



Renewable Fuel Statistics 2020 Final Report

About this release

This final release covers the supply of renewable fuel in 2020, based on data available on 20th September 2021, which has been reported under the Renewable Transport Fuel Obligation (RTFO).

In this publication

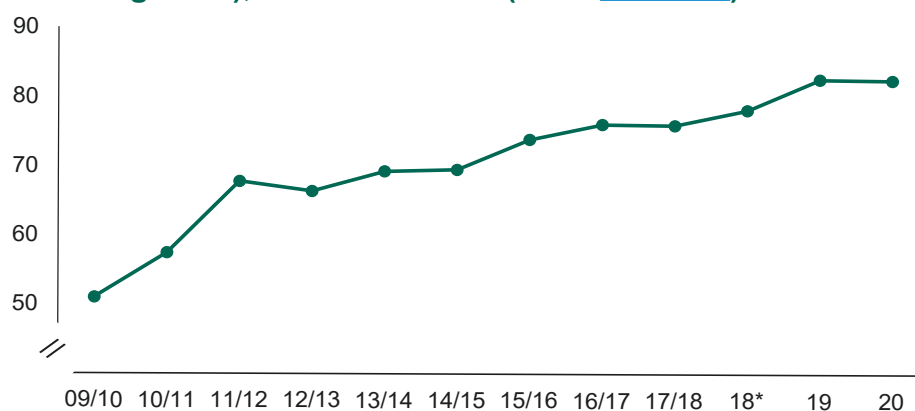
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Renewable fuels are fuel produced from biomass or some other renewable energy source. They are often blended with conventional fuels such as petrol or diesel, but they produce lower greenhouse gas emissions as their primary energy input is renewable.

In 2020:

- **2,537 million litres equivalent (eq.) of renewable fuel** was supplied, which constitutes 5.9% of total road and non-road mobile machinery fuel for the year. This was an increase from 5.1% in 2019, reflecting the increase in renewable fuel targets under the Renewable Transport Fuel Obligation (RTFO). **2,536 million litres eq.** were verified under the RTFO.
- Of this 2,536 million litres eq., an average **greenhouse gas (GHG) saving of 82%** was achieved compared to fossil fuel use (not accounting for indirect land use change (ILUC)).
- This was a decrease in the average GHG savings of renewable fuels from 83% in 2019, and an increase from 51% since 2009/10.

Figure 1: Average greenhouse gas savings of renewable fuel (excluding ILUC), 2009/10 to 2020 (table [RF_0114](#))

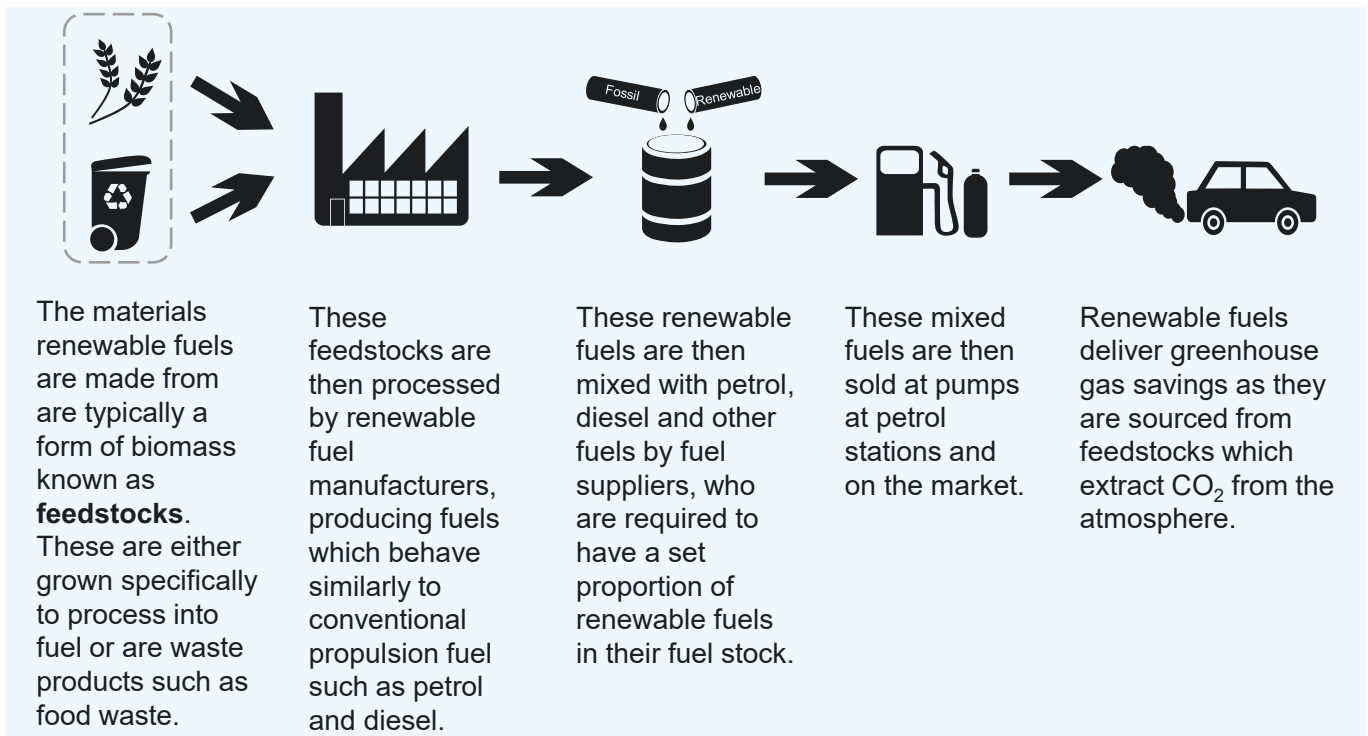


2018* was a shorter reporting period running from April 15th to December 31st 2018. See Notes on Timeseries, pg 13 for more details.

- After the introduction of development fuels in 2019, in 2020, **2,807 litres eq.** of hydrogen were verified. All obligated suppliers met their target, however 99% was met through buying out.

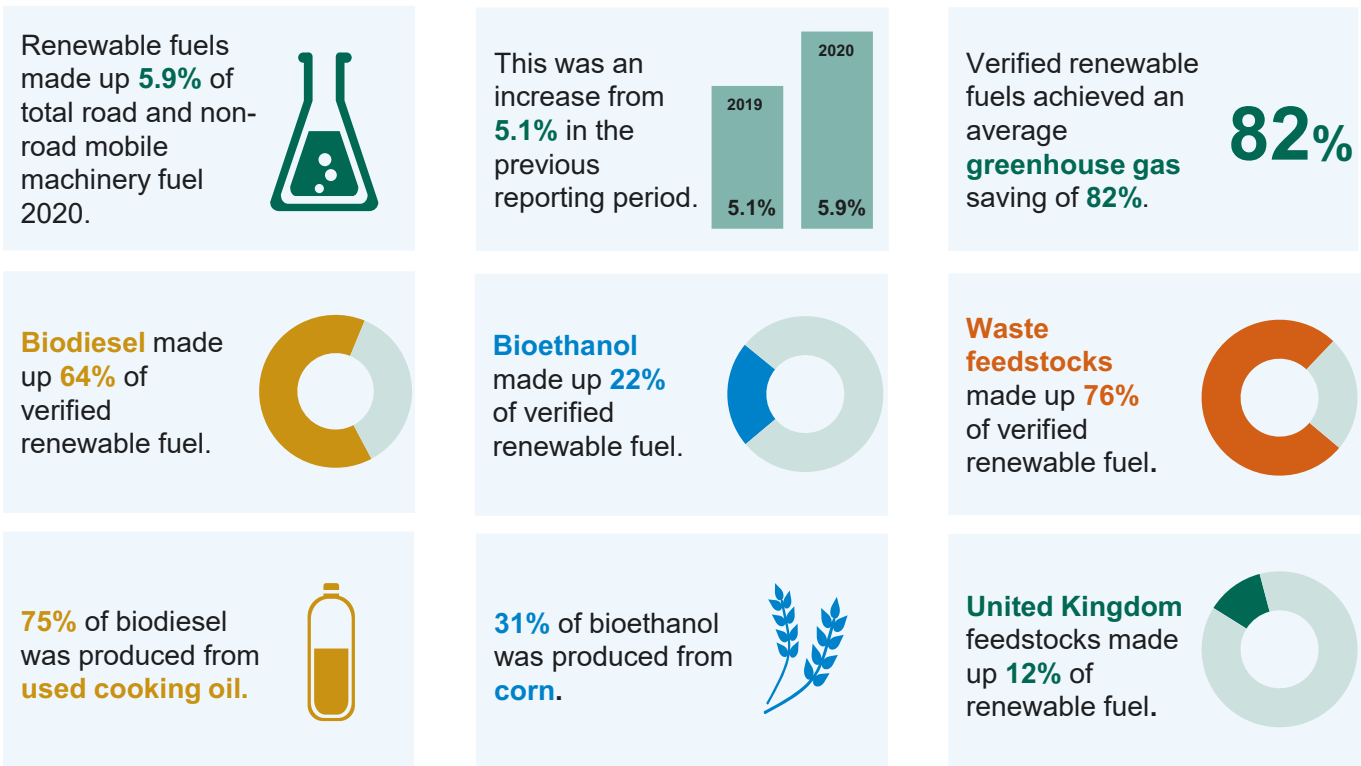
Overview

Figure 2: What is a renewable fuel?



