

## **SUPPORTING RECYCLED CARBON FUELS THROUGH THE RTFO**

### **UKPIA RESPONSE**

#### **Criteria for eligibility**

Question 1: Do you agree or disagree that a principles-based approach should be taken to determining RCF feedstock eligibility?

#### **Agree**

A principles-based approach is the best option for determining RCF feedstock eligibility in an open and fair way, creating a level playing field in a technology neutral approach.

The approach however leads to a clear risk of regret investment should a plant be built using a particular feedstock that is later found to be ineligible, due to technology developments in other areas. This could mean that the original production facility, with a clear rationale for investment at the point of Final Investment Decision is no longer able to operate for reasons out with its control. While other feedstock options may be available, these may not be technically or financially possible (e.g. of a different nature to that on which the original plant was designed). This risk needs to be carefully considered and appropriate mitigations put in place as failure to do so will act as a disincentive for investment in RCFs.

We would therefore strongly request that a suitable grandfather mechanism be put in place to mitigate the investment risk for RCF investment. Such an approach has been put in place previously, including during the early years of the RTFO <sup>1</sup>.

Question 2: Do you agree or disagree with the proposed criteria? [Agree / Disagree / Don't know] Are there any additional criteria we should consider?

#### **Agree**

We agree that the criteria outlined are consistent with those in the Energy Act 2004 <sup>2</sup> and provide a robust framework to determine if feedstocks are truly waste material or not.

Given the rewards associated with RCFs, it may be difficult to escape the fact that RCFs may very well incentivise increased production of the waste in a real-world situation. While we recognise the intent of this principle, care must be given to how to apply it in practice.

There is a risk that making the criteria extremely restrictive will restrict the availability of feedstocks to such an extent that limited volumes of feedstock are realistically available.

We would strongly encourage the UK Government to follow the same approach and criteria as adopted with close international partners, most notably the EU through their development

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<sup>1</sup> <https://www.gov.uk/guidance/renewable-transport-fuels-obligation#legislation>

<sup>2</sup> <https://www.legislation.gov.uk/ukpga/2004/20/contents>

on the Renewable Energy Directive (RED) including RED III<sup>3</sup>. This includes the LCA approach undertaken in the analysis of the carbon emissions associated with RCFs<sup>4</sup>. This ensures a level playing field for RCFs and avoids any unintended consequences such as market distortions and the risk of poorly performing RCFs being attracted into the UK market.

Question 3: What is your preferred option for determining feedstock eligibility?

### **Option 1**

This option is consistent with the current practice for the assessment of biogenic wastes and is well understood by key stakeholders.

We recognise the length of time that the process could take due to the need for due diligence and investigations; however, the approval process will, on average, be quicker in Option 1 compared to Option 2.

Finally, we would strongly recommend streamlining the approval process as far as possible and ensuring there is sufficient, and suitable, resource available within the DfT Low Carbon Fuels team to carry out the assessments in a timely manner.

Question 4: What is your preferred option for the minimum biogenic content requirement?

### **Option 1**

The approach of Option 1 offers better inherent flexibility than option 2 recognising that the administrator may opt to require a minimum level in specific circumstances, for example Municipal Solid Waste (MSW).

Whether a waste stream containing biogenic material is suitable for RCF manufacture and whether this waste stream is suitable for recycling depends on each specific waste stream. The principles applied by the DfT will protect the waste hierarchy by approving and defining each waste stream individually. In many cases it will not be relevant if there is biogenic contamination or not. However, these need to be discussed with the counterparty on a case-by-case basis in order to prevent any perverse incentives or consequences.

Finally, as we indicate in our response to Q1, we strongly request that a suitable grandfather mechanism be put in place to mitigate the investment risk for RCF investment, including the outcome of any discussions on minimum biogenic content.

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<sup>3</sup> [https://ec.europa.eu/info/sites/default/files/amendment-renewable-energy-directive-2030-climate-target-with-annexes\\_en.pdf](https://ec.europa.eu/info/sites/default/files/amendment-renewable-energy-directive-2030-climate-target-with-annexes_en.pdf)

<sup>4</sup> [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12713-Renewable-energy-method-for-assessing-greenhouse-gas-emission-savings-for-certain-fuels\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12713-Renewable-energy-method-for-assessing-greenhouse-gas-emission-savings-for-certain-fuels_en)

UKPIA believes that sufficient safeguards are in place with the revised eligibility criteria to prevent any unintended consequences.

### **Ensuring that recycled carbon fuels are sustainable**

Question 5: Do you agree or disagree with the proposed approach for determining the counterfactual to be used?

#### **Agree**

This seems the most pragmatic approach and we concur that Option 3 hugely increases the administrative burden for little policy gain.

