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By email to lowcarbonfuel.consultation@dft.gov.uk

Response to RTFO statutory review and future of the scheme

Dear Tim,

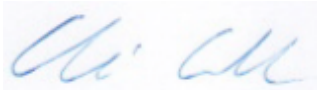
Fuels Industry UK represents the eight main oil refining and marketing companies operating in the UK. The Fuels Industry UK member companies – bp, Essar, Esso Petroleum, Petrolneos, Phillips 66, Prax Refining, Shell, and Valero – are together responsible for the sourcing and supply of product meeting over 85% of UK inland demand, accounting for a third of total primary UK energy (based on the Department of Energy Security and Net Zero Digest of UK Energy Statistics 2022).

The refining and downstream oil sector is vital in supporting UK economic activity. It provides a secure supply of affordable energy for road and rail transport, aviation, and marine applications, as well as for commercial and domestic heating. It also supplies base fluids for use in lubricants, bitumen for use in road surfacing, and graphite for use in electric vehicle batteries and as electrodes in steel and aluminium manufacture.

Fuels Industry UK welcomes the opportunity to respond to the RTFO statutory review and future of the scheme.

Our responses to the consultation questions are given in Attachment 1. As we discuss in our response to Question 5, I also attach some example calculations of how FAME and HVO may behave in a GHG based approach to the RTFO, based on the SAF mandate methodology.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Chris Gould', is displayed within a light blue rectangular background.

Chris Gould

Energy Transition Lead, Fuels Industry UK

Attachment 1: Fuels Industry UK Response

1. Are the current RTFO main obligation targets set at the right level? Consider both the current trajectory between now and 2032 and how they could be adjusted after 2032.

The RTFO is a well-established scheme for transport decarbonisation and has operated successfully for many years ¹.

Increased targets after 2032 have the potential to signal long-term regulatory support for the lower carbon fuel sector. However, RTFO targets need to be achievable based on existing technologies, both for lower carbon fuel production and for the equipment that is using them. Overly ambitious targets can increase costs without achieving subsequent GHG savings, due to potentially high levels of buy-out.

Any level of ambition should be supported by a well-designed policy framework, setting a clear direction and targets, building up a clear and sustainable business case to mobilise private investments leveraging market mechanisms and flexibility to enable the most cost-effective solutions.

It may not be possible to address the question about targets in isolation, as a holistic approach is required. Several RTFO policy aspects, detailed in later questions, are interrelated and need to be decided together to achieve the RTFO policy goals, including

- Volume vs GHG reduction obligation basis
- GHG emissions savings thresholds
- Recognition of negative emissions where appropriate
- The use of a crop cap
- Inclusion of EV charging into the RTFO
- Other eligibility criteria

In addition to the above interactions, the following considerations also need to be considered

- Existing LCF production technologies and capacities including Power to Liquids (PtL) technologies ²
- Feedstock availability and other eligibility criteria
- The level of targets that support growth in the lower carbon fuel sector, or at a minimum ensures stable volumes over the long term to support producers.
- Eligibility of feedstock / fuels in the UK and other regions, particularly the EU, and also other non-road national and international policies (e.g. SAF and marine).

¹ <https://www.legislation.gov.uk/uksi/2007/3072/contents>

² <https://www.neste.com/news/vtt-and-neste-agreed-on-building-an-integrated-power-to-liquids-e-fuels-demonstration-facility-at-vtt-bioruukki-pilot-centre-for-co-2-capture-green-hydrogen-and-e-fuels-production>

- The impact of changing policies in other regions on the availability of imports into the UK (e.g. used cooking oil (UCO) derived FAME, or UCOME)
- User equipment compatibility and current legislation, typically covered by the Motor Fuels Composition and Content Regulations (MFCCR) and its subsequent amendments ³:
- Diesel Vehicles:
 - o Warranted to use BS EN 590 ⁴, allowing up to 7% FAME ⁵ and unrestricted drop-in fuels like HVO ⁶.
 - o Some can use 100% paraffinic diesel (e.g., HVO), 100% FAME, and 10-30% FAME.
 - o B20 and B30 grades ⁷ can be sold to captive fleets ⁸ but not on forecourts without regulatory changes to MFCCR.
- Petrol Cars:
 - o Warranted to use BS EN 228, allowing up to 10% ethanol, with a 5% maximum 'protection' grade ⁹.
 - o CEN is developing an E20 technical specification ¹⁰, but MFCCR amendments are needed to allow the marketing of petrol with more than 10% ethanol or 3.7% oxygen in the UK.
 - o Successful rollout of higher ethanol grades, like E20, requires appropriate policy and legislation due to limited logistics in the UK, as seen in the 2021 E10 rollout.
- ZEV Uptake versus ZEV Mandate ¹¹

The RTFO targets should be consistent with existing, significant, analytical work carried out by the Department for Transport (DfT) as part of the low carbon fuel strategy developed under the previous government ^{12,13}, as well as the UK biomass strategy ¹⁴.

The introduction of the SAF mandate in January 2025 ¹⁵ will create additional lower carbon fuel demand, and the combined impact of the two schemes must be considered. The review should recognise that a significant percentage of lower carbon

³ <https://www.legislation.gov.uk/ukxi/1999/3107/contents/made>

⁴ <https://www.crownoil.co.uk/fuel-specifications/en-590/>

⁵ <https://www.crownoil.co.uk/guides/fame-biodiesel-guide/>

⁶ <https://www.crownoil.co.uk/products/hvo-fuel-hydrotreated-vegetable-oil/>

⁷ <https://www.caranddriver.com/research/a31883731/biodiesel-vs-diesel/>

⁸ <https://gasmobility.totalenergies.com/solutions/private-stations>

⁹ <https://www.zemo.org.uk/assets/other/Specific%20E10%20FAQs%20.pdf>

¹⁰ <https://projects.research-and-innovation.ec.europa.eu/en/horizon-magazine/why-raising-alcohol-content-europes-fuels-could-reduce-carbon-emissions>

¹¹ <https://www.theguardian.com/environment/2025/jan/19/all-carmakers-in-uk-to-escape-fines-for-missing-electric-car-sales-targets-in-2024>

¹² <https://www.gov.uk/government/consultations/low-carbon-fuel-strategy-call-for-ideas>

¹³ <https://www.fuelsindustryuk.org/media/x1ag3ob0/ukpia-low-carbon-fuels-strategy-call-for-ideas.pdf>

¹⁴ <https://www.gov.uk/government/publications/biomass-strategy>

¹⁵ <https://www.gov.uk/government/collections/sustainable-aviation-fuel-saf-mandate>

fuel used in the UK is derived from imports, rather than indigenous production. Targets should also recognise the significant risks of unilateral action by exporting countries, such as the recent removal of export tax credits by China ¹⁶.