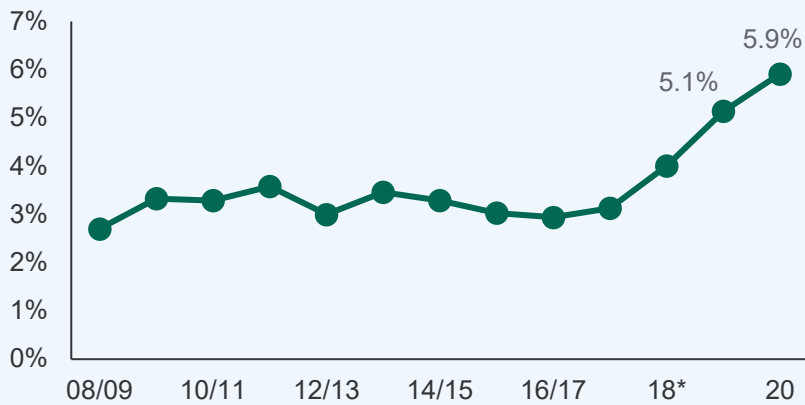
Some renewable fuels have a significantly different production process, in particular Renewable Fuels of Non-Biological Origin (RFNBOs). For more information see the Notes and Definitions.

Figure 3: Highlights – 2020



Long-Term Trends

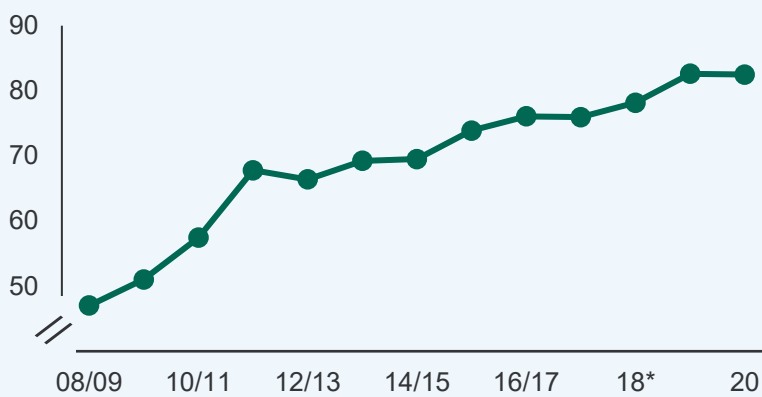
Figure 4: Renewable fuel proportion amongst all fuel



5.9%

Renewable fuel as a proportion of total fuel in 2020

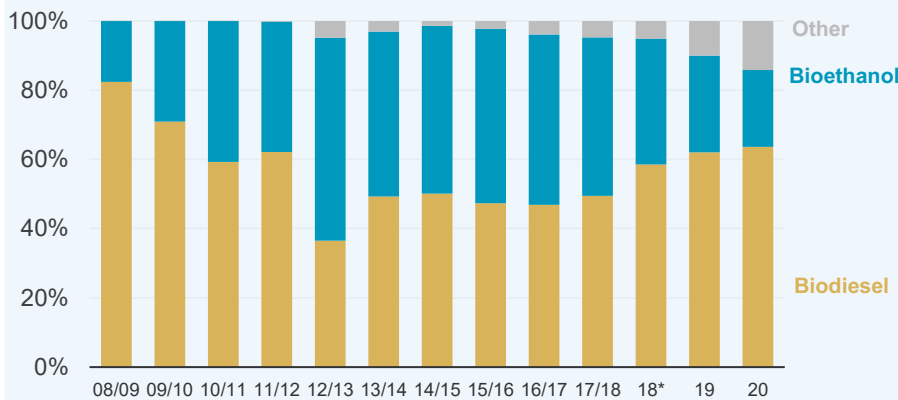
Figure 5: Greenhouse gas savings



82%

The average greenhouse gas savings from renewable fuel in 2020

Figure 6: Renewable fuel by fuel type



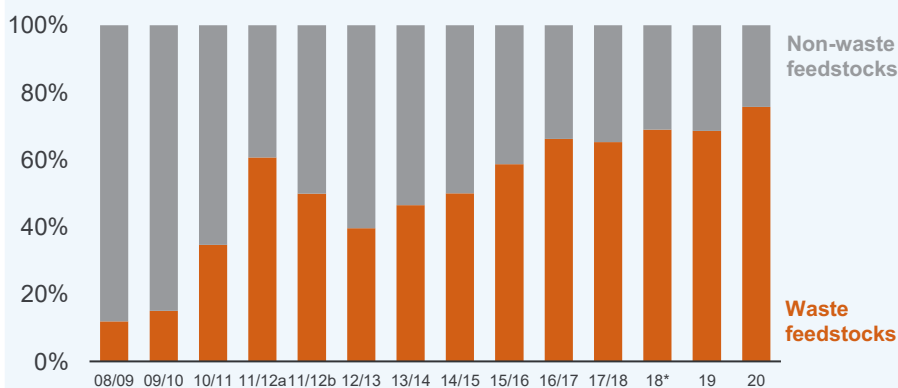
22%

Bioethanol as a proportion of renewable fuel in 2020

64%

Biodiesel as a proportion of renewable fuel in 2020

Figure 7: Waste feedstocks



76%

Fuels derived from waste feedstocks as a proportion of total renewable fuel in 2020

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.

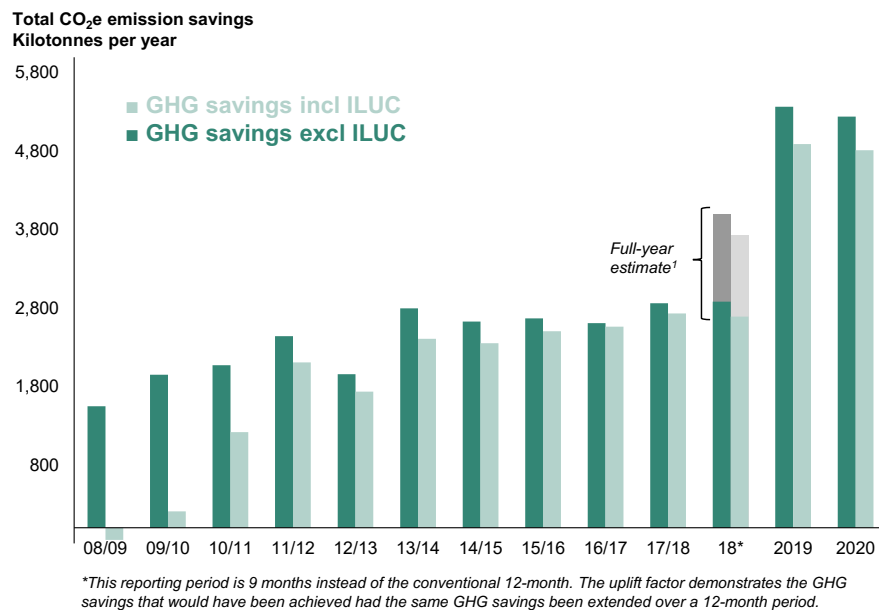
Note on figures

The average car's GHG emissions was 2.06t CO₂e per year in 2019, the most recent year with final GHG estimates ([BEIS GHG Inventory](#))

