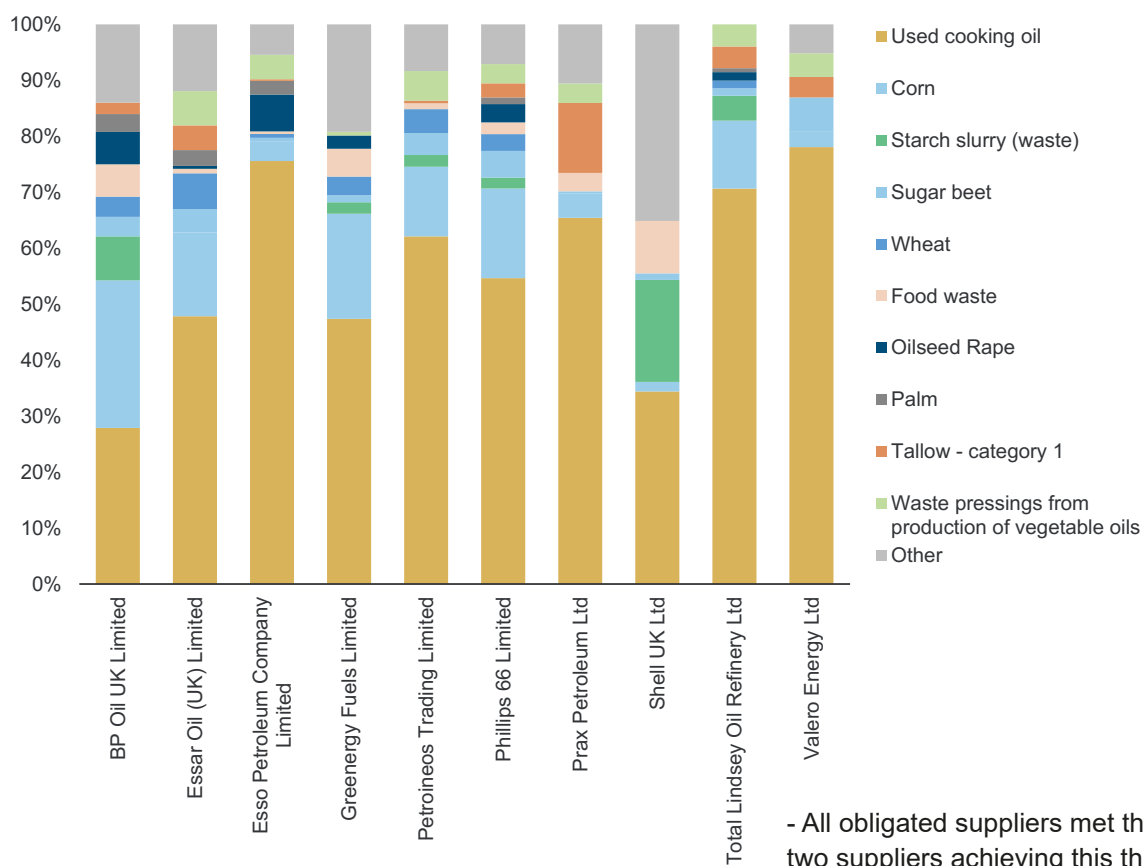
The market for renewable fuel was diverse in 2019, with 34 different suppliers supplying renewable fuel to the UK market in this reporting period. This is an increase on the 30 companies that supplied renewable fuel to the UK in the previous reporting period.

Figure 23: Average GHG savings of top 10 suppliers for 2019 (table [RF_0110](#))



The top ten suppliers of renewable fuel supplied 88% of the UK's supply of renewable fuel in this period.

Figure 24: Feedstock mix of top 10 suppliers for 2019 (table [RF_0108a](#))



Development Fuel

Specific fuels made from sustainable wastes or residues, (excluding segregated oils and fats such as used cooking oils and tallow). These fuels are awarded development fuel certificates, which are double counted.