We also note that the 2023 Energy Act ¹⁷ created a framework for the inclusion of a renewable liquid heating fuel obligation. We understand that this would be regulated by the Department of Energy Security and Net Zero (DESNZ) rather than the DfT as it is not transport related. However, it has the possibility to be another source of lower carbon fuel demand, and its potential inclusion needs to be considered when setting future RTFO targets. Heating kerosene and aviation fuel often shares much of the same infrastructure; with a lack of incentive for future investment this situation is unlikely to change in the future. We therefore strongly request that requirements under a potential DESNZ scheme are aligned with those of the RTFO to the fullest extent possible.

We note that changing to an GHG reduction based, linked with energy contents as in the SAF mandate will have a number of impacts, such as changing the reward structure for bioethanol. Any change in basis (i.e. away from a volume-based approach) should be accompanied with an appropriate change in RTFO targets in order to keep the overall scheme GHG savings at the same level, considering that recognition for various fuel types may be altered.

We advocate for establishing obligations that extend into future years to promote long-term predictability. However, due to the uncertainties associated with the aforementioned considerations, setting targets too far in the future may lead to re-adjustments that could compromise this predictability. Therefore, we recommend regular monitoring and frequent reviews, including stakeholder consultations. If adjustments are necessary, business cases should be safeguarded through measures such as grandfathering and transition periods that are proportional to the impact and timeframe of investments.

¹⁶ <https://www.spglobal.com/commodity-insights/en/news-research/latest-news/crude-oil/111524-china-to-end-export-tax-rebates-on-aluminum-copper-biofuel-feedstock-dec-1>

¹⁷ <https://www.legislation.gov.uk/ukpga/2023/52>

2. Do you have any evidence on the anticipated availability and cost of eligible fuels and feedstocks given likely increases in competition across modes and internationally?

There has been a significant amount of work in this area carried out by the DfT in the development of the low carbon fuel strategy, and this should be used by them in response to this question, considering that the strategy has been in development for a number of years.

Predicting the global availability of fuels and feedstocks is challenging, and estimating the percentage available to the UK is even more difficult, given the considerations detailed in our response to Question 1.

To optimize the availability of feedstocks and products, it is imperative to enable a policy framework that

- Is focused on maximizing the availability of renewable and lower carbon feedstocks for the production of renewable and lower carbon fuels
- Provides a clear and durable business case supporting investments in renewable and lower carbon fuels technologies and their large-scale deployment. The policy framework should also treat non-UK feedstocks equitably, ensuring a free market devoid of protectionist barriers.

The UK has established a comprehensive policy framework to promote the production and availability of renewable electricity¹⁸. A similarly robust legislative framework is needed to enhance the availability of renewable and lower carbon fuel feedstocks. This framework should encompass areas such as forestry and agricultural practices, yield improvements, and the collection of waste and residues, while incorporating flexibility and regular reviews.

The DfT may find the Imperial College London report "*Sustainable Biomass Availability in the EU, to 2050*" useful¹⁹. This report estimates that the EU and the UK could sustainably produce significant amounts of biomass (both waste and advanced feedstocks) by 2030 and 2050, which could be used for advanced biofuels and other bioenergy applications. However, it also highlights that to realise these volumes, improved agricultural and forest management practices and supply chain development are needed.

Models such as the Energy Systems Catapult clockwork scenario²⁰ are also available which can inform the demand for eligible fuels and feedstocks.

UK restrictions on multiple incentives relative to other restrictions in other jurisdictions, such as the US inflation reduction act²¹ (recognising that this may potentially be subject

¹⁸ <https://www.ofgem.gov.uk/environmental-and-social-schemes/renewables-obligation-ro>

¹⁹ <https://www.concawe.eu/publication/sustainable-biomass-availability-in-the-eu-to-2050/>

²⁰ <https://es.catapult.org.uk/report/options-choices-actions-how-could-the-uk-be-low-carbon-by-2050/>

²¹ <https://www.energy.gov/lpo/inflation-reduction-act-2022>

to change with the incoming US administration) are also likely to increase the cost of eligible fuels and feedstocks in the UK.

We also note that the 2023 Energy Act²² created a framework for the inclusion of a renewable liquid heating fuel obligation. We understand that this would be regulated by DESNZ rather than the DfT as it is not transport related. However, it has the possibility to be another source of lower carbon fuel demand, and its potential inclusion needs to be considered when setting future RTFO targets. Heating kerosene and aviation fuel often shares much of the same infrastructure; with a lack of incentive for future investment this situation is unlikely to change in the future. We therefore strongly request that requirements under a potential DESNZ scheme are aligned with those of the RTFO to the fullest extent possible.

We note that PtL (or e-fuel) technology has the potential to increase the supply of lower carbon fuels, including those with “drop-in”²³ capability. We note the recent work carried out by Concawe in this area, including publication of the report “*E-Fuels: A techno-economic assessment of European domestic production and imports towards 2050 – Update*”²⁴. We would ask that the potential production and availability of PtL technology is adequately considered in the development of the RTFO.

3. Does the main RTFO obligation cover all the transport modes, fuel types and feedstocks that it needs to? If not, how should it be amended?

No

Transport Modes:

We note:

- The RTFO obligation covers road, NRMM, and Domestic maritime.
- The UK SAF Mandate covers aviation.
- IMO is developing measures to reduce international shipping GHG emissions which are expected to be agreed in April 2025 and implemented in the 2027 timeframe²⁵.
- The UK ETS²⁶ includes airlines and is considering including domestic maritime.