Greenhouse Gas Savings

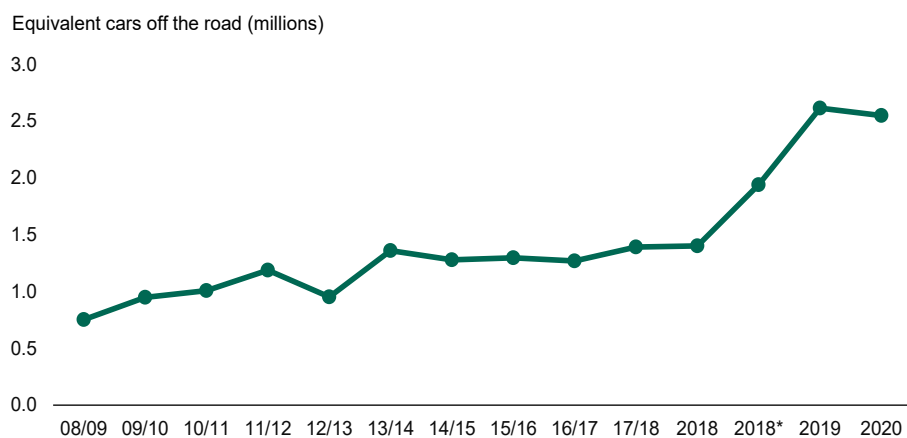
An aggregated GHG saving of 82% was achieved when compared to fossil fuels. This amounts to a GHG saving of 5,244 kt CO₂ equivalent emissions compared to conventional fuel. This is a reduction from 5,379 kt CO₂e in 2019, which was in part due to lower fuel volumes being supplied (see page 5). Accounting for indirect land-use change (ILUC), the 2020 GHG saving was 78%.

Figure 8: Greenhouse gas saving delivered by renewable fuel supplied to the UK, 2008/09 to 2020 (table [RF_0114](#))



This saving of 5,244 kt CO₂ equivalent is equivalent to taking 2.5 million cars off the road for a year, or 2.3 million cars if ILUC is accounted for.

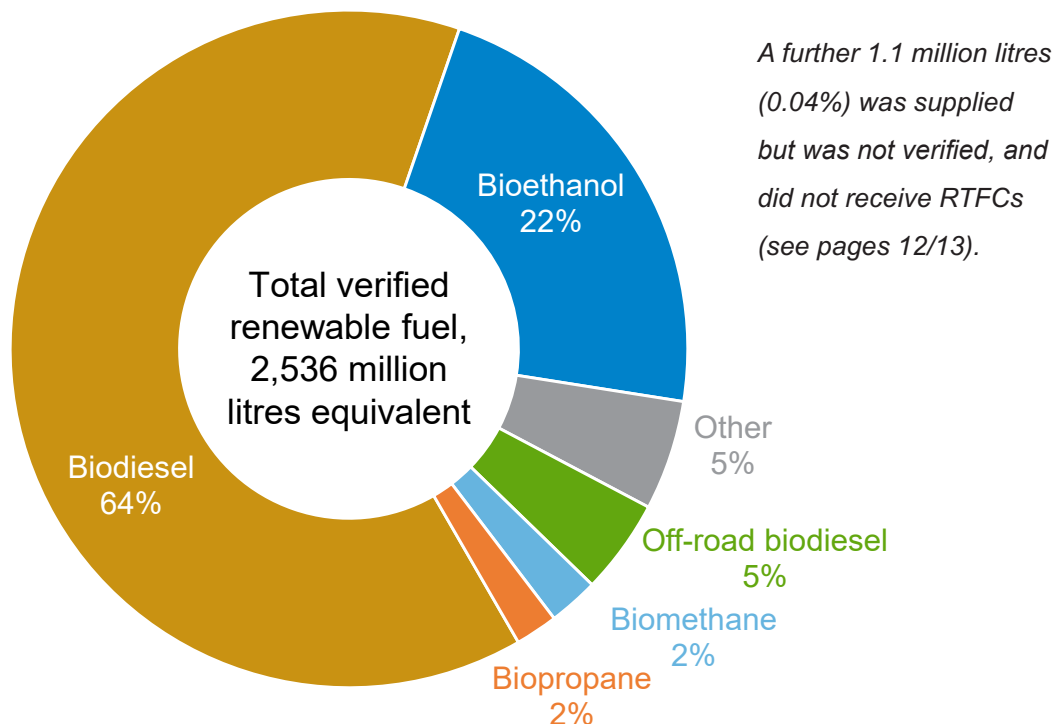
Figure 9: Greenhouse gas savings - equivalent number of average cars taken off the road, 2008/09 to 2020 (table [RF_0114](#))



Under the GHG Reporting Regulations, in 2020 fuel suppliers were obligated to achieve an average 6% reduction in GHG emissions for their total fuel supply, compared to a baseline set in the Regulations. In 2020, suppliers have surpassed this with an overall 6.2% reduction.

Fuel Type

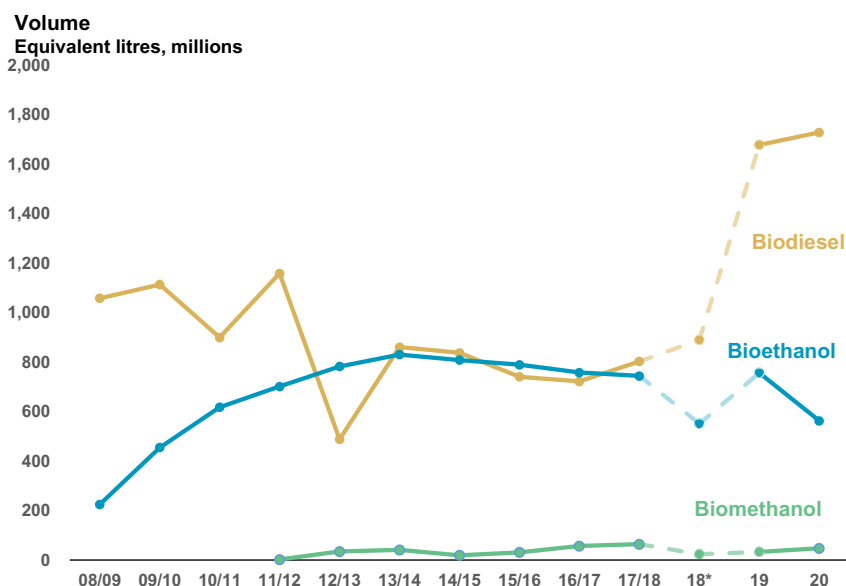
Figure 10: Volume of verified renewable fuel by fuel type (table [RF_0105a](#))



The overall volume of verified renewable fuel in 2020 (2,536 million litres eq.) was lower than the volume in 2019 (2,679 million litres eq.). This is primarily due to the national lockdown that year as a response to the COVID-19 pandemic. Overall, 2020 has seen an 18% decrease in fossil fuel supplied accompanied by a smaller 5% decrease in renewable fuel supplied, compared to 2019.

Of the 2,536 million litres eq. of renewable fuel, biodiesel (HVO and ME) made up 64%, bioethanol made up 22%, off-road biodiesel made up 5% and biomethane and biopropane made up 2% each. There were also small volumes of biopetrol and diesel of biological origin.

Figure 11: Supply of selected renewable fuels to the UK by fuel type, 2008/09 to 2020 (table [RF_0105b](#))