Development Fuel

A specific target for 'development fuels' was introduced from 1 January 2019. This target takes into account the fuel type, production pathway and the feedstock. These fuels include aviation fuel, drop-in fuels, substitute natural gas and hydrogen (see notes and definitions).

In 2019, the RTFO Administrator verified 2,716 litres eq. of hydrogen, which qualified as a development fuel. This was awarded 5,432 development fuel RTFCs. All obligated suppliers met their development fuel target, however they achieved this through buying out of their obligation.

Double Counting

Renewable fuel produced from waste feedstocks, crop residues and dedicated energy crops are incentivised by awarding double the RTFCs per litre or kilogram supplied.

Certificates Awarded Under the RTFO

Renewable Transport Fuel Certificates (RTFCs)

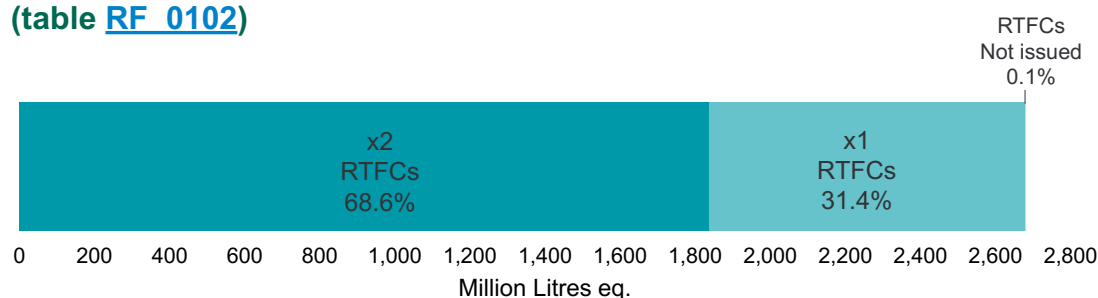
RTFCs are awarded to transport fuel suppliers whose renewable fuel meets the sustainability criteria. In 2019, 4,516 million RTFCs have been issued to 2,679 million litres eq. of renewable fuel. This is out of a total of 2,680 million litres eq. supplied this year.

Double Counting Feedstock

Of the 4,516 million RTFCs awarded to renewable fuel that met the sustainability criteria, 3,676 million were issued to fuel from a waste/residue or "Double Counting" feedstock.

A further 1.6 million litres of renewable fuel went unverified (0.1% of total renewable fuel) and did not receive RTFCs in this period.

Figure 25: Renewable fuel to which RTFCs have been issued
(table [RF_0102](#))



What is a voluntary scheme?

Voluntary schemes verify that renewable fuel supplied to the UK meets compliance with the EU's biofuel sustainability criteria, which is a prerequisite for RTFCs to be issued.