We agree that the main RTFO obligation covers all the transport modes and fuel types that it needs to. There should not be a situation where road transport is effectively

²² <https://www.legislation.gov.uk/ukpga/2023/52>

²³ <https://www.ieabioenergy.com/blog/publications/new-publication-drop-in-biofuels-the-key-role-that-co-processing-will-play-in-its-production/>

²⁴ <https://www.concawe.eu/publication/e-fuels-a-techno-economic-assessment-of-european-domestic-production-and-imports-towards-2050-update/>

²⁵ <https://www.dnv.com/maritime/hub/decarbonize-shipping/key-drivers/regulations/imo-regulations/>

²⁶ <https://www.gov.uk/government/publications/participating-in-the-uk-ets/participating-in-the-uk-ets>

paying for marine decarbonisation in the UK; the DfT should carefully consider the extension of the RTFO scope to the maritime sector to avoid double regulation. In many ways, the treatment of the maritime sector is similar to that of aviation (including being international in nature) and could potentially have the same solutions including potentially a separate mandate.

Feedstocks

The RTFO obligation does not cover all the feedstocks that it should.

The RTFO currently does not make provision for cover crops²⁷, containing only the categories of “relevant crops” (i.e. starch-rich crops, sugars and oil crops) whose contribution is capped, “dedicated energy crops” that are defined as non-food cellulosic or lignocellulosic material and “wastes and residues”.

Cover crops have an important role to play. Sustainable feedstocks are a limited resource, and we need to ensure different policies promote all sustainable feedstocks available.

A cover crop is a crop grown primarily for the purpose of protecting or improving soil health between periods of main crop production, a farming technique that has been around for centuries. Strategically planted between main crops, cover crops contribute to soil health, and reduce the need for synthetic fertilisers and pesticides. They include, for example, legumes, certain grasses as well as oil-based plants like carinata²⁸. As they are grown between main crop cycles, cover do not trigger demand for additional land and avoid causing direct or indirect land use change.

We recognise that the eligibility of lower carbon fuels used in aviation has been removed following the introduction of the SAF mandate in January 2025 and agree that this seems a sensible approach.

As we discuss above, the use of lower carbon fuels in maritime may also be eligible for reward under the RTFO. However, the potential inclusion of the maritime sector itself needs to be carefully considered. The sector has potentially a wider range of fuels available, such as lower carbon ammonia or methanol, and the availability of feedstocks for these needs to be considered as part of the wider study. Similarly, the quality restrictions imposed by fuel standards such as BS ISO 8217²⁹ need to be considered.

²⁷ <https://ahdb.org.uk/cover-crops>

²⁸ <https://edis.ifas.ufl.edu/publication/AG389>

²⁹ <https://knowledge.bsigroup.com/products/products-from-petroleum-synthetic-and-renewable-sources-fuels-class-f-specifications-of-marine-fuels>

Fuel Types

The use of CCUS-enabled lower carbon fuels (e.g., blue hydrogen³⁰, which can be used to produce methanol, gasoline, SAF) are not recognised in the RTFO. Analysis by the UK government and the Climate Change Committee³¹ has shown that methane reformation with CCUS has among the lowest levelized costs of all lower carbon hydrogen production methods. The Government's response to the 2nd SAF Mandate consultation³² indicates it is considering the eligibility of CCUS-enabled hydrogen in the SAF Mandate. We strongly support this review and urge a swift amendment to the primary legislation³³ to appropriately make fuels from this pathway eligible under both the RTFO and SAF Mandate. This should include credit for using CCS-enabled hydrogen not only as a finished fuel in its own right, but also in the production of transport fuels. Supporting the use of all forms of lower carbon hydrogen (LCH) in the production of all transport fuels, including refinery processes, can drive investments in LCH and reduce GHG emissions across all fuel types. This technology-neutral approach is crucial given the blend limitations in gasoline and diesel, which will continue to power many vehicles for the foreseeable future. As discussed in detail in our response to question 5, a GHG-based policy can facilitate this.

We also note there is a policy disconnect between the DESNZ and the DfT. While DESNZ has established a Low Carbon Hydrogen Standard³⁴, the DfT's RTFO policy does not fully align with this standard. This misalignment could hinder the effective integration and incentivisation of lower carbon hydrogen across all industry and transport fuels. Addressing this disconnect is essential to ensure cohesive and comprehensive support for lower carbon hydrogen technologies

³⁰ <https://www.nationalgrid.com/stories/energy-explained/hydrogen-colour-spectrum>

³¹ <https://www.theccc.org.uk/>

³² <https://www.gov.uk/government/consultations/pathway-to-net-zero-aviation-developing-the-uk-sustainable-aviation-fuel-mandate>

³³ <https://www.legislation.gov.uk/ukpga/2004/20/contents>

³⁴ <https://www.gov.uk/government/publications/uk-low-carbon-hydrogen-standard-emissions-reporting-and-sustainability-criteria>

4. Should the RTFO be adapted to support wider transport decarbonisation objectives such as support for renewable electricity used by road vehicles?

As wide a range of eligible energy vectors as possible should be considered, with the mitigation of unintended consequences.

We advocate for policy designs that align with specific intended objectives; therefore, fuels policies should focus on reducing lifecycle transportation-related GHG emissions by addressing GHG emissions from transportation fuels.

When evaluating the potential adaptation of the RTFO to support renewable electricity for road vehicles, it is essential to assess:

- Whether this adaptation aligns with and achieves the specific intended objectives.
- The possibility of any unintended consequences arising from this adaptation.
- Whether the RTFO is the most suitable policy instrument to support the objectives.

The primary objective of the RTFO is to reduce GHG emissions from surface transportation activities. Including renewable electricity for road vehicles in the RTFO could also aim at boosting electric vehicle (EV) uptake by enhancing EV charging infrastructure or promoting the supply of lower carbon electricity. We would expect the RTFO to develop to encourage private investment, effectively utilise social capital, and incentivise investments in and deployment of advanced technologies critical for the decarbonisation of transport.