Renewable fuel trends

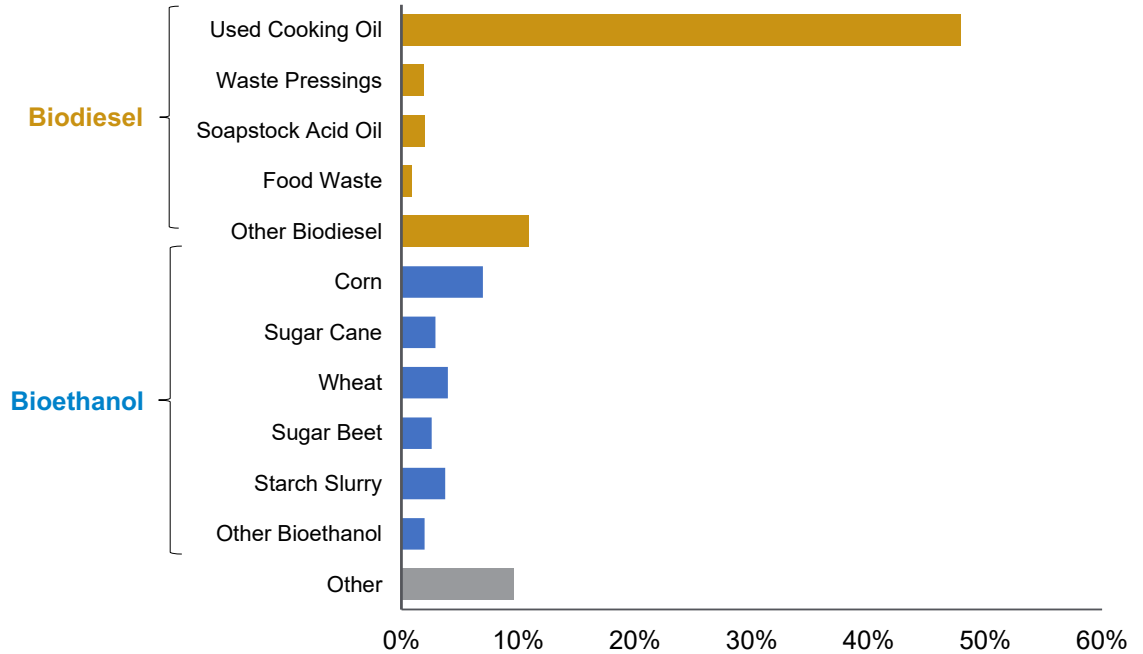
Volumes of bioethanol have declined by 193 million litres eq. from 2019. Volumes of biodiesel (comprising HVO, ME, and off-road biodiesel) have risen slightly to a new peak since 2019. The supply of biomethanol increased slightly in 2019.

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](#))

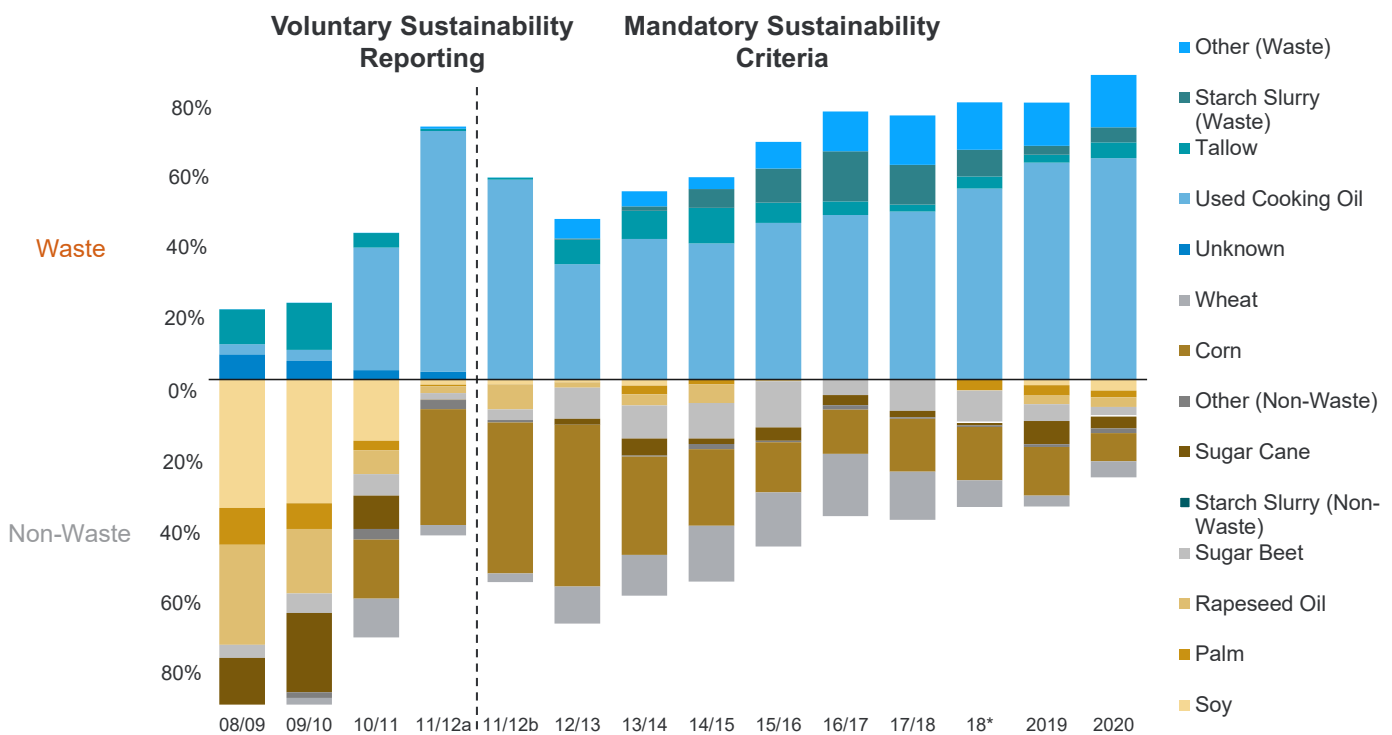


The majority (55%) of renewable fuel was produced from used cooking oil (UCO). UCO comprised 75% of biodiesel.

For bioethanol, the largest feedstock was corn (31%). Corn-based bioethanol comprised 7% of total renewable fuel.

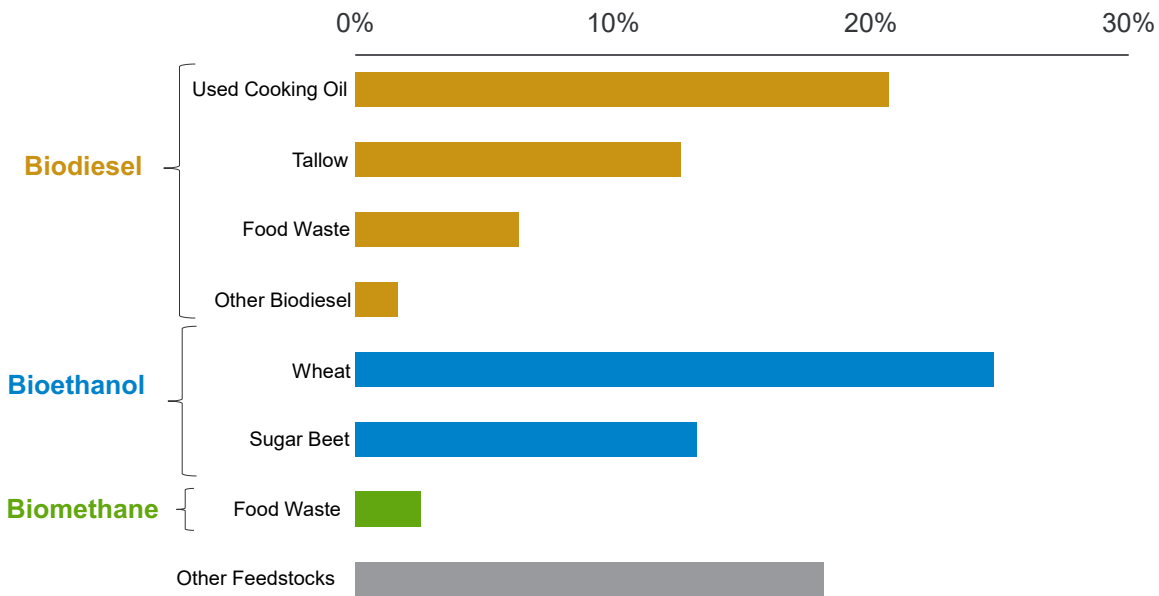
Though the feedstock mix has changed over time, used cooking oil has remained the most common feedstock for renewable fuel supplied to the UK since 2010/11.