This is a hugely complex area and evolving area, that must be carefully managed in order to avoid creating perverse incentives, while managing the administrative burden for suppliers.

We note the moratorium on new energy from waste plants, including in Scotland <sup>5</sup> and request that this continues to be reviewed to ensure that Electricity from Waste continues to remain the appropriate counterfactual in the future.

Question 6: Do you agree or disagree that the grid average emissions factors for the most recent available year (i.e. the year preceding the year in which the RCF is supplied) should be used as the emissions factor for the displaced energy in the counterfactual?

#### **Agree**

This would seem to be the most pragmatic approach given available data to ensure the policy intent whilst managing the administrative burden.

Question 7: Do you agree or disagree that the Efe factor for EfW (electricity only) counterfactual should be taken as 22%? [Agree / Disagree / Don't know]

#### **Agree**

Whilst UKPIA have limited expertise in this area, the approach taken seems to be realistic and based on both the widely applicable R1 standard and the best available operating data from the Tolvik 2020 EfW statistics.

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<sup>5</sup> <https://www.bbc.co.uk/news/uk-scotland-scotland-politics-61825698>

Question 8: Do you agree or disagree with the proposed methodology for dealing with processing emissions and coproducts?

### Agree

The proposed methodology is consistent with the current GHG methodology for biofuels <sup>6</sup>, which has been successfully applied for many years. It is well understood by participants and provides a pragmatic approach.

### Supporting Recycled Carbon Fuels through the Renewable Transport Fuel Obligation

Question 9: What is your preferred option for the GHG emission savings threshold? [Option 1 / Option 2 / Don't know] Please justify your answer and provide supporting evidence where available.

### Option 2

This provides consistency with the approach taken for other low carbon fuels, allowing RCFs to compete on a level playing field while encouraging early adoption. It also provides certainty for producers and investors on the required trajectory to 2032. The same GHG threshold should be applied to all low carbon fuels, whether they are derived from fossil or biogenic sources

Option 1 is not technology neutral in this regard, and overly penalises RCFs compared to other low carbon fuels.

It may be appropriate to carry out a review of the progress of grid electricity decarbonisation and review the trajectory under Option 2 should decarbonisation not progress as planned.

As we indicate in our response to Q3, there needs to be consistency of approach in methodology assessment, particularly with international competitors such as the EU (including the developing RED III methodology). This ensures a level playing field and prevents unintended consequences such as either a failure to attract RCFs, or poorly performing RCFs coming into the UK.

We also note the discrepancy in fossil fuel comparator between that proposed in the RCF consultation (94 gCO<sub>2</sub>/MJ) and that proposed in the recent SAF Consultation <sup>7</sup> (89 gCO<sub>2</sub>/MJ) and would ask that a harmonised comparator be used in both the RTFO and the SAF mandate based on a sound technical basis.

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<sup>6</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1042787/renewable-transport-fuel-obligation-compliance-guidance.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1042787/renewable-transport-fuel-obligation-compliance-guidance.pdf)

<sup>7</sup> <https://www.gov.uk/government/consultations/mandating-the-use-of-sustainable-aviation-fuels-in-the-uk>

Question 10: Do you agree or disagree that the reporting and verification requirements for RCFs should be aligned with renewable fuels currently supported under the RTFO?

### **Agree**

The reporting and verification requirements are well understood by stakeholders and have worked well.

Requiring RCFs to follow the same approach creates a level playing field with other low carbon fuels and does not create a new administrative process.

Question 11: Do you agree or disagree that RCF suppliers should be required to demonstrate compliance with the 'sustainable waste management criteria'?

### **Agree**

Whilst UK produced RCFs would naturally comply with the sustainable waste management criteria, producers from other countries should also be required to comply with the same minimum criteria. This creates a level playing field for RCFs that are produced both within, and from without the UK and ensures that appropriate RCFs are used in the UK.

The level playing field is further enhanced by applying the same criteria to demonstrate compliance as for other low carbon fuels under the RTFO.

### **Rewarding the supply of RCFs**

Question 12: Do you agree or disagree with our proposal that all RCFs should be awarded 0.5 dRTFCs per litre of fuel supplied? [Agree / Disagree / Don't know] Please provide evidence to support your reasoning for a higher or lower level of reward.

### **Disagree**

The consultation recognises that RCFs may be produced from a feedstock containing a mixture of biogenic, and fossil components.

The analysis carried out suggests that this incentive should be sufficient to incentivise RCF production at the expense of landfill, but not at the expense of recycled plastic, which is consistent with the policy objectives. However, there are concerns that the proposal could be too low for processing of RCFs to be viable for the following reasons

- It ignores the cost of converting the fossil feedstock into a fuel. Capital and operating costs for gasification or pyrolysis processes are very high. It costs a lot more to generate a dRTFC compared to selling the plastic for recycling.