Considering these objectives, we offer the following comments to assist in evaluating whether the RTFO is the most effective policy instrument to achieve the Government's broader objectives for the UK:

- Liquid fuels will still constitute a significant portion of the energy for the road fleet for years to come³⁵, it is essential that the RTFO continues to support the decarbonisation of these liquid fuels.
- Integrating renewable electricity for road vehicles into the RTFO could offer obligated suppliers additional flexibility to fulfil their obligations. However, without a commensurate increase in obligation level, using EV charging for compliance may undermine the business case for lower carbon fuels (LCFs). This could negatively impact existing lower carbon fuel production facilities and diminish incentives for advanced technologies.

³⁵ <https://www.fuelsindustryuk.org/future-of-downstream/low-carbon-liquid-fuels/>

- The UK ZEV mandate is the key policy instrument to drive the transition of new car sales to EVs in the UK ³⁶. Including EV charging in the RTFO is unlikely to have a material impact on increased EV demand or supply.

The carbon emissions associated with the electricity supplied need to be considered and applied in a pragmatic manner. Additionality rules associated with the electricity used in lower carbon fuels, such as PtL, are restrictive. Applying similar rules to the electricity used by road vehicles, in order to achieve consistency, have the potential to be similarly restrictive. This could lead to significantly less electricity being eligible than expected. Should renewable electricity be included in the RTFO, the obligation level should be raised accordingly (if using existing obligation levels); in other words, electricity should be additional to liquid biofuel volumes.

5. Should the RTFO continue to reward fuels on the volume supplied or on a different basis, such as the GHG savings delivered by a fuel, in line with the SAF mandate?

We advocate for transitioning the RTFO to a GHG savings-based framework that rewards certificates in proportion to the GHG emission savings achieved. We believe this approach is the most effective way to fulfil the primary policy objective of the RTFO, which is to deliver significant GHG emissions reductions.

This change in the RTFO policy basis is crucial for promoting the most effective carbon-saving fuels and ensuring long-term investment confidence in the lower carbon fuel sector. Given that the SAF mandate policy, which rewards certificates in proportion to GHG emission savings, has already been developed, aligning the RTFO with this policy should be more straightforward. This alignment will ultimately benefit the industry, stimulate economic growth in the UK, and, most importantly, enable continuous GHG emission reductions in the transport sector whilst optimising the contribution of biomass-based feedstocks to the overall target (i.e. a smaller quantity of biofuels could deliver an equivalent GHG reduction)

It is worth noting that this perspective is shared by the International Energy Agency in their 2024 report to the G20 on carbon accounting for sustainable biofuels:³⁷

“Establish policies that reward better GHG performance and drive continuous improvement. The carbon intensity of a biofuel pathway, expressed in gCO₂-eq/MJ, can be influenced and significantly improved over time if supportive policies are in place. Transparent and consistent GHG accounting, accompanied by robust verification

³⁶ <https://www.gov.uk/government/news/pathway-for-zero-emission-vehicle-transition-by-2035-becomes-law>

³⁷ <https://www.iea.org/reports/carbon-accounting-for-sustainable-biofuels>

processes, makes it possible to differentiate the performance of biofuels and to promote continuous GHG emission reductions, regardless of the feedstock or technology. Successful policies have been implemented in some jurisdictions for several years already – notably Brazil and California, where carbon credits are allocated based on individual GHG performance”

The reasons underpinning our support for moving the RTFO to a GHG reduction-based policy are elaborated in detail below:

- A GHG reduction-based policy incentivises the use of fuels that offer the most cost-effective carbon savings. In contrast, the current volume-based system is overly simplistic and can result in either under-rewarding or over-rewarding various fuels and feedstocks.
- The current volume-based system includes multipliers which can over-reward certain fuels but do also offset the additional costs associated with these fuel types. For example, waste-based biofuels like UCOME have a multiplier of 2, yet their GHG savings are not double those of other lower carbon fuels that do not receive any multiplier. A lack of change in the RTFO basis, and with many EU member states transitioning to a GHG-based policy, could lead to the UCOME with higher GHG intensity being used in the UK (as it would still receive an artificially higher reward compared to the EU).
- The carbon intensity of feedstocks and fuels is dynamic. Policies should incentivise the entire supply chain to reduce the carbon intensity of fuels through improved agricultural practices, process design, and operations. Numerous examples, such as ePURE’s report *“EU renewable ethanol sets new record for greenhouse-gas reduction”*³⁸ demonstrate how carbon intensity can improve over time. The current volume-based policy does not provide these necessary incentives.
- Volume-based mandates with GHG emission savings thresholds can drive LCF production units to optimise just to meet the threshold, rather than maximising GHG savings for the available feedstock. This is especially critical when feedstock availability is limited, as achieving maximum GHG savings per unit of feedstock is essential to meet the UK’s net zero target.
- A GHG-based policy eliminates the need for multiple, evolving GHG emissions reduction thresholds, thereby providing greater investor certainty and incentivising long-term plant design and operation.
- Aligning the RTFO with the SAF mandate is crucial to support investments in lower carbon fuels, as production plants often produce fuels for multiple transport modes. For example, SAF projects can also produce road fuels, so a consistent approach across both policies is necessary
- In moving to a GHG emissions reduction policy we also support rewarding negative emissions. If negative emissions are not recognised this effectively introduces

³⁸ <https://www.epure.org/press-release/eu-renewable-ethanol-sets-new-record-for-greenhouse-gas-reduction-confirming-its-importance-for-transport-de-fossilisation/>

another threshold (at zero CI) which as described earlier can drive LCF production units to optimise just to meet the threshold, rather than maximising GHG savings for the available feedstock. Net negative emissions are already recognised in the UK SAF mandate and will be needed to achieve the target of net zero emissions by 2050 to offset any positive emissions remaining at this time.

These are ends-focused regulations that provide value proportionate to the carbon reduction delivered. This approach better incentivises deployment of the lowest GHG emission fuels, delivering overall transport energy GHG emissions savings more efficiently

It may be appropriate and achievable to introduce the change to a GHG savings model on 1st January 2027, to align with other changes incorporated into legislation. This means that the performance of the SAF mandate in 2025 and 2026 can be assessed. If successful, then the RTFO can be transitioned to the same basis as the SAF mandate. A review of the scheme could also include whether (potentially conservative) default values can be used, alongside actual values in order to reduce the administrative burden for obligated suppliers.