Figure 13: Supply of renewable fuel to the UK by feedstock, 2008/09 to 2020 (table [RF_0105a](#))



UK Feedstock

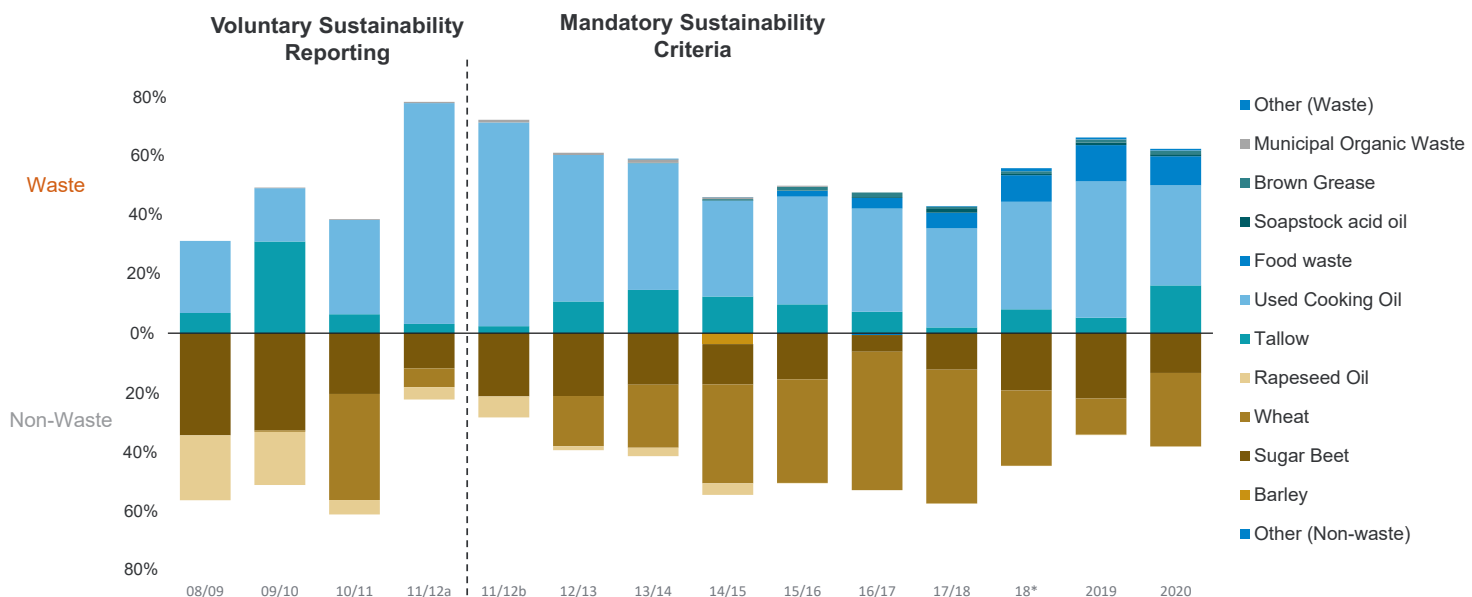
Figure 14: UK origin renewable fuel by feedstock (table [RF_0105a](#))



Of the 310 million litres eq. of renewable fuel produced from UK origin feedstock, the most common feedstock and fuel type was bioethanol from wheat (77 million litres eq., 25% of renewable fuel from UK origin feedstock). The most common source of biodiesel from UK origin feedstock was used cooking oil (64 million litres eq., 21% of renewable fuel from UK origin feedstock).

Renewable fuels from UK feedstocks made up 12% of total renewable fuels in 2020. 64% of UK origin renewable fuel was produced from a waste feedstock, down from 66% in 2019.

Figure 15: UK origin renewable fuel by feedstock, 2008/09 to 2020 (table [RF_0105a](#))



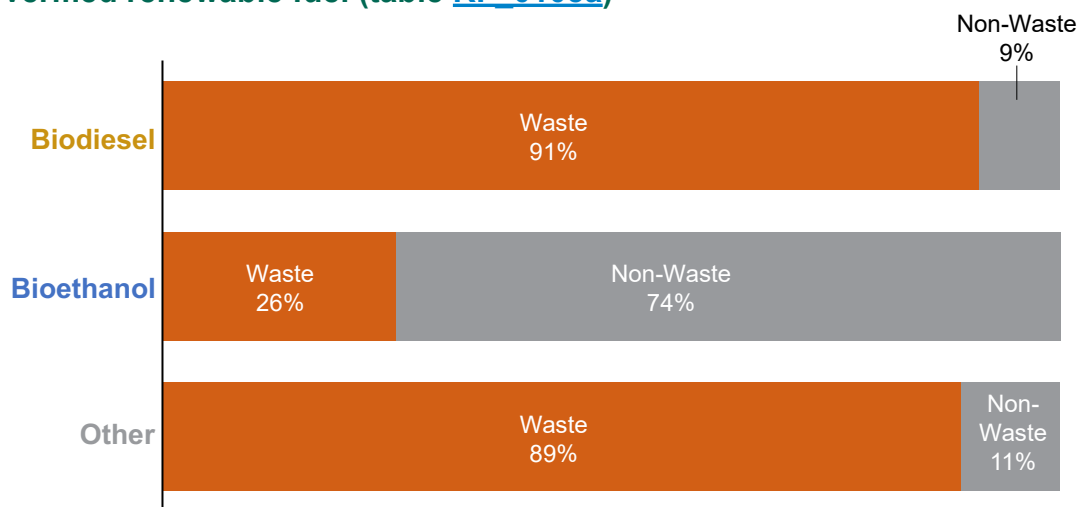
Waste Feedstocks

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 certificates. For simplicity, both wastes and residues are included as waste feedstocks in this report and include used cooking oil, municipal organic waste, waste agricultural products such as corn husks, and sewage sludge.

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 1,939 million litres eq. in 2020. Waste feedstocks made up 76% of all verified renewable fuel so far this year. Waste feedstocks made up 26% of bioethanol production, 149 million litres equivalent. This is an increase from 12% in 2019, (89 million litres equivalent).

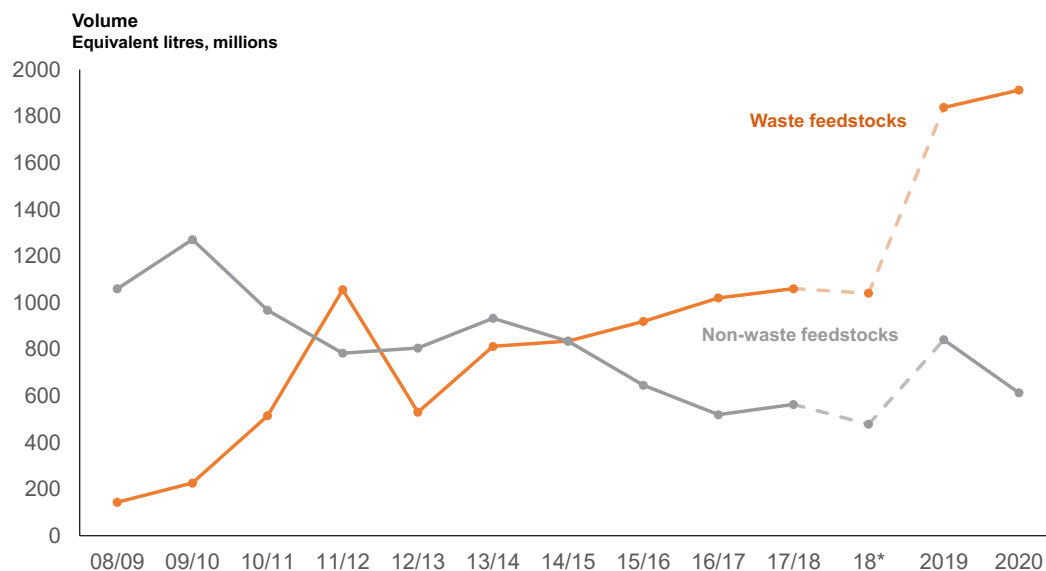
Figure 16: Proportion of waste and non-waste feedstock amongst verified renewable fuel (table [RF_0105a](#))



Trends

Waste-derived fuels have been increasing over time. A smaller volume of renewable fuel was supplied in this period than in 2019, but the proportion of fuel from waste feedstocks increased from 69% in 2019, due to a reduction in non-waste feedstock and a small increase in waste feedstock.