Statistical Tables

Tables for this release are available on GOV. UK

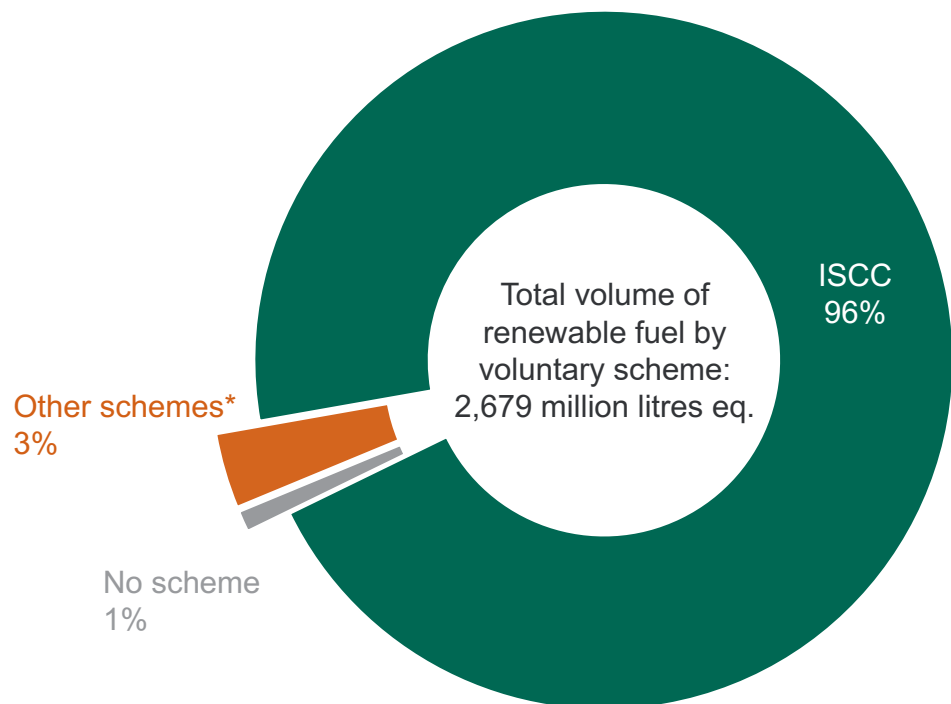
Notes on Timeseries

2018 was a 9 month reporting period rather than the conventional 12 months. This is shown as 2018* in the publication and tables.

Schemes for certification and traceability

- Almost all (99%) of renewable fuel feedstocks that have met the sustainability criteria have been certified by a voluntary scheme.
- Of the current voluntary schemes listed, the International Sustainability and Carbon Certification scheme (ISCC) certified 96% of all UK renewable fuel in 2019.
- The uptake of voluntary schemes has remained above 99% for the past seven years, compared to 20% in the first year of the RTFO.

Figure 26: Proportion of renewable fuel reported via voluntary scheme 2019 (table [RF_0106](#))



*Other RTFC schemes: RSB, 2BSVS, Redcert EU, HVO Renewable Diesel Scheme

Verified Renewable Fuel

Verified renewable fuel refers to fuel that has received RTFCs for having met the Sustainability Criteria. For more, see the [Notes and Definitions](#).

Sustainability Criteria

To receive Renewable Fuel Certificates, fuels supplied must meet the sustainability criteria set out in the amended [Renewable Transport Fuel Obligations Order 2007](#) and the [RTFO Carbon and Sustainability guidance](#).

Renewable fuel must deliver minimum GHG savings and must not originate from land with high biodiversity value of carbon stock.

Obligations Under the RTFO

Suppliers of fuel for road and non-road mobile machinery (e.g. tractors) that supply 450,000 litres or more per year have an obligation under the RTFO Order. Obligated suppliers may meet their obligation by redeeming Renewable Transport Fuel Certificates (RTFCs) or by paying a fixed sum for each litre of fuel for which they wish to 'buy-out' of their obligation. RTFCs are gained by supplying sustainable renewable fuels. In 2019, such suppliers must redeem RTFCs and development fuel RTFCs (dRTFCs) for 8.4% and 0.1% of their share of total fuel, respectively. This will increase to 9.6% for RTFCs and 2.8% for dRTFCs by 2032.

One certificate may be claimed for every litre or kilogram of sustainable renewable fuel supplied. Fuel from certain wastes of residues, fuel from dedicated energy crops, and renewable fuels from non-biological origin (RFNBOs) are incentivised by awarding double the RTFCs per litre or kilogram supplied.

Companies have up to five months after the end of the year before they must apply for RTFCs. Each provisional report typically has a higher proportion of renewable fuel which has been verified, and the final report describes all verified renewable fuel supplied in the year.

Further Details

Further information on the data can be found in the [Notes and Definitions](#).

Related Information

Previously published reports can be found on the DfT website:

<https://www.gov.uk/government/collections/renewable-fuel-statistics>.

The publication timetable can be found at Annex B.

Background Information

Sources of data in this report

Data on volumes of fuel, Renewable Transport Fuel Certificates (RTFCs) (issues, redemptions, surrenders, transfers) and Carbon & Sustainability (C&S) are held by the Renewable Transport Fuel Obligation (RTFO) Administrator on the RTFO Operating System (ROS). Fuel volume data is submitted on a monthly basis by fuel suppliers to the RTFO Administrator and validated against HMRC duty payment data.