We have provided some example calculations on how the SAF mandate methodology may be applied to the RTFO. These are based on the sample SAF calculations shared with Fuels Industry UK as part of the SAF mandate legislation preparation. These calculations are based on HVO and FAME in various scenarios, and similar Renewable Energy Directive (RED) emissions ³⁹. We would be happy to work with the DfT low carbon fuels team on developing these further to demonstrate the value of moving to a GHG savings-based approach.

6. Do you think increasing the RTFO GHG emissions savings thresholds would be appropriate and why. Would you have any concerns?

No

We do not believe that increasing the RTFO GHG savings would be appropriate, particularly those for older plants that have been in commission for a number of years (often known and grandfathering ⁴⁰). Retrospective changes to lower carbon fuel requirements including GHG thresholds significantly erodes investor confidence in UK lower carbon fuel production and may hamper future growth in the sector.

³⁹ <https://eur-lex.europa.eu/eli/dir/2023/2413/oj/eng>

⁴⁰ <https://uk.practicallaw.thomsonreuters.com/1-422-1827>

Any increase to minimum GHG thresholds risks further isolation of the UK from the European biofuel trading markets where existing pricing benchmarks are linked to specific minimum GHG thresholds.

We do not support increasing the RTFO GHG emission savings thresholds. As outlined in our response to question 5, we advocate for a GHG-based policy that rewards fuels in proportion to the GHG emissions reductions they achieve. This approach will promote the use of fuels with the most cost-effective carbon savings. In such a system, no GHG threshold is required as the GHG reduction trajectory would naturally drive the use of fuels with increasingly high GHG reductions.

Given the current enabled policy framework in the UK, we support aligning the RTFO with the SAF mandate, which has a minimum GHG emissions savings threshold of 40%. Aligning these two policies wherever possible is essential to support investment cases for all lower carbon fuels, as LCF production plants often produce fuels for multiple transport modes. We note that the SAF Mandate was careful not to set the minimum GHG savings threshold too high, to avoid stifling innovation and reducing investment into SAF. Given SAF projects can also produce road fuels, a consistent approach in the RTFO is supported.

We would ideally seek policy certainty to manage business development and investments. Retrospective changes to requirements, including higher GHG reduction thresholds, significantly erode investor confidence—not only in the lower carbon fuel production sector but across all sectors—and may hamper future investment and growth in the UK. We recognise that our proposal to align the RTFO with the SAF Mandate constitutes a policy change. However, as this change would reward fuels in proportion to the GHG emissions reductions they achieve, we believe it would still deliver rewards for those fuels already exceeding the current GHG reduction threshold. This approach would not diminish investor confidence; rather, it would incentivise the development of fuels with higher greenhouse gas (GHG) reductions over time, thereby optimising costs and benefits in the long term.

If the EU moves towards wider adoption of GHG reduction-based schemes without similar UK adoption, then the UK may simply see LCFs with lower emissions being used outside of the UK, increasing potential emissions here.

7. Did the GHG Reporting scheme that ran alongside the RTFO encourage a greater supply of low carbon fuels in the UK with higher GHG savings? If so, which fuels?

No

For technical reasons, the GHG reporting scheme that ran alongside the RTFO did not meaningfully encourage a greater supply of lower carbon fuels in the UK with higher savings.

The GHG reduction targets (4% in 2019 and 6% in 2020) were set in order to meet the EU Fuel Quality Directive (FQD) ⁴¹. These targets were to some extent in line with the RTFO targets at the time (8.5% in 2019 and 9.75% in 2020), and the prevailing achieved GHG savings in these years, although suppliers also made use of Upstream Emission Reductions (UERs ⁴²) to meet their GHG obligations. The 2020 target also had to be met in isolation, with no carry-over of credits from 2019 due to restrictions imposed in the FQD. The RTFO's 2x multiplier for waste-based fuels like UCOME provided a greater incentive for these fuels in the UK compared to other EU member states at the time.

With many EU member states now transitioning to a GHG-based policy, retaining the volume based RTFO scheme with the 2x multiplier for waste-based fuels in the UK could lead to the use of the lowest GHG-saving UCOME in the UK as they would still receive an artificially higher reward compared to the EU.

As detailed in our response to question 5, we advocate for transitioning the RTFO to a GHG savings-based framework that rewards certificates in proportion to the GHG emission savings achieved. We believe this approach, unlike the dual scheme that operated in 2019 and 2020, is the most effective way to fulfil the primary policy objective of the RTFO, which is to deliver significant GHG emissions reductions. By aligning the RTFO with the already established GHG-based SAF mandate policy, we can achieve greater consistency and efficiency.

Regardless of whether the RTFO is a volume, or a GHG reduction-based mandate, we would not support the re-introduction of a separate, parallel GHG scheme as in 2019 and 2020 due to the significant and unnecessary bureaucratic burden that this creates.

⁴¹ https://climate.ec.europa.eu/eu-action/transport/fuel-quality_en

⁴² <https://www.rina.org/en/uer-projects>

8. Is the RTFO crop cap trajectory set at the right level?

No

As outlined in the RTFO statutory review document, the crop cap was introduced to encourage the supply of waste derived fuels over those produced from crops, given their potentially negative implications related to ILUC, land availability and food security.

RTFO targets should be technology neutral and based on using available technology to decarbonise transport; the use of a crop cap is not a technology neutral approach. However, some form of limitations on the use of crops may be beneficial to ensure that potential diversion away from food sources does not occur. The basis for the current level and trajectory is unclear, and we agree should be reviewed for effectiveness against the key RTFO policy objectives. The continuation of the crop cap and the appropriate trajectory must take account of the new definitions and available science.