- The plastic prices quotes are out of date and ignore the recent increases in recyclable plastic material because the UK and EU plastic taxes and ESG commitment of consumer good companies.

The incentives should be kept under regular review to ensure that RCFs continue to be incentivised over time, providing certainty for investment.

We would also strongly recommend that a review of the development fuel targets be carried out after a reasonable period (for example 5 years) RCFs are included in the RTFO mechanism. This ensures that the targets remain fit for purpose and provide the appropriate incentives once the supply of RCFs have become established in the UK.

The incentivisation of RCFs in the RTFO (including the development fuel sub-target should also be kept under review as legislation in other international competitors, notably the EU is developed. This ensures a level playing field and prevents unintended consequences such as a failure to attract RCFs into the UK.

### **Annex B: Summary of analysis**

Question B1: Do you agree or disagree that the assumptions made in modelling the RCF counterfactual emissions are reasonable?

#### **Agree**

The assumptions are in line with published data and the 2019 E4 Tech report.

However, we would also highlight that RCFs and their feedstocks can also leave the UK, and this must be taken into account in the analysis.

Question B2: Do you agree or disagree that the assumptions made in modelling how the GHG emissions from RCFs will change over time are reasonable? [Agree / Disagree / Don't know]  
Please give reasoning for your answer.

#### **Disagree**

While the analysis uses published data, it disregards the lifecycle GHG emissions associated with the production of RCFs. For example, the GHG emissions associated with catalyst manufacturing and processing need to be considered carefully as these may be significantly higher for RCF manufacture rather than their fossil equivalent due to the more intense nature of the processing involved.

We would also strongly recommend that a review date of the RCF GHG emissions be carried out once they are established in the market, to ensure that the policy remains robust and provides appropriate GHG savings.

Question B3: Do you agree or disagree that the assumptions made in modelling the impact of different RCF reward rates are reasonable? [Agree / Disagree / Don't know] Please give reasoning for your answer.

### **Disagree**

The maximum allowable density of BS EN 590 is 845 kg/m<sup>3</sup>, not 850 kg/m<sup>3</sup> as outlined in Annex B

The highest development fuel buy-out price assumed is the current buy-out, at 80p per dRTFC as suppliers would choose to buy-out rather than pay the additional cost. However, there may be additional factors such as blending margin, and company reputation, that suppliers may choose to consider when blending RCFs.

Historically, buy-out prices have tended to increase, rather than decrease. This reflects the higher cost of low carbon fuels relative to their fossil equivalents, as demand increases. We would therefore recommend a sensitivity be carried out at a higher dRTFC cost, rather than a lower one.

We have identified a potential issue with the analysis; in particular the options available to a plastic owner, who can:

- Sell it for recycling at a given value <sup>8</sup> for current values.
- Convert it into a fuel and sell it to earn dRTFC. However, there is significant cost in doing this. The analysis ignores the cost of fuel production – which would be partially offset by the value of the fuel. In addition, it ignores the large increase in the value of recyclable plastic.

And would ask that this issue be addressed, and the analysis updated appropriately.

### **Annex C: Cost-benefit analysis**

Question C1: Do you agree or disagree that the assumptions made in the cost-benefit analysis are reasonable? Please give reasoning for your answer.

### **Agree**

We agree that the maximum costs of RCFs are likely to be the lower of the associated buy-out cost or the cost of supplying RCFs, as suppliers would choose to buy out if the RCF costs exceeded this (the key point being that the cost to consumers has already been applied through the application of the development fuel target and buy-out)

The buy-out price needs to be regularly reviewed to ensure that it continues to incentivise the production of RCFs in an appropriate way, particularly if 0.5 dRTFCs are issued per litre of RCFs as this may not be sufficient (please see our response to Q12).

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<sup>8</sup> [www.letsrecycle.com](http://www.letsrecycle.com)

Question C2: Do you have any evidence on the estimated costs of producing RCFs?

We would also like to take this opportunity to provide information on Phase 1 of a recent study into a Technology and Economic assessment on turning wastes into products <sup>9</sup>.

The Energy Institute and Concawe commissioned E4tech to conduct a technical analysis of waste-to-products (WTP) technologies that could be integrated within the European refining system in the 2030 and 2050 timeframe.

The study built upon the findings of the Concawe 2050 <sup>10</sup> study, but considers a different set of feedstocks, namely wastes. It explores specific types of wastes and looks at what could be the most attractive use of them considering pathways within (Phase 1) and outside (Phase 2) the refining sector. More specifically, this project considered which technologies could be integrated into the refