

Targeting net zero - Next steps for the Renewable Transport Fuels Obligation

Consultation Response

April 2021

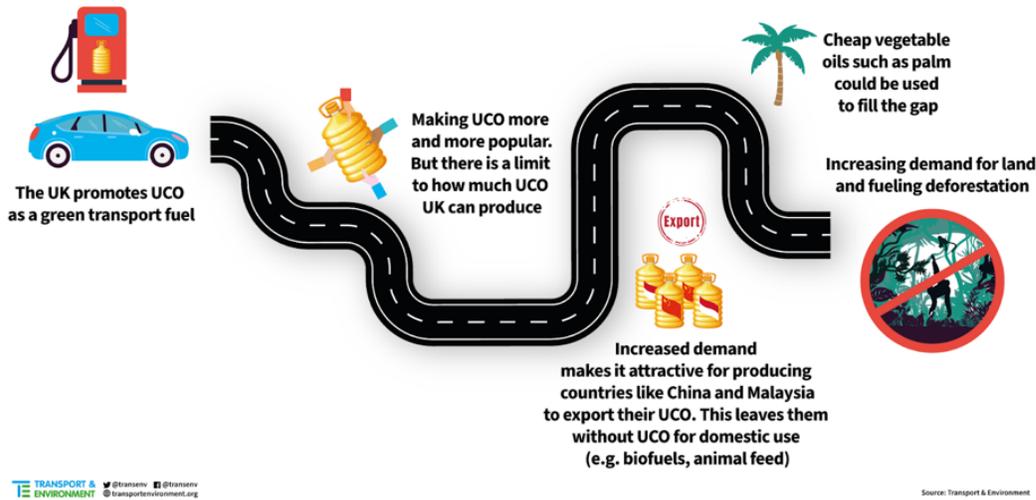
Summary

This briefing paper summarises Transport and Environment (T&E's) views of the questions posed by the consultation [Targeting net zero - Next steps for the Renewable Transport Fuels Obligation](#).

T&E is concerned by the main proposals in this consultation to raise targets for biofuels used in vehicles. Since the introduction of the RTFO UK governments have recognised the significant risks of uncontrolled growth in biofuels, yet this proposal includes raising the target for 1st generation biofuels in vehicles, principally to benefit biodiesel suppliers. Whilst there is an urgent need to reduce GHG emissions in transport, increasing biofuels will produce little net benefit and runs the risk of driving land use changes that will do more harm than good. Alongside policies to electrify vehicles additional emissions reductions from vehicles should focus on encouraging a shift away from car use rather than trying to increase biofuels.

There are particular concerns that the proposal will drive increased supplies of used cooking oil (UCO) that is increasingly unsustainable. Imports of UCO are 15 times current UK supplies and in most of the supplying countries, such as China, UCO is not a waste. As a result, imports of UCO to the UK are likely to drive higher imports of virgin palm oil in supplying countries causing land use change. There are also concerns about the rigour of certification schemes and recent evidence of fraud with virgin oils substituted for UCO in order to benefit from the double certificates of biofuels made from a “waste” feedstock.

UK's surging demand for used cooking oil could fuel deforestation



Rather than raising targets in the main RTFO, T&E proposes that policy should focus on rapidly phasing out the use of crop-based biofuels and transitioning to the use of advanced biofuels and RFNBOs in the aviation and maritime sectors. To achieve this, T&E proposes establishing mandates for the aviation and maritime sectors and raising the Development Fuels target. To encourage investment in new plants to manufacture advanced biofuels or Renewable Fuels of Non Biological Origin (RFNBOs) for use in planes in ships, we propose to link a mandate met by supply of Development RTFCs with a Contract for Difference approach to support innovative new production facilities that in effect provides a floor price for Development RTFCs to encourage investment. In addition, to support the roll out of electric vehicle charging infrastructure our response provides details of how to include renewable energy used in electric cars within the RTFO. Details of both of these proposals are contained in a [consultancy report](#) commissioned by T&E and published alongside this response.

With regard to other issues addressed by the consultation, T&E is NOT in favour of extending the RTFO to: Recycled Carbon Fuels (in the way proposed), biohydrogen or blue hydrogen. T&E supports most of the proposals on RFNBOs, but would set a higher minimum greenhouse gas saving. We are generally supportive of changes to proposed sustainability criteria, but disagree with the consultation on several points of important detail.

Finally, T&E is concerned this consultation is unnecessarily rushed and poorly timed. Such important and extensive changes to complex regulations should never be made with only a four week

consultation period. The consultation is also timed ahead of the Transport Decarbonisation Plan, Net Zero Aviation Consultation and BEIS consultation on the role of biomass in achieving net zero. Renewable energy and bioenergy resources are limited so transport cannot be decarbonised one mode at a time. Decisions to increase biofuels in transport need to take into account other uses in transport and other sectors and other policies to cut transport emissions. Rushing to raise targets in the main RTFO for conventional biofuels is heading in the wrong direction.

1. This consultation and response

This briefing paper summarises Transport and Environment's (T&E's) views of the questions posed by the consultation [Targeting net zero - Next steps for the Renewable Transport Fuels Obligation](#). T&E is Europe's foremost sustainable transport think tank and NGO. It is a federation of almost 60 national organisations across Europe, campaigning for greener transport and now has a team based in the UK. T&E has previously undertaken extensive research on biofuels, and has had considerable influence on the shape of the EU Renewable Energy Directive.

Since the introduction of the RTFO UK governments have recognised the risks of uncontrolled growth in unsustainable, food-based, first generation fuels and previously opposed increasing targets in EU negotiations. The UK was the first country to introduce carbon and sustainability reporting, and has always considered the risks of indirect land use change which seriously limits the potential of crop-based biofuels. The proposals in this consultation (and other policy changes in the last year like raising the blend wall for ethanol) are of considerable concern to T&E.