In addition to considering the availability of crops in lower carbon fuels as part of the analytical work for the low carbon fuel strategy as discussed in our response to Q1, the eligibility and use of crops under the RTFO should be based on:

- Suitable sustainability criteria (e.g. negative implications related to ILUC, land availability) and verification as used in the RTFO for many years
- Ensuring that the potential diversion of crops from food is adequately considered⁴³
- Due consideration for the GHG emissions in a GHG reduction scheme as per our responses to Q6 and Q7.

A simple limit of 2% in 2032 does not adequately consider these factors and should be reconsidered in line with the principles above to maximise available transport decarbonisation options.

We believe the current definition of relevant crops is too restrictive and overlooks the potential use of some crops that do not compete with food or feed production (e.g., cover crops). We strongly encourage the Government to review the definition of relevant crops and welcome the review and consultation on the use of cover crops, as detailed in the Government response to the 2nd SAF Mandate consultation, to ensure these crops are appropriately categorised, as described in our responses to questions 3 and 10

⁴³ <https://pmc.ncbi.nlm.nih.gov/articles/PMC2430252/>

9. Has the RTFO crop cap impacted UK biofuel producers, suppliers, or other operators and if so, how?

Obligated fuel suppliers will take account of the appropriate RTFO requirements when purchasing or producing the lower carbon fuels that they need to meet their obligations. This includes consideration of the crop cap prevalent in the obligation year, which may restrict the availability of suitable fuels.

Generally, options for purchasing 2nd generation bioethanol for use on petrol are limited, with the market relying on 1st generation bioethanol.

There are well documented closures, and reopenings of UK bioethanol producers who rely on 1st generation production ⁴⁴. As with many other industries, it may be expected that smaller, more inefficient plants will close, and feedstocks may migrate to better production technologies.

10. Are the definitions of 'relevant crops' and 'dedicated energy crops' still appropriate?

No

The definitions do not encompass cover crops, as set out in response to question 3.

Both definitions are important if the crop cap is retained (see answers to question 5 & 8 regarding lack of technology neutrality on limiting relevant crops and preference for a GHG based policy).

If the crop cap is retained, we support amendments to the definitions to adequately define and categorise sustainable crops and cover crops according to latest scientific research. Cover crops are primarily grown to protect and improve soil health, reduce erosion, and manage nutrients. They are typically planted between main crops to cover the soil during off-seasons, and so do not compete with food, do not drive Land Use Change, and have other environmental benefits. Cover crops are recognised in renewable energy policies in other regions (e.g. EU, USA, Canada) and are used to produce transport fuels (e.g. Camelina used for biodiesel and SAF).

We welcome the review and consultation on the use of cover crops detailed in the Government response to the 2nd SAF Mandate consultation to ensure these crops are appropriately categorised. It is essential that all feedstocks are categorised and incentivised appropriately to maximise feedstock availability to meet the objective of the RTFO and SAF Mandate of reducing GHG emissions.

⁴⁴ <https://www.bbc.co.uk/news/uk-england-tees-45976530>

11. Has the double rewarding of waste-based fuels relative to single rewarding for crop-based fuels been effective in achieving maximum carbon savings?

This question cannot be answered by examining the UK in isolation. As detailed in our response to question 7, the RTFO's 2x multiplier for waste-based fuels like UCOME have provided a greater incentive for these fuels in the UK compared to other EU countries, allowing the UK to enhance its carbon savings. However, given that the EU has a cap on the use of waste-based biofuels⁴⁵ and does not apply multipliers, this may have simply redirected such fuels to the UK rather than incentivising the collection and use of waste-based feedstocks or fuels, which could maximise global carbon savings. The current mandate level is set at a level that requires double counting, whilst also requiring the use of lower carbon fuels at the blend walls of B7 and E10 (including the use of double counting bioethanol).

A lack of change in the RTFO basis, and with many EU member states transitioning to a GHG-based policy, could lead to the UCOME with higher GHG intensity being used in the UK (as it would still receive an artificially higher reward compared to the EU).

This is particularly the case in diesel and gasoil where the feedstock options have been available, such as UCOME and HVO. It has been less effective in decarbonising petrol, where fewer options for waste derived lower carbon fuels are available; for example, the majority of bioethanol used is derived from 1st generation, single counting sources.

12. Should double reward continue going forwards or is there an alternative way within the RTFO to incentivise the supply of waste-based fuels?

The use of double-counting has effectively been a method of increasing GHG savings in a volume-based system.

We strongly suggest that adding additional tiers of assignment in a "more flexible" approach would add significant complexity to an already highly complex scheme and should not be used.

The UK should continue to promote the use of all practical wastes and residues by not applying any caps to specific types of waste and residue; potential limits should also be considered in conjunction with the SAF mandate to ensure a harmonised approach.

As an alternative, we strongly advocate for transitioning the RTFO to a GHG savings-based framework that rewards certificates in proportion to the GHG emission savings achieved. We believe this approach is the most effective way to fulfil the primary policy objective of the RTFO, which is to deliver significant GHG emissions reductions.

As discussed in our response to question 11, while this system may have enhanced the UK's carbon savings in previous years by providing a greater incentive for these fuels

⁴⁵ www.epure.org/wp-content/uploads/2023/02/230227-DEF-REP-Overview-of-biofuels-policies-and-markets-across-the-EU-February-2023-1.pdf

compared to other EU countries. As the EU has a cap on the use of waste-based biofuels, the UK multipliers may have simply redirected such fuels to the UK rather than incentivising the collection and use of genuine waste-based feedstocks/fuels, which “could” maximise “global” carbon savings.

As discussed in our answer to question 2, the UK has established a comprehensive policy framework to promote the production and availability of renewable electricity. A similarly robust legislative framework is needed to enhance the availability of renewable and low-carbon fuel feedstocks. This framework should encompass areas such as forestry and agricultural practices, yield improvements, and the collection of waste and residues, while incorporating flexibility and regular reviews.

With many EU member states now transitioning to a GHG-based policy, retaining the volume-based RTFO scheme with the 2x multiplier for waste-based fuels in the UK could have the opposite effect. It could lead to the use of the lowest GHG-saving UCOME in the UK, as these fuels would still receive an artificially higher reward compared to the EU.

13. Do you have any evidence on why there has been a lack of supply of development fuels or how the obligation has stimulated the production of development fuels?