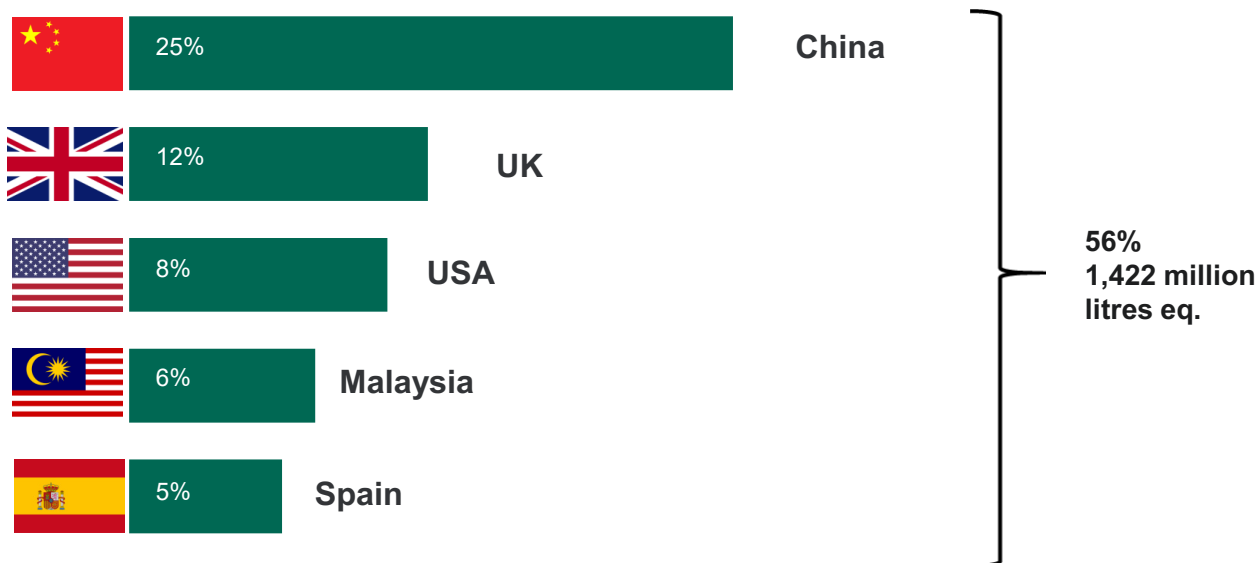
Figure 17: Renewable Fuels from waste and non-waste feedstock, 2008/09 to 2020 (table [RF_0105b](#))



Country of Origin

Figure 18: Top 5 countries supplying verified renewable fuel to the UK in 2020

(table [RF_0105a](#))

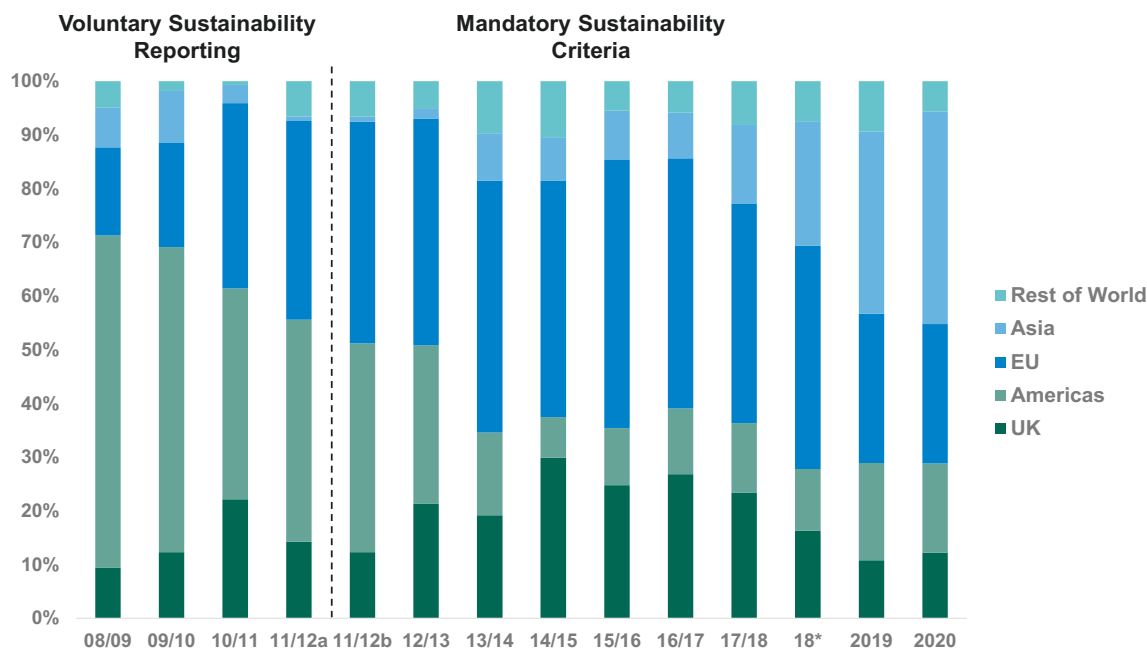


The top five feedstock supplying countries together accounted for 56% of renewable fuel in 2020. Of the 2,536 million litres eq. of renewable fuel supplied in 2020, the most widely reported source for biodiesel supplied to the UK (by feedstock and country of origin) was used cooking oil from China (614 million litres eq., 24% of renewable fuel, 57% total biodiesel).

The most widely reported source for bioethanol supplied to the UK (by feedstock and country of origin) was wheat from the UK (77 million litres eq., 3% of renewable fuel, 14% of total bioethanol.)

Figure 19: Proportion of renewable fuel supplied to the UK by region, 2008/09 to 2020

(table [RF_0105b](#))



There was an increase in the proportion of renewable fuel from Asia from 34% in 2019 to 40% in 2020. This was driven largely by increases in biodiesel from used cooking oil from China and Malaysia. The proportion of renewable fuel from the UK increased from 11% in 2019 to 12% in 2020, and renewable fuel from the Americas decreased from 18% in 2019 to 17% in 2020.

Figure 20: Average greenhouse gas saving by country supplying fuel, 2020 (table [RF_0105a](#))

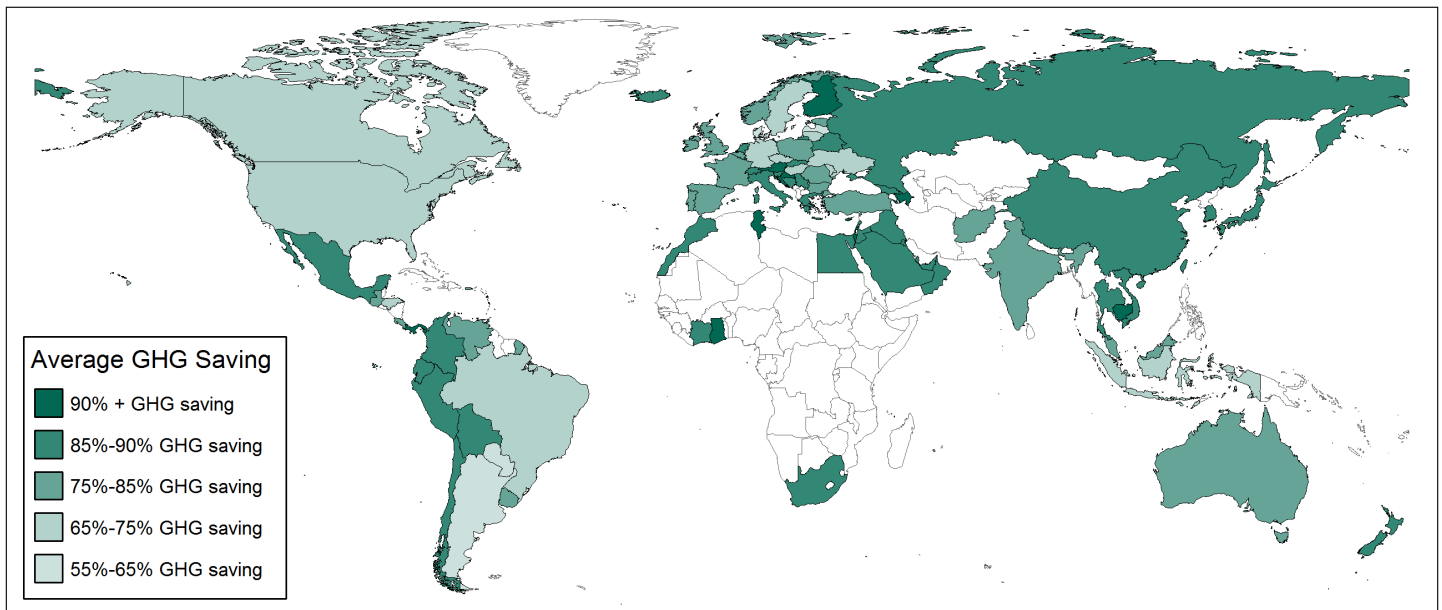


Figure 21: Country of origin of all biodiesel feedstocks, 2020 (table [RF_0105a](#))