T&E UK recognises the urgent need to reduce GHG emissions in transport, but believes increasing the amount of biofuels will produce little net benefit and run the risk of driving land use change - which will do more harm than good. T&E UK strongly supports the Government's targets to electrify vehicles, but to reduce emissions from vehicles further suggests that DfT should focus more on encouraging a shift away from car use and reversing counterproductive road building proposals, rather than trying to increase biofuel use. Instead of raising biofuel targets, the UK should be phasing out the use of crop-based biofuels. It should be transitioning to the use of advanced biofuels only in aviation, where they are most needed. This response details how this transition can be achieved, and should be read in conjunction with the accompanying [consultancy report](#) - prepared for T&E by two former staff of the Low Carbon Fuels Division - that is published alongside this piece

This consultation is rushed, and therefore ill-considered. Such important and extensive changes to government policy should never be made with a four week consultation period, particularly when this

spans the Easter holiday. A three month consultation is essential to enable proper consideration of such wide ranging changes. The timetable was set to ensure there is no reduction of biodiesel supplies in 2022 as a result of the government decision to introduce E10. This entirely predictable market response should have been considered at the time decisions on E10 were being taken. Due process should not be circumvented because of a failure to address these issues at the right time.

The timing of the consultation ahead of the Transport Decarbonisation Plan and Net Zero Aviation Consultation is also inappropriate. Renewable energy and bioenergy resources are limited. Decisions need to be made to take account of all major uses to avoid overstressing supplies - which would inevitably lead to the greater use of unsustainable feedstocks. BEIS has just commenced a consultation (with a three month consultation period) on the [role of biomass in achieving net zero](#). Decisions to increase biofuels in transport need to take into account other uses addressed in these proposals, and any announcement should be aligned with these decisions. The apparent lack of communication and planning between the Low Carbon Fuels Division, wider DfT environmental strategy and BEIS needs to be urgently addressed.

The remainder of this consultation response addresses each of the principal sections of the consultation, and includes some additional alternative ways to raise the GHG savings through alternative fuels:

1. Proposal to increase RTFO targets
2. Including electricity in the RTFO
3. Recycled carbon fuels
4. Hydrogen, RFNBOs and Biohydrogen
5. Expansion of RTFO support to other transport modes: including new proposals for aviation and maritime mandates
6. Sustainability
7. Other issues.

2. Proposal to increase RTFO targets

Increased targets - increased risks

With regard to **Question 1 and 2**, T&E UK opposes the recommendation to increase the main obligation by 2.5% and 1.5% immediately. The proposal will increase, or as a minimum retain increased supplies of crop-based biofuels and used cooking oil (UCO) of questionable benefits and provenance. T&E favour Option 0: that targets remain constant. As the consultation states, *keeping the main obligation at the current level of 9.6% would most likely result in less waste biodiesel being supplied* - T&E believes this would be prudent - particularly for vehicles. Any increase in targets should be for development fuels, and only where it is demonstrated that there are sustainable supplies.

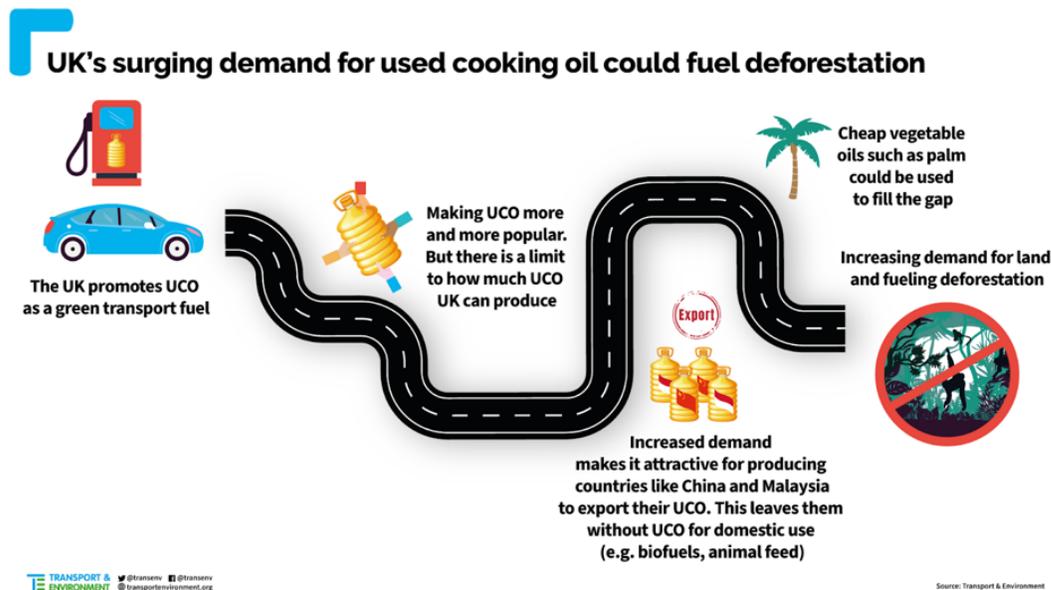
The principal beneficiaries of raised targets are likely to be biodiesel suppliers that predominantly source used cooking oil (UCO). In 2020, [nearly half of the UCO](#) supplied to the UK came from China (244m litres), while more came from Malaysia (49m litres) alone than was supplied by UK households and businesses (35m litres). The UK's thirst for UCO to power transport is already 15 times more than is being supplied from UK sources. Despite this, the consultation wants to raise targets further.

UCO from China, and most other supplying countries, is not waste: it has existing uses, including as an animal feed. Imports to the UK will therefore be partly replaced by additional virgin oil supplies and production in these countries. As palm is the cheapest oil it will be the principal beneficiary which in turn will drive deforestation. This is illustrated in the figure overpage. A major T&E [study](#) into UCO, published in April 2021, shows that demand for UCO is also growing strongly across the EU.

UCO supply and demand in the EU - competition for sustainable UK supplies

CE Delft, on behalf of T&E, [undertook a study](#) that found that in 2019 Europe consumed 2.8 million tonnes of UCO for biodiesel production - about 18.5% of the total EU biodiesel production. Of this amount, Europe was able to provide for less than half of it (1.3Mt was sourced from Europe), based on waste oil collection schemes set up in several EU countries. The collection of UCO in Europe is largely focussed in Western Europe and based on the professional sector. Only a few EU countries have well set-up household collection schemes, namely Belgium, the Netherlands and Austria. The study estimates that demand for UCO for transport in Europe could increase to 6.1-6.4 Mt by 2030 - more than double. This will place even more pressure on already stretched UCO supplies.

A recent [T&E study](#) found that in the EU there is now more palm and rapeseed used for fuel than is eaten. In the last decade, the consumption of vegetable oils for biodiesel production has increased by nearly 50%. Palm oil has an extraordinarily high carbon intensity when ILUC is included (it is around [three-times](#) more carbon intensive than the diesel it replaces), which therefore justifies a cautious approach. The UK government used to share this view, and the planned change of policy direction is not supported by any evidence the risk has decreased.



No role for biofuels in decarbonising vehicles

To achieve net-zero emissions by 2050, emissions from vehicles will need to be zero. There are harder to decarbonise sectors like aviation and agriculture that are much more likely to rely to some degree on offsets. Crop-based biofuels have no role in delivering the government's 2050 net-zero target as the carbon savings from their use are far too low. Pathways are available for zero emission vehicles: electrification using batteries for cars, vans and smaller trucks, with the largest long-haul trucks using either batteries, electric road systems or hydrogen, or a combination of these (Biomethane will be needed in other sectors). The government has announced a phase out of conventional cars by 2030 and will only permit the sale of zero emission vehicles after 2035. It has also announced a diesel truck phase out and will consult on dates. As the shift to electrification advances, liquid biofuel use in road vehicles will progressively reduce.

It is counterproductive to raise targets for supply of liquid biofuels to road vehicles. To do so by encouraging fleets of high blend biofuel trucks etc will simply create confusion in the market about how to decarbonise this sector, and will slow down the transition to electric (or possible hydrogen) solutions that can deliver the zero emission goal. T&E recognises there may be some small, short-term carbon savings arising through increasing biofuel use (depending upon the origin of the feedstock). However, these are better realised by transitioning bio-feedstock from vehicles to planes where biofuels are more needed. Policy should also be directed to shifting production from first generation crop-based biofuels to advanced fuels that have much better carbon savings and lower risks of indirect land use change (ILUC). Increasing targets and use of first generation biofuels in vehicles will simply encourage more of the same first generation fuels that produce inadequate CO2 savings and drive ILUC.

Optimistic market assumptions

T&E has significant doubts about the assumptions underpinning the consultation, particularly Figure 4. Specifically:

- The overall decline in biofuel of about 30% is much less than would be expected by a phase out of sales of new ICE cars by 2030 and PHEVs by 2035. By 2035 reasonable uptake trajectories have two-thirds of cars and vans either BEV or PHEV.
- The evidence supporting a growth in biomethane to 16% of truck energy demand is missing, and in T&E's view highly optimistic.

The impression created by the assumptions underpinning Figure 4 is that a small increase in biofuel targets will sustain investments by helping to maintain biofuel supplies. However, more realistic assumptions (shown in Figure 6) demonstrates that the use of biofuels in vehicles, particularly biodiesel (because of the collapse in diesel car sales) will sharply reduce even with the increase in biofuel targets. There should be a recognition that the market for liquid fuels in transport is now in terminal decline, and that valuable feedstocks should be redirected to another sector. The land on which crop based biofuels are currently grown can then be repurposed, including for reforestation for CO2 removal.

T&E is also doubtful of the assertion that *if the decrease [in biodiesel supplied] drops too quickly this may deter long-term investments in fuels*. We believe a drop in demand will be exactly the stimulus the industry needs to make the transition to new productions and markets - like aviation. Over the last decade the industry has not shown little propensity to evolve to advanced fuels.

The analysis presented also highlights the uncertainty to what extent the introduction of E10 will lead to significantly more ethanol being blended. If ethanol prices rise above those of biodiesel the higher target will lead to more biodiesel supplies. Given this uncertainty it is premature to raise targets. The introduction of E10 should be completed and the impact on the market assessed before the targets are adjusted. The changes to the target, like this consultation, is unnecessarily rushed.

The Government's figures also show a cost of carbon saving of between £139 and £210 million / tonne CO₂e. This is a very high cost compared to most other carbon saving approaches being deployed at present.

2. Including electricity in the RTFO

If the government is determined to raise RTFO targets, it should also allow renewable energy used in vehicles to be awarded RTFCs. In coming decades, renewable electricity will progressively replace biofuels as the primary source of renewable energy in transport. In the EU, the supply of renewable electricity counts alongside biofuels towards targets set under the RED II. Liquid renewable transport fuels and renewable electricity are also both credited through the California Low Carbon Fuel Standard. Conversely, in the UK credits for the supply of electricity are ineligible to receive RTFO certificates. Tackling this anomaly will provide an additional incentive towards the shift to electric cars (and especially associated infrastructure development).

Although electricity for transport is currently excluded from the RTFO, historically, suppliers of electricity were allowed to claim credits under the Greenhouse Gas (GHG) Regulations credit mechanism which ended in 2020. The GHG regs defined the electricity supplier as the owner of the electricity at the point that it is metered, linking to the Electricity Act 1989 to do this. In practice, this meant that to be a claimant of electricity under the GHG Regulations a company had to be a registered electricity supplier with Ofgem. Only the renewable part of the electricity was rewarded and assessed based on each supplier's annual 'Fuel Mix Disclosure' to Ofgem.

As currently proposed, the RTFO is highly inconsistent with the treatment of electricity. For example, hydrogen from electrolysis used in transport is currently eligible for 'development' RTFCs, but battery electric cars are not. There are several issues to resolve in order to include renewable electricity used in cars:

1. **What renewable electricity should count towards RTFCs?** T&E favours using the grid average renewable content of electricity. Data are readily available that could be applied by the RTFO administrator without requiring any further evidence from the claiming entity. Whilst we recognise this doesn't send a signal to the market that electricity for EVs should ideally be renewable, 37.0% of the UK electricity mix in 2019/20 was renewable and between 60% and 100% of UK power will be renewable by 2030.
2. **Which entity should be eligible to claim reward?** T&E favours allowing the charge point operator (where there is a separate entity owning the charge point, which is usually the case for non-domestic charging). Providing support to charge point operators maximises the likelihood the credit will increase the supply of charge points.
3. **How to reward electricity use within the Energy Act?** T&E considers definitions in the Energy Act are sufficiently broad to allow the inclusion of electricity into the RTFO. The Energy Act states that a renewable transport fuel is a liquid, solid or gas. In doing so, the intention of the Act was to allow the broadest scope of renewable energy vectors to be included. Furthermore a charged battery is a form of solid fuel.

3. Recycled Carbon Fuels

With regard to **Question 3**, T&E has reservations about allowing Recycled Carbon Fuels (RCFs) to receive RTFCs, and does not support their inclusion. RCFs originate from all types of fossil waste, including plastic. Given efforts to increase recycling and waste reduction, it is potentially counterproductive to reward using these feedstocks: it may lead to less recycling and waste minimisation by creating value for the waste. The question on whether or not to include these fuels in the RTFO should be discussed only once clear sustainability rules have been implemented. Further information on this issue is detailed [here](#).

In 2021, the European Commission will present a series of delegated acts outlining a minimum GHG savings threshold, as well as a methodology to assess their GHG emissions, and will form a useful input to the criteria the UK will need to develop and adopt. It is essential that criteria for the inclusion of RCF respect the principle of circular economy and waste hierarchy. The UK should consider these proposals as part of its revisions to the RTFO, and specifically ensure that RTFCs are only issued for RCFs that:

- Meet a minimum 70% GHG saving compared to fossil fuel comparators and that the scheme avoids double-counting of emissions savings with other schemes (like emissions

trading). In undertaking the GHG saving assessment all stages of the lifecycle of the product should be accounted for.

- Are derived from feedstocks that are true wastes and residues, in line with the waste hierarchy and circular economy.

With regard to:

- **Question 4**, T&E believes only the bio-content of Municipal Solid Waste (MSW) should be eligible for RTFCs and fuel production. Ideally this should involve separate collection (as was required by the Waste Framework Directive as of 2023).
- **Question 5**, T&E is unable to respond in the time available, but would tend to favour a higher threshold of at least a third.
- **Question 6**, T&E is concerned that there are many different fuel types that could be produced from many different RCF feedstocks Feedstock should not be able to claim RTFCs if it is a lower carbon option to minimise its production rather than process into fuel. Therefore whilst we agree that only fuels that are categorised as ‘development fuels’ under the current RTFO could be eligible for support, not every feedstock should be eligible.

T&E would be in favour of supporting aviation fuel, but does not see the value of producing fuels meeting BS EN: 228 for petrol or BS EN: 590 for diesel as these vehicles will shift away from liquid fuels over time.

Substitute natural gas produced from the product of gasification or pyrolysis could be included, but hydrogen produced using carbon capture and sequestration (CCS) should be excluded. It will not be able to meet appropriate GHG saving criteria and there remains unquantified risks of CO₂ leakage from storage sites.

- **Question 7**, T&E believes the proposed criteria are too low and that 70% should be the minimum saving introduced initially; this would ideally rise in the incremental steps that are proposed in the consultation. Starting with a high criteria is essential to only encourage RCFs that can deliver a very high level of savings and will be used in aviation and shipping.
- **Question 8**, T&E does not agree with the proposed GHG emissions methodology to assess the GHG savings for recycled carbon fuels. The proposed counterfactual for calculating the GHG savings, energy recovery from waste is appropriate for today, but will quickly become

obsolete. It is widely accepted that as the economy decarbonises, waste to energy plants will need to incorporate carbon capture technologies. Given that RCF production at scale is unlikely until the late 2020's, future proofing the method should involve comparing emissions to a future plant that incorporates carbon capture technologies. To use a less robust criteria runs the risk of support for RFCs in transport when lower emissions would be achieved through an alternative waste disposal practice.

- **Questions 9**, insufficient analysis has been published to confirm or otherwise if the level of reward is appropriate.
- **Question 10**, there is insufficient time available in the shortened consultation period to comment on this question.

4. Hydrogen, RFNBOs and biohydrogen

RFNBOs

Renewable Fuels of Non-Biological Origin (RFNBOs) are expected to make a big contribution to reducing the climate impact of aviation and shipping in the future and T&E supports their inclusion in the RTFO. Details of T&E's recommendations on RTFBO are provided [here](#).

RFNBOs are only as green as the electricity used to produce them. T&E consider that RFNBO should achieve GHG savings **of at least 70%** compared to their fossil fuel equivalent to earn RTFCs and to meet this criteria will require a very high share of zero-emission renewable electricity (at least 80%). This can be achieved with a direct connection between the RFNBO production and the renewable energy source or when grid electricity is almost completely renewable.

Where the RFNBO production facilities are connected to a grid with a large share of non-renewable electricity, as in the UK at the present time, the renewable energy used needs to be produced from additional renewable sources and not divert existing renewables away from being used in other sectors. To meet this requirement, a RFNBO producer with a grid connection should be able to demonstrate a Power Purchase Agreement is in place for new and unsupported renewable electricity generation (**Question 12**). The Power Purchase Agreement should stipulate how the renewable power will match the demand profile of the RFNBO plant, ensuring e.g. that the electrolyser produces hydrogen only when the renewable power source is in operation, with full intraday matching (i.e. the 'temporal correlation' stipulated in the RED). To ensure a close link

between the RFNBO facility and the renewable energy generator, and avoid exacerbating existing grid congestion, the renewable energy source and the RFNBO production facility should be situated in the UK.

Guarantees of Origin are not an appropriate tool to ensure the sustainability of RFNBOs. They do not ensure additionality and also do not enable sufficiently detailed temporal correlation. Any Guarantees of Origin generated in the context of a PPA should be bundled and cancelled. This will avoid the risk of ‘double counting’ whereby renewable energy used in RFNBO production would also be counted towards achieving targets for renewables in other sectors. Guarantees of Origin should also not be allowed to help reduce the carbon intensity of the grid electricity used.

The greenhouse gas methodology for RFNBOs should explore how non-fossil circular sources of carbon (via Direct Air Capture - DAC) can be encouraged for the production of synthetic hydrocarbons like e-kerosene. **DAC** of CO₂ is the only source of carbon that is fully compatible with the UK’s stated target of becoming a net-zero economy by 2050. To scale up DAC technology and bring down its costs, a minimum quantity of DAC CO₂ must be used from the start in the production of liquid e-fuels, such as e-kerosene for aviation. In its provisions on RFNBOs, the RTFO should introduce a minimum target for 2030 and the share of carbon supplied by means of DAC must be gradually increased over the next decades.

In addition to the GHG savings requirements, the RTFO should include additional environmental and social criteria about **land use, water use and social impacts**. If the production of the RFNBO is outside the UK, the production facility should also improve access to clean energy for the local population and should handle both water and land impacts responsibly. Principles such as the free, prior and informed consent of the local population, environmental impact assessments and transparency about the size of hydrogen/e-fuels production and their local impacts need to be required. Further information is provided in a detailed briefing [here](#).

Initially limiting RFNBO imports into the UK to those cases where strict additionality (direct connection or almost 100% renewable grid electricity) can be guaranteed should be a significant first step.

The focus in the RTFO should be on renewable fuels and should not be extended to so-called ‘decarbonised’ or ‘low-carbon’ fuels (e.g. ‘blue’ hydrogen produced from fossil gas with Carbon Capture and Storage). The ‘low carbon’ status of fossil hydrogen depends on a number of optimistic assumptions about emissions throughout the full supply chain, in particular the issue of fugitive methane emissions and the capture rate of CO₂. More generally, proponents of this

option assume that this technology will be scaled up more quickly than renewable hydrogen. Despite huge amounts of [public spending](#), CCS technologies haven't really been taken up in the UK or EU.

T&E is not in favour of extending the PPA approach to curtailed renewables. If there is not sufficient grid capacity to transmit the electricity then it cannot, in theory, have been used for production of RFNBO.

T&E is not in favour of using regional or local carbon intensity figures, because of the risk that these GHG savings may be claimed by a production facility on a low GHG emission regional/local grid which have also been accounted for in the average national grid GHG intensity.

Concerning the questions posed:

- **Question 11:** the definition proposed (renewable energy that would not have been available to the grid in the absence of power demand from the RFNBO plant in question) is acceptable.
- **Question 12:** yes, the Administrator should be able to take into account the use of power purchase agreements (PPAs) as evidence that suppliers have purchased additional renewable energy in order to allow the renewable power generation to be located in a separate location from the RFNBO production facility. However the conditions stated in the early paragraphs should be respected.
- **Question 13:** we do not consider that it is appropriate for suppliers to use a grid average renewability - unless the country has an extremely low carbon intensity. In this way there is no risk of the renewable energy being accounted for more than once.
- **Question 14:** yes, appropriate adjustments should be made to the amount of renewable energy supplied to a RFNBO production facility to account for transmission losses where renewable energy is transferred over the electricity grid?
- **Question 15:** the proposal to use a 30-minute time period for temporal correlation of renewable energy production and use, in cases where renewable energy has been purchased and transmitted across the grid is considered to be appropriate.

- **Question 16 & 17:** No, the Administrator should not permit fuel suppliers to use local grid GHG emissions factors in RFNBO GHG emission calculations. T&E does not consider the risk of double counting acceptable.
- **Question 18:** With the limited time to respond to the consultation, it is not possible to consider whether DfT has captured all the additionality scenarios.

Biohydrogen

T&E is not supportive of the use of biohydrogen in transport. Biomethane has very limited availability and it is highly questionable why it should be used as a feedstock to make hydrogen when there are far better and lower carbon processes to do so. The limited amount of sustainable waste for biogas production should rather be targeted at displacing current uses of fossil gas, especially in heating. Further details are provided [here](#).