C&S data is only reported once RTFCs have been issued. There will therefore be a difference between the volume of renewable fuel supplied and the number of RTFCs issued/ C&S data available. The final report for an obligation period will show the final position.

Renewable fuel mix reporting

The data reported by fuel suppliers under the RTFO is in line with rules on mass balance. A mass balance system requires suppliers throughout the supply chain to account for their product on a units in - units out basis, but does not require physical separation of certified feedstock or fuel from uncertified material. It ensures that for every unit of sustainable renewable

fuel sold, the corresponding sustainable feedstock has been produced. This can mean the actual feedstock mix might differ from that reported. Nonetheless, the feedstocks and renewable fuels reported in this document represent those that are incentivised and rewarded under the RTFO.

Strengths and Weaknesses of the data

C&S data is verified by independent verifiers and checked against the RTFO Guidance by the Administrator.

The Administrator validates volume data submitted by fuel suppliers against that held by the HMRC regarding fuel duty liabilities. Whilst the Administrator validates volume data against HMRC data at a company level, there is not an exact match between the volume of fuel reported in this report and the volume of fuel reported in HMRCs Hydrocarbon Oils bulletin. For further information see the [notes and definitions](#).

Official Statistics

Official Statistics are produced to high professional standards set out in the Code of Practice for Statistics. However, these statistics have not been assessed by the Office for Statistics Regulation. Details of ministers and officials who received pre-release access to these statistics up to 24 hours before release can be found in the pre-release access list.



To hear more about DfT statistics publications as they are released, please follow us on Twitter via our @DfTstats account: <http://twitter.com/DfTstats>. TWITTER, TWEET, RETWEET and the Twitter logo are trademarks of Twitter, Inc. or its affiliates.

Annex A: Renewable Fuel Statistics Content of Tables

Reports are published quarterly.

This is the final report for this obligation period and reports on the carbon and sustainability performance of individual suppliers. These reports are available online at:

<https://www.gov.uk/government/collections/renewable-fuel-statistics>

Table 1 - Typical content of renewable fuel statistics tables

Table	Previously reported as	Description	Provisional Report	Final Report
RF_0101	RTFO_01	Volume of fuel supplied	Yes	Yes
RF_0102	RTFO_02	Fuels issued with RTFCs and number of RTFCs issued	Yes	Yes
RF_0103	RTFO_03	RTFC balance by obligation period	Yes	Yes
RF_0104	RTFO_04	RTFC trades to date by company type	Yes	Yes
RF_0105a	RTFO_05	RTFO wide carbon and sustainability data	Yes	Yes
RF_0106	RTFO_06	RTFO wide voluntary scheme data	Yes	Yes
RF_0105b	n/a	Feedstock and country of origin over time	No	Yes
RF_0107	RTFO_07	Performance against obligation by supplier	No	Yes
RF_0108a	RTFO_08a	Feedstock by supplier as a % of their supply	No	Yes
RF_0108b	RTFO_08b	Country of origin by supplier as a % of their supply	No	Yes
RF_0109	RTFO_09	% of renewable fuel that was sustainable by supplier	No	Yes
RF_0110	RTFO_10	Carbon and sustainability data by supplier	No	Yes
RF_0111	RTFO_11	RTFO wide fuel supply by volume and energy	No	Yes
RF_0112	RTFO_12	Civil penalties and other non-compliance	No	Yes
RF_0114	n/a	Total greenhouse gas savings over time	No	Yes

Annex B: Renewable Fuel Statistics Reporting Timescales

Table 2 - Publication dates and contents of each report

	2019 statistics	2020 statistics	2021 statistics
August 2020	Fifth Provisional Report	First Provisional Report	
November 2020	Final Report	Second Provisional Report	
February 2021		Third Provisional Report	
May 2021		Fourth Provisional Report	
August 2021		Fifth Provisional Report	First Provisional Report
November 2021		Final Report	Second Provisional Report

Highlighted reports indicate summary report for the period.