There have been a number of factors involved in why there has been a lack of supply of development fuels, namely:

- Uncertainty over the requirements for development fuels, how the requirements are applied and the approval process involved. This includes a lack of rigorous grandfathering in the approvals, leading to significant investment risk.
- A lack of clarity on whether the drop in requirement applies to summer or winter grades of petrol and diesel (or intermediate grade for petrol)
- Concerns that change in the BS EN 228 petrol or BS EN 590 diesel specifications could lead to development fuels being ineligible (with no grandfathering of the fuel quality requirement)
- A lower than needed development sub-target buy-out price making developing business cases challenging; however, if higher it may incentivise development fuels while increasing costs for consumers.
- For aviation and marine applications, the fact that any lower carbon fuel used could, if found to not be sustainable, incur an obligation in its own right (as required under the prevailing primary legislation). We note that the aviation option has been removed following the start of the SAF mandate in January 2025.

We note that it has been suggested on two occasions in recent years that the RTFO guidance should be updated amend the development fuel requirements: in particular the drop in renewability requirement. This does little for investor certainty in development fuels, particularly given the significant investment sums required.

14. Do you expect development fuel supply to increase relative to the obligation in the short and medium term such that levels of buy-out are minimised?

No

Unless the factors outlined in Q13 above are addressed, we do not see there being any increase in development fuel supply or a reduction in the level of buy-out.

However, the SAF mandate and SAF revenue certainty scheme could lead to increased certainty in SAF production, with drop in ground fuel produced as a by-product. This would address some of the concerns we note and lead to increased development fuel supply under the RTFO, but this is by no means guaranteed. This is because there is currently no clarity over whether the mechanism will be introduced and whether the mechanism will be designed effectively enough to stimulate domestic production overcoming the investment hurdles in the UK.

15. How important will SAF plants currently in development be in supporting deployment of drop-in low carbon road fuels under the RTFO?

As we articulate in our response to Q14, the SAF mandate and SAF revenue certainty scheme could lead to increased certainty in SAF production, with drop in ground fuel produced as a by-product ⁴⁶. This would address some of the concerns and lead to increased UK development fuel supply under the RTFO, but this is by no means guaranteed.

⁴⁶ <https://www.lanzajet.com/technology>

16. Are eligible fuels defined appropriately to meet the development fuel obligation goals? Should a broader or narrower range of fuels, feedstocks and production processes be considered?

As we articulate in our response to Q13, there have been a number of factors involved in why there has been a lack of supply of development fuels, namely:

- Uncertainty over the requirements for development fuels and the approval process involved. This includes a lack of rigorous grandfathering in the approvals, leading to significant investment risk.
- A lack of clarity on whether the drop in requirement applies to summer or winter grades of petrol and diesel (or intermediate grade for petrol)
- Concerns that change in the BS EN 228 petrol or BS EN 590 diesel specifications could lead to development fuels being ineligible (with no grandfathering of the drop in quality requirement)
- A lower than needed development sub-target buy-out price making developing business cases difficult.
- For aviation and marine applications, the fact that any lower carbon fuel used could, if found to not be sustainable, incur an obligation in its own right. We note that the aviation option has been removed following the start of the SAF mandate in January 2025.

However development fuels have had an important role to play in refinery decarbonisation, the historic definition of drop in fuels based on a 25% minimum level been useful in enabling this.

Greater certainty over the requirements, including appropriate grandfathering clauses, has the potential to increase the supply of development fuel. The production of drop in ground fuels as a by-product of SAF production could also increase the development fuel supply. But neither of these is guaranteed, given the competition for lower carbon fuel investment globally.

17. If the development fuel obligation was to switch to a GHG-based reward mechanism, how could this impact supply of development fuels, including investment in production?

A GHG-based reward mechanism has the potential to improve the supply of development fuels, by increasing the regard for them (assuming they have a lower GHG emission than non-development fuels). It also has the potential for existing fuels with good GHG saving performance coming into the UK, rather than other jurisdictions.

Due consideration should be given to how to attract investment in UK lower carbon fuel facilities, as moving to a GHG-based approach alone may not be sufficient. In addition, concerns over other factors, such as drop in requirements and lack of grandfathering clauses would remain and may continue to cause issues in production plant development, construction and commissioning.

18. Do you have any feedback on the effectiveness of the day to day running of the scheme and the provision of scheme guidance and statistics? Please provide suggestions for any improvements.

Broadly the day to day running of the scheme works well for members, with good communication between obligated suppliers and the DfT.

Scheme Guidance

The provision of the scheme guidance could be significantly improved. For example, the 2025 RTFO and SAF guidance was still not published on the 4th of December 2024, giving suppliers little time to prepare the detailed implementation of the SAF mandate starting on the 1st of January 2025. While we expect some of this is due to the timing of the SAF mandate legislation being made in November, the DfT could have done significantly more work ahead of this (subject to appropriate caveats). We would strongly encourage the DfT to address this issue in future years (as well as hold reviews through 2025 as obligated suppliers gain experience on the SAF mandate)

Use of Voluntary Scheme certification

Many supply chains rely on voluntary scheme supporting evidence to ensure compliance with the carbon and sustainability requirements of the RTFO. The schemes have to be internationally identical to enable international market sourcing (and lower carbon fuel exports) to be efficient; working widely with other countries to ensure these schemes are robust should be encouraged.

Whilst a fuel supplier can place a contractual obligation on their supply chain to provide additional data requested by the DfT, certain information such as commercial contracts, invoices and greenhouse gas calculations are commercially sensitive and cannot always be passed between operators. Respecting the DfT's right to request additional

information from anywhere in the supply chain, we are concerned about the practicalities of the DfT requesting increasing amounts of evidence and that data being provided in a timely manner. To ensure correct carbon and sustainability data is included on a voluntary scheme proof of sustainability (PoS) ⁴⁷ we suggest the DfT, and obligated fuel suppliers should work with recognised voluntary schemes ^{48,49t} to ensure that the data included on a PoS contains the evidence required to verify that the fuel meets the requirements of the RTFO.