T&E considers the use of biomethane in steam reformation, or other processes, to be an attempt to create a pathway for the production of steam reformation with or without CCS. T&E strongly opposes this as we are not persuaded CO2 storage solutions are robust enough.

With respect to the questions asked:

- **Question 19,** T&E can accept biohydrogen produced from biomethane reformation be eligible for standard RTFCs because this is preferred over including it within the development fuel RTFCs system.
- **Question 20,** T&E believes it is premature to stipulate at this time that production of biohydrogen with CCS should be eligible for development fuel RTFCs. No such process exists, and until it does it is not possible to assess the effectiveness of the scheme.

5. Expansion of RTFO support to other transport modes

T&E is in favour of introducing support for RFNBOs for use in maritime under the RTFO. However, we do not agree with the proposal that fossil maritime fuels should be exempted from an RTFO obligation and are disappointed by the unclear and unexplained claim that the *industry is not suitable for a full-scale obligation*. Introducing an obligation would provide a driver for the supply of renewable fuels. This is outlined in Section 8.

T&E is also in favour of the proposal (**Question 21**) to make renewable fuel used in trains and construction vehicles powered by fuel cells eligible for support under the RTFO. We believe considerably more effort should be made to electrify railways, but that hydrogen may provide a limited power source for the parts of the railway that are highly unsuited to electrification.

Concerning the other questions:

- **Question 22:** T&E is doubtful that hydrogen will be an important power source for construction and other non-road vehicles, and believes RFNBOs will be more significant. However, we support the proposal that renewable fuel used in these vehicles - powered by fuel cells or RFNBOs - should be eligible for RTFCs.
- **Question 23:** We also support the proposal to amend the assessment time for hydrogen so that fuel supplied to commercial customers can also qualify for RTFCs. However, if these sectors can receive RTFCs they should also be obligated for fossil fuel use .

Aviation Obligation

Background

T&E believes the consultation has missed an opportunity by failing to include both a maritime and aviation obligation. Recent [research](#) for T&E shows it would be highly beneficial to do so.

Renewable fuel used in aviation (either as a replacement for kerosene or for aviation gasoline, ‘avgas’) can be rewarded under the RTFO. Emissions from international aviation and shipping have also been included in the 6th Carbon Budget - a step T&E [welcomed](#). Aviation emissions are also included in the UK-ETS, with a cap on emissions from aviation at 5% below the EU-ETS cap. The aviation industry, via International Civil Aviation Organisation (‘ICAO’), has committed to a Carbon Offsetting and Reduction Scheme for International Aviation (‘CORSIA’) with the goal to hold aviation’s carbon emissions at 2019 levels until 2035 (despite predicted growth). However, as the scheme does not immediately apply to the whole of international aviation, global emissions are likely to increase compared to 2019 levels regardless of the success of the scheme.

One of the key tools to reduce aviation emissions is a shift to sustainable aviation fuel (SAF) and in its [Decarbonisation Pathway](#) the UK’s aviation industry envisages 4.5 million tonnes of SAF being supplied in 2050: potentially helping reduce net aviation CO2 emissions by 32%. Whilst the current approach sends a clear signal to industry that the UK Government wants to support sustainable aviation fuel, by allowing aviation to receive RTFO credits without placing any

obligation upon the industry, it effectively transfers the cost of deploying renewable aviation fuels from airlines and passengers to road users. This is not consistent with the principle that the ‘polluter pays’, and is unlikely to be politically sustainable as the alternative aviation fuel market grows.

The European Union has recognised that it will be necessary to introduce some form of obligation on the aviation industry via its ReFuelEU initiative, part of the European Green Deal. Aviation consumes about 300 billion litres of jet fuel every year, and this consumption is set to increase even with action on climate change. That’s a potential global alternative aviation fuel market worth hundreds of billions of pounds, and policies that bring investment in novel renewable fuel technologies could make the UK a world leader in this key future market.

The Energy Act allows any liquid transport fuel to be obligated in an RTFO. As the current RTFO includes renewable fuels used in aviation, there is already a mechanism in place to monitor fuel volumes which could also be applied to fossil fuels. However, the Chicago Convention does however prohibit signatory states from charging taxes on fuel transported into a country in the fuel tanks of a plane. This limitation probably prevents the UK from imposing an obligation on fuel used by incoming flights, but NOT outgoing.

In its recent report for T&E, DCC & Ceruly suggest a clear signal is given that aviation fuel will be obligated within the RTFO, beginning with the main phase of CORSIA in 2024. T&E supports this approach. This date aligns with the point most observers expect the aviation industry to have recovered from the effect of the pandemic. Obligating through the RTFO would only require a relatively small number of fuel suppliers to be registered whose movement of fuel is already regulated by HMRC. The obligation should be placed upon all aviation fuel supplied in the UK, regardless of the end destination of the aircraft. thus reducing administrative complexity. Industry players' warnings that this may lead to an increase in the tankering of fuel (i.e. aircraft transporting the fuel needed for the return journey with them in order to avoid higher fuel charges) can be reduced by the UK government working with the EU.

Linked Obligations and Contract for Difference incentives

Investment for SAFs will need to be incentivised and this could be delivered by establishing a separate aviation obligation as part of the RTFO (something the [DCC & Ceruly report](#) suggests is entirely possible) and making only development fuels (or a similarly defined set of advanced renewable transport fuels) eligible. To encourage UK supplies, T&E supports the approach proposed by DCC & Ceruly of guaranteeing revenue through a Contract for Difference (CfD)

system within the RTFO. Under this system potential fuel producers would be awarded a CfD for specific projects which would provide a guaranteed minimum value per litre of qualifying fuel produced. If the revenue from fuel sales plus the value from the RTFO was below the level set in the CfD, the Government would make up the difference. We anticipate that these CfDs would operate within the existing framework provided by the RTFO to support development fuels – so that if the value delivered by development RTFCs was high enough to meet the minimum price, the Government would not have to make any payments. Designed in this way the CfDs offer a form of insurance against uncertainty in the value of development RTFCs (they provide an effective floor price on development RTFCs on a per project basis).