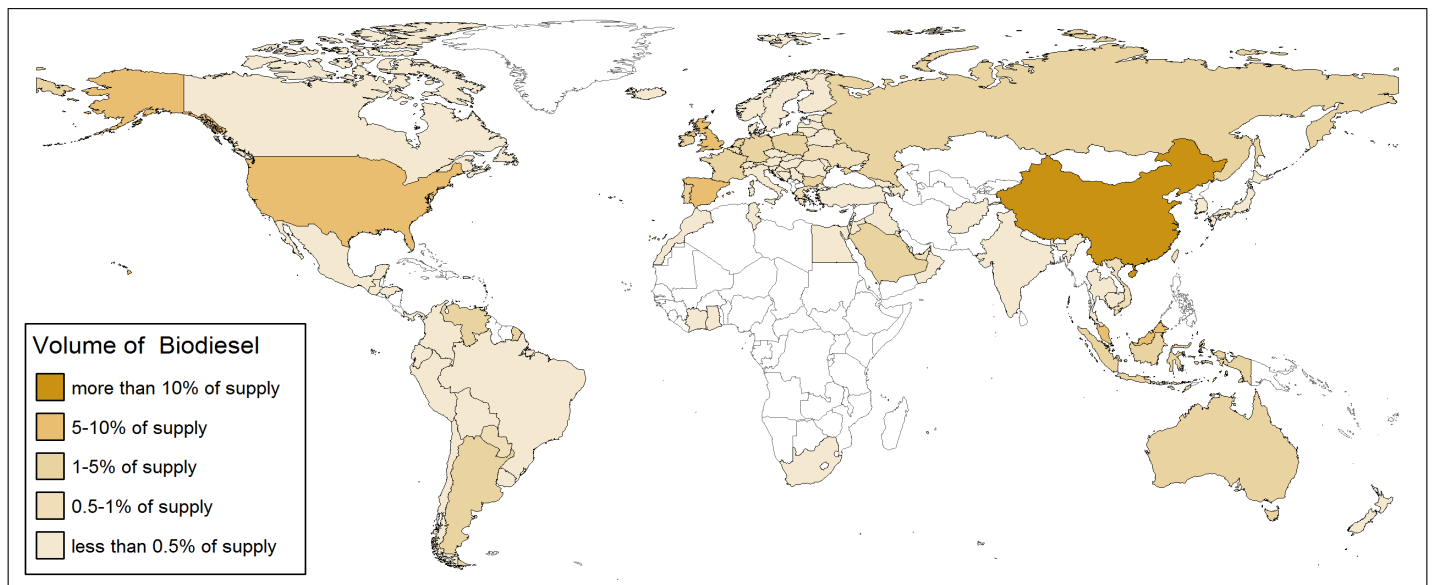
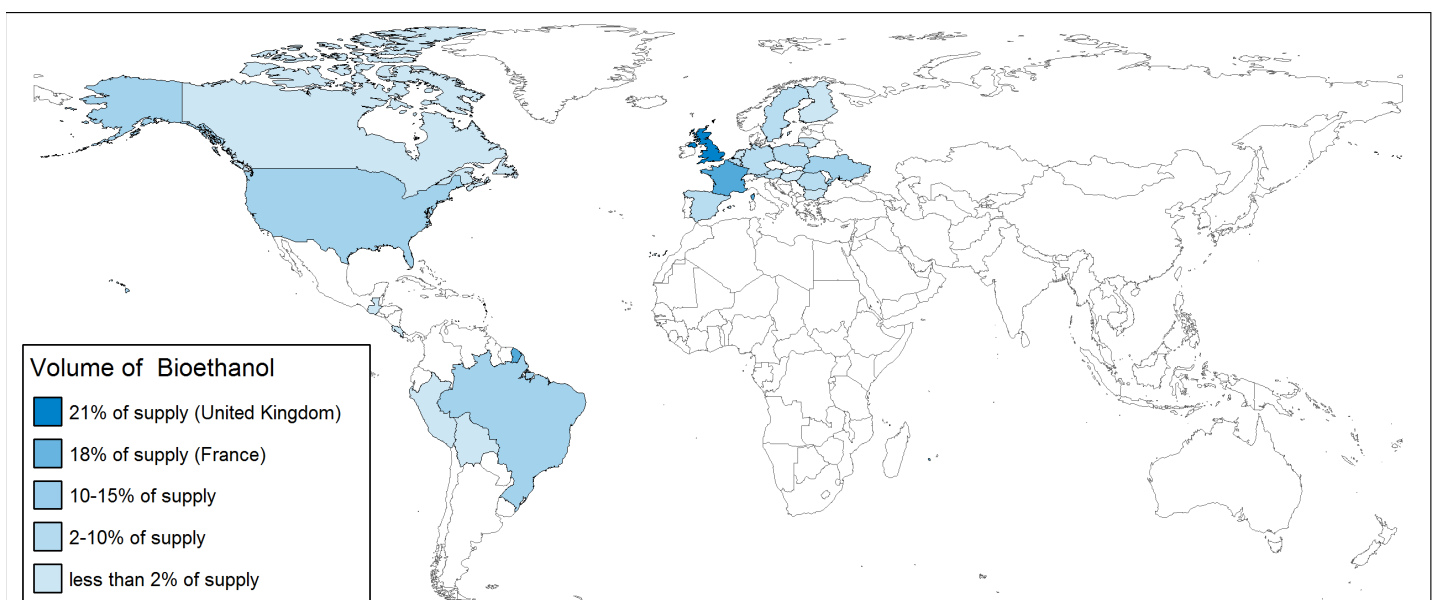


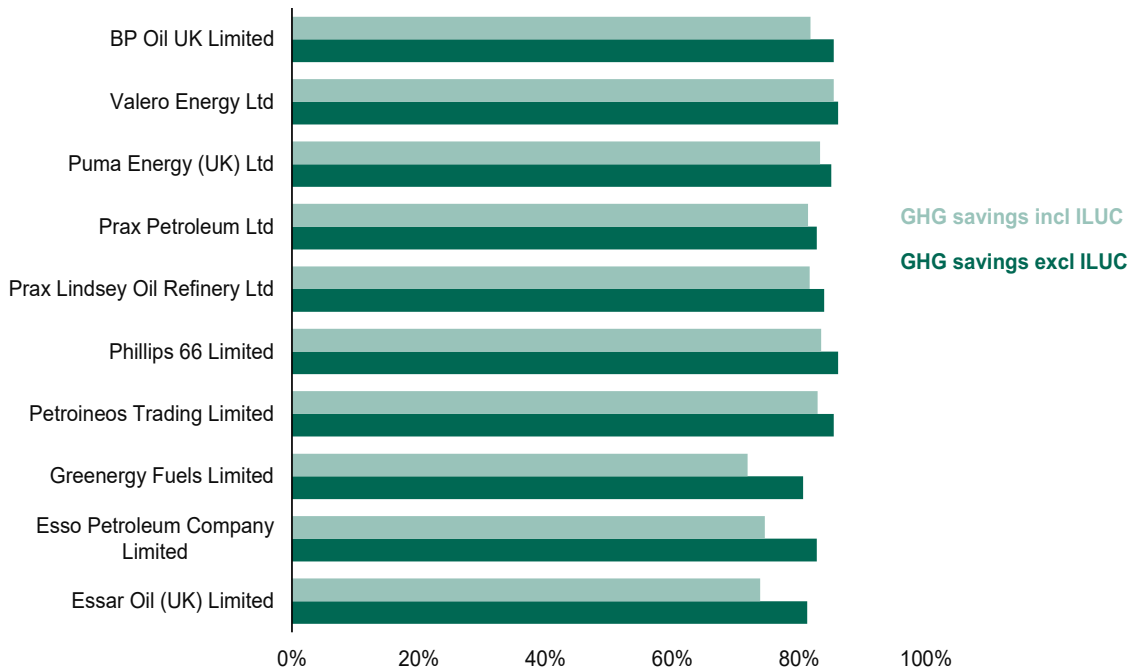
Figure 22: Country of origin of all bioethanol feedstocks, 2020 (table [RF_0105a](#))