RTFC Approval process

ROS (RTFO Operating System) Lite, which replaced the previous ROS system, was developed in conjunction with industry stakeholders to enable certificates to be automatically awarded, unless the specific batches that were selected for sample. Instead, the DfT decided to retain its existing processes of holding internal review and award meetings for all submissions. As we understand it, even the system developer was unaware that that ROS Lite is not being used by DfT as designed. Delays to certificate award should be avoided wherever possible, and we would request that unless there is a compelling reason for it, that RTFCs are awarded as originally intended in the design of the new system.

19. Do you have any further comments on the operation of the scheme to date?

We have the following comments on the operation of the scheme to date:

Volume reconciliation

The DfT require obligated suppliers to balance their obligated volumes to the litre. Given that these volumes can be in billions of litres for large suppliers, this can equate to an error of 0.0000001%. Requiring large suppliers to meet this level of accuracy seems unnecessarily bureaucratic, significantly increasing the administrative burden on suppliers. It is also inconsistent with other schemes, such as the Compulsory Stock Obligation ⁵⁰ scheme operated by DESNZ, with suppliers often needing to balance to the nearest metric tonne. A review of the RTFO requirement to determine if a relaxation will materially lead to any change in GHG savings would be very welcome.

⁴⁷ [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=PI_COM:Ares\(2021\)4234307](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=PI_COM:Ares(2021)4234307)

⁴⁸ <https://www.iscc-system.org/>

⁴⁹ <https://www.redcert.org/en/>

⁵⁰ <https://www.gov.uk/government/publications/emergency-oil-stocking-international-obligations>

RTFO deadlines

Guidelines for obligated suppliers to submit data and applications for certificates are well established in guidance. However, there is also a need for the DfT to conform to their own deadlines for the review of supplier declarations and issue appropriate renewable transport fuel certificates (RTFCs). The DfT deadlines are uncertain, leading to a lack of clarity for obligated suppliers and the potential for undue financial penalties that are out with their control.

Reliance on 3rd party verification

There is a lack of reliance on third party verifiers, with the DfT needing to carry out follow up checks which was not as promised during the design and rollout of ROS Light. The UK needs to recognise that it has to operate to the standards and to some extent the same rules as found in other regions; for example, there will not be an ISCC-UK, so any divergence from common European (and wider) scheme rules should be strongly discouraged.

EU database

We note the introduction of the EU lower carbon fuel database ⁵¹ and potential concerns regarding its effective implementation ⁵². Given the close lower carbon fuel trading relationships between the UK and the EU we wish to highlight that there is potential for disruption for UK supplies. We would like to continue to work with the DfT on this area to avoid potential issues.

Life cycle analysis

We support the RTFO's foundation on the life-cycle emissions of GHGs throughout the fuel supply chain. This approach ensures that all stages of fuel production, distribution, and use are considered, providing a comprehensive assessment of GHG emissions. However, we note that not all UK policies operate on a life-cycle emissions basis. For example, the ZEV mandate is based solely on tailpipe emissions, meaning it only accounts for emissions produced during the vehicle's operation, ignoring emissions from fuel production and distribution.

The use of some biofuels and synthetic fuels (sometimes called CO₂ neutral fuels) in internal combustion and hybrid engines can deliver life-cycle emissions comparable to

⁵¹ <https://www.euractiv.com/section/energy/news/eu-plans-single-database-to-certify-carbon-content-of-hydrogen-low-carbon-fuels/>

⁵² <https://www.eurogas.org/resource/open-joint-letter-to-the-european-commission-concerning-the-union-database/>

those of electric vehicles supported by the ZEV mandate (see the cars CO2 comparator and HDV CO2 comparator developed by IFPEN and Concawe⁵³ and the recent ZEMO report⁵⁴. In these fuels, the carbon dioxide (CO₂) emitted during their production and use is offset by an equivalent amount of CO₂ removed from the atmosphere during the creation of their feedstocks/source molecules. Bio feedstocks absorb CO₂ through photosynthesis during their growth, while synthetic fuels are made by combining captured atmospheric CO₂ using CCUS/DAC with hydrogen.

As discussed in our response to question 13, one of the factors affecting the supply of development fuels is the declining demand and finite life of liquid fuels for road transport which impacts the investment and development of new fuel technologies. Adjusting the ZEV mandate to a life-cycle emissions basis could lead to increased demand for lower-carbon fuels beyond 2035 and help alleviate this investment barrier.

Renewable liquid heating fuel obligation

We also note that the 2023 Energy Act created a framework for the inclusion of a renewable liquid heating fuel obligation. We understand that this would be regulated by DESNZ rather than the DfT as it is not transport related. However, it has the possibility to be another source of lower carbon fuel demand, and its potential inclusion needs to be considered when setting future RTFO targets. Heating kerosene and aviation fuel often shares much of the same infrastructure; with a lack of incentive for future investment this situation is unlikely to change in the future. We therefore strongly request that requirements under a potential DESNZ scheme are aligned with those of the RTFO to the fullest extent possible.

PtL fuels

We note that PtL (or e-fuel) technology has the potential to increase the supply of lower carbon fuels, including those with “drop-in” capability. We note the recent work carried out by Concawe in this area, including publication of the report “*E-Fuels: A techno-economic assessment of European domestic production and imports towards 2050 – Update*”. We would ask that the potential production and availability of PtL technology is adequately considered in the development of the RTFO.

⁵³ <https://www.carsco2comparator.eu/>

⁵⁴ <https://www.zemo.org.uk/assets/reports/Vehicle%20life%20cycle%20GHG%20emissions%20study%202024.pdf>

Refinery coprocessing

We strongly support the pragmatic requirements outlined in the current RTFO policy framework regarding coprocessing and partial lower carbon fuels, and we advocate for these provisions to remain unchanged.

RTFO GHG savings

The RTFO has delivered significant GHG savings ⁵⁵, and this has been a major achievement for the policy which should be recognised. We expect these savings to continue into the future, as a significant enabler of transport decarbonisation.

⁵⁵ <https://www.gov.uk/government/statistics/renewable-fuel-statistics-2023-final-report/renewable-fuel-statistics-2023-final-report>