Advanced renewable transport fuel projects that were not successful in gaining a CfD could still compete in the development fuel market, but would be more exposed to low development RTFC prices. The prime feature of the proposed approach is that it addresses the issue which is most commonly cited as holding up deployment – delivering investor certainty. By complementing rather than replacing the development fuel targets under the RTFO, the proposed system would take advantage of the market orientated approach of the certification system in the RTFO to deliver value for taxpayers / consumers, whilst capping potential costs to consumers via the buy-out price.

The CfD system has been successful in delivering significant increases in renewable electricity in the UK, combining investor certainty with competition to win contracts to ensure best value for consumers. The proposed system differs from the UK electricity CfD in that it would act in parallel to a mandate, partly because the fuel market is not subject to the same kind of transparent pricing seen in electricity markets. In order to allow government to assess the expected revenue from advanced renewable transport fuel sales without creating a moral hazard by relying on self-reporting by fuel producers, we propose a change to the development RTFC market so that development RTFCs could not be sold directly between companies, but only via a government managed blind-auction system. This would add price-transparency to the development RTFC market. While we have assumed in describing the CfD system that the eligibility requirements for CfDs would be similar or identical to the development fuel eligibility definitions, in principle the regulatory structure we describe could support the deployment of any advanced renewable transport fuel.

The system described is intended to be an effective basis to support advanced renewable transport fuel deployment irrespective of the precise set of projects that are made eligible for support. Further details of the approach are provided in the [DCC & Ceruly main body of the report](#) with examples in Annex C.

If the complementary system of a development fuel mandate and CfDs that we have proposed above were introduced, it may be possible to successfully bring alternative aviation fuels to market within one development fuel obligation.

Maritime Obligation

UK shipping (domestic and international) emits 3.4% of the UK's GHG emissions (split 1% and 2.4% respectively) and the need to address these emissions is recognised by both the Government and the marine industry in the [Clean Maritime Plan](#). Fossil fuel used in 'inland waterways vessels and recreational craft when not at sea' is already obligated under the current RTFO as it falls within the scope of non-road mobile machinery. Any renewable fuel supplied to that sector is therefore eligible for reward. DfT does not distinguish between different 'non-road' end uses in its statistics and therefore it is not possible to say whether any such supply is occurring.

The inclusion of NRMM in the RTFO does not cover maritime end uses. Emissions from international shipping will be covered in UK carbon budgets from the 6th Carbon Budget. The conceptual issues facing maritime are very similar to those facing aviation described in Section 7, and this section only summarises the opportunity afforded by linking an obligation and the CfD scheme. As with aviation, any system that solely rewards the supply of renewable fuels within the existing RTFO risks cross subsidy from road vehicle users to the maritime sector users; and does not send a clear signal that the government will mandate the decarbonisation of this sector.

Whilst different technological solutions will apply in the maritime and aviation sectors the legal position is largely the same. The Energy Act defines fuel used for a transport purpose as including 'vessels', so maritime end uses could be included within an RTFO without any primary legislation changes. The government would only need to decide what the appropriate obligation / certification point should be. The current Energy Act structure in which the supplier of the fuel would be obligated would also be appropriate. Government should specify a date from which maritime fuels will be included in the RTFO and align this with aviation (2024).

The obligation should be placed upon all maritime fuel supplied in the UK, regardless of the end destination of the vessel. As this may lead to tankering of fuels into UK waters, the import of fuels in a vessel could be regarded as being 'supply' to the UK and hence obligated (unless that fuel was already obligated at the point it was loaded onto the vessel). Maritime fuel should be placed

under a separate obligation from the current RTFO, as proposed above for aviation. Linking to a CfD scheme would similarly incentivise UK production of sustainable maritime fuels.

6. Changes to sustainability criteria

The most effective way to tackle sustainability concerns of biofuels is to move away from crop-based biofuels towards advanced fuels. The UK crop-cap is one of the tightest in Europe, limiting supplies to 4% of all transport fuels and progressively falling to 2% by 2032. T&E would like to see this further tightened with a complete phase out well before 2030.

Sustainability criteria need to be fit for the new challenges posed by advanced biofuels. This means adding new binding criteria for removal rates for agricultural residues for biofuel feedstock to ensure soil quality, avoiding negative environmental impacts and limiting the type of forest biomass eligible to only 'secondary' biomass. This should be based on the specific characteristics at national/regional level, with a strong verification system. The RTFO should also be harmonised with the developments of EU legislation on forest protection and deforestation of products placed on the UK market and with relevant biodiversity strategies.

In terms of **GHG savings**, the current RTFO sets different GHG savings thresholds, depending on the starting dates of installations. T&E propose GHG savings from all advanced biofuels should be at least 70% from January 2021 onward, regardless of when the installations started operating. In addition, **the social impacts of biofuel** demand and production are not included in the RTFO. Binding criteria should be developed, not only for biofuels, but for all fuels, especially when produced outside the EU. This should include the respect of human and labour rights, as well as a requirement for Free Prior and Informed Consent of local populations. The European Commission recently presented a proposal for a battery law and requires companies to follow OECD guidelines to ensure human rights' protection¹. It is crucial to ensure that this question is not left out of the fuels debate.