Supplier Information

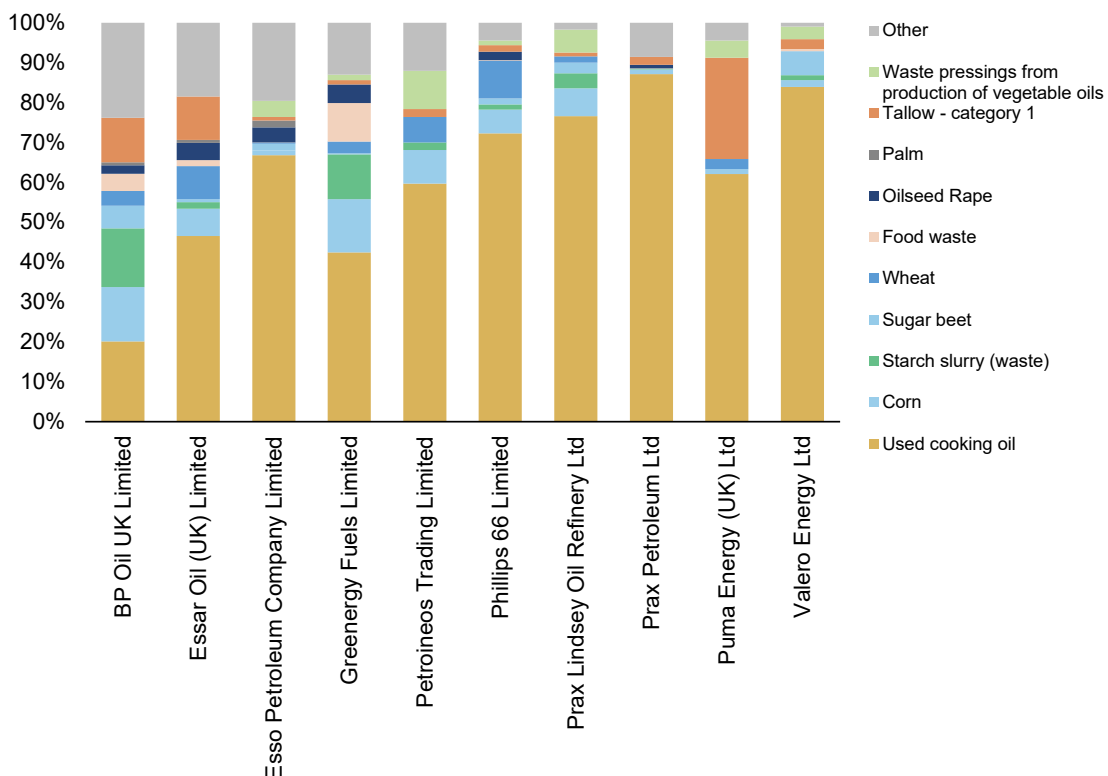
The market for renewable fuel was diverse in 2020, with 36 different suppliers supplying renewable fuel to the UK market in this reporting period. This is an increase on the 34 companies that supplied renewable fuel to the UK in the previous reporting period.

Figure 23: Average GHG savings of top 10 suppliers for 2020 (table [RF_0110](#))



The top ten suppliers of renewable fuel supplied 86% of the UK's supply of renewable fuel in this period. All obligated suppliers met their obligation, with 5 suppliers achieving this through buying out in some proportion.

Figure 24: Feedstock mix of top 10 suppliers for 2020 (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) or renewable fuels of non-biological origin (RFNBOs).

Double Counting

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

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 2020, the RTFO Administrator verified 187,663 litres eq. of development petrol, and 2,808 litres eq. of hydrogen, which both qualified as a development fuel. Together, this fuel was awarded 380,941 development fuel RTFCs. All obligated suppliers met their development fuel target, however they achieved this through buying out some amount of their obligation.

Certificates Awarded Under the RTFO

Renewable Transport Fuel Certificates (RTFCs)

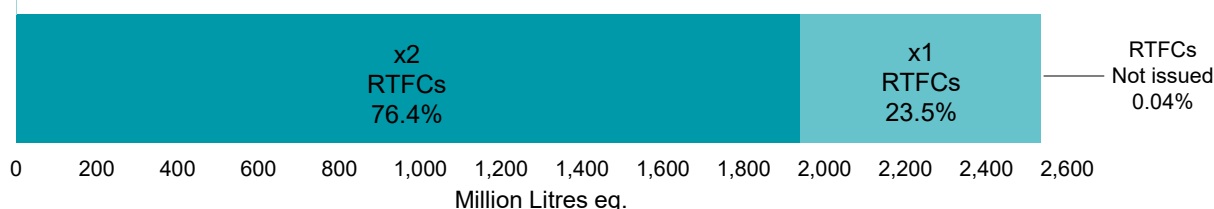
RTFCs are awarded to transport fuel suppliers whose renewable fuel meets the sustainability criteria. In 2020, 4,472 million RTFCs have been issued to 2,536 million litres eq. of renewable fuel. This is out of a total of 2,537 million litres eq. supplied this year.

Double Counting Feedstock

Of the 4,472 million RTFCs awarded to renewable fuel that met the sustainability criteria, 3,872 million were issued to fuel from a waste/residue or "Double Counting" feedstock.

A further 1.1 million litres eq. of renewable fuel went unverified (0.04% 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 complies with the sustainability criteria of the RTFO, which is a prerequisite for RTFCs to be issued.

Statistical Tables

Tables for this release are available on GOV.UK

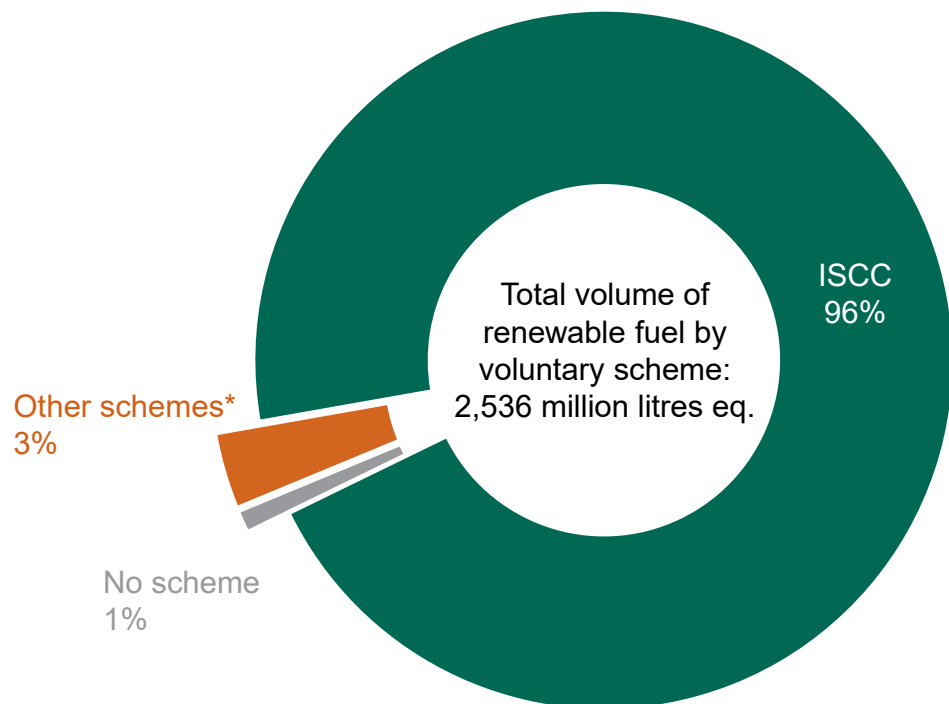
Notes on time series

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 2020.
- The uptake of voluntary schemes has remained above 99% for the past eight years, compared to 20% in the first year of the RTFO.

Figure 26: Proportion of renewable fuel reported via voluntary scheme 2020 (table [RF_0106](#))



*Other voluntary schemes: Roundtable on Sustainable Biomaterials (RSB), Biomass Biofuel Sustainability voluntary scheme (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 or high carbon stock unless stringent criteria are met.

Obligations Under the RTFO

Suppliers of fuel for road and non-road mobile machinery (e.g. tractors) that supply 450,000 litres eq. 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 2020, such suppliers must redeem RTFCs and development fuel RTFCs (dRTFCs) equivalent to 10.637% and 0.166%, respectively, of the volume of fossil and unsustainable renewable fuel supplied.

One certificate may be claimed for every litre (or equivalent) 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. The data for a given year is not finalised until September the following 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 amount of 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.



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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

	2020 statistics	2021 statistics	2022 statistics
August 2021	Fifth Provisional Report	First Provisional Report	
November 2021	Final Report	Second Provisional Report	
February 2022		Third Provisional Report	
May 2022		Fourth Provisional Report	
August 2022		Fifth Provisional Report	First Provisional Report
November 2022		Final Report	Second Provisional Report

Highlighted reports indicate summary report for the period.