T&E has the following detailed comments on the questions posed:

¹

https://www.transportenvironment.org/sites/te/files/Proposal_for_a_Regulation_on_batteries_and_waste_batteries.pdf

- **Question 24:** No comment. In the time available it is not possible to assess the merit of the revised default and disaggregated default values for calculating renewable fuel carbon intensity values under the RTFO.
- **Question 25:** T&E agrees with the proposal to remove the GHG emissions credit for cogeneration of electricity from the greenhouse gas saving methodology to prevent overstating the GHG emissions savings achieved by the finished fuel
- **Question 26:** T&E does not object to biomethane suppliers being able to apply a GHG emissions saving credit for avoided emissions when calculating the carbon intensity of biomethane produced from manure. However, we have doubts whether the 45gCO₂eq/MJ factor is correct. This is because it assumes the manure would have otherwise been spread: however there are other disposal pathways.
- **Question 27:** T&E agrees that when biomethane is created via the co-digestion of multiple feedstocks, the supplier should continue to be required to report the carbon intensity of each individual consignment. That is, the supplier should not be permitted to average the carbon intensities across feedstocks, in line with the mass balance rules which apply to other biofuels.
- **Question 28:** T&E agrees with the proposal to update the fossil fuel comparator from 83.8 gCO₂e/MJ to 94 gCO₂e/MJ to better reflect the real world GHG emissions associated with fossil fuels used in road transport. However our support is conditional on increasing the GHG saving thresholds so the impact is not to allow feedstocks that have too low savings to qualify for RTFCs.
- **Question 29:** T&E agrees the UK should update the minimum greenhouse gas saving thresholds to offset the impact of the revised fossil fuel comparator. It is essential to prevent support for renewable fuels which have worse GHG emissions than those supported now.

However, T&E disagrees with the levels of the new proposed GHG savings thresholds. We believe that these should have been increased as part of the extensive proposed changes to the RTFO and as a result the increases are not sufficient. Firstly, we believe there should no longer be a distinction between the GHG savings threshold for plants that started operating before and after 2015. Pre 2015 production plants will have paid off their

construction costs, and therefore older plants should now be required to upgrade their production practices. Secondly the minimum GHG saving should be 75%.

- **Question 30:** T&E is in favour of introducing a tighter GHG emission savings threshold for fuels produced in new production facilities in the future. We would propose a saving of at least 80%.
- **Question 31:** T&E is in favour of increasing the RFNBO GHG threshold, but believes this should be increased to 70% which is achievable with best practice.
- **Question 32:** T&E agrees with the proposal to add 'highly biodiverse forest and other wooded land which is species rich and not degraded' to the list of restricted land categories. We agree this will increase existing environmental protections and keep pace with international protections.
- **Question 33:** T&E disagrees with the proposal to continue to allow the production and harvesting of biofuel feedstocks from 'highly biodiverse forest and other wooded land' when it can be demonstrated that the production and harvesting of the feedstock from the land was completed without compromising the land type's nature protection purposes. We disagree because we do not have sufficient confidence in certification schemes or assessments of a sustainable yield and therefore suggest these special forests and wooded areas should be fully protected.
- **Question 34:** T&E accepts the alignment of the definition of highly biodiverse grasslands to maintain consistency with other land types, international definitions, and to facilitate the continued use of voluntary schemes.
- **Question 35:** T&E supports the proposal to require that suppliers of biofuels produced from agricultural residues must demonstrate that monitoring and management plans are in place. We agree these plans should address the impact of the removal and processing of the feedstock on the site's soil quality and soil carbon content that should not be diminished or undermined as a result of the removal.
- **Question 36 & 37:** T&E agrees with the proposal to introduce new sustainability criteria specifically for feedstocks sourced from forest biomass. Specifically the criteria should ensure:
 - The material has not been harvested from protected land areas

- The material has been legally harvested, and harvested in such a way that **all** negative impacts on soil quality and forest biodiversity have been **eliminated**
 - That areas that have been harvested are then regenerated; and
 - That management systems are in place at a national or forest sourcing area level to ensure that carbon stocks and sinks levels in the forest are maintained, or strengthened over the long term. We do **not** support the suggestion that changes in carbon stock associated with forest biomass harvest can be accounted for in submissions related to the country's commitment to reduce or limit greenhouse gas emissions under international agreements such as the 'Paris Agreement'. Rather such feedstocks should not earn RTFC certificates.
- **Question 38 & 39:** T&E opposes the proposed change to the crop-cap definition and believes energy crops should continue to count towards the crop cap. Energy crops still occupy land and contribute to ILUC. T&E also believes non-food cellulosic material and other lignocellulosic material, including crops such as miscanthus, are monocultures with little or no biodiversity value and should not be encouraged by the RTFO. T&E sees limited value from dedicated energy crops and believes the potential for these to be grown on degraded land is minimal. The hype and reality of jatropha, the supposed wonder crop that could be grown in degraded land, but actually delivered poor crop yields at these sites demonstrates the need for more realism caution.

8. Other issues

With respect to questions raised on other issues, T&E:

- **Question 40:** Agrees that the specified amount used in determining civil penalty amounts related to the main obligation, should change to twice the buy-out price. We agree with the reasoning described in the consultation.
- **Question 41:** Agrees RTFCs should only be awarded if there are no renewable fuel or chemical precursor benefits from other support schemes such as feed-in tariffs and premium payments.
- **Question 42:** Agrees there are some circumstances where support in addition to that offered by the RTFO might be appropriate. This consultation response has, for example, outlined one such proposal for CfDs to be used to provide a floor price for development

fuels. We agree that support such as investment aid, government grants or government loans should be exempted.

- **Question 43:** Has no response to this question.

Further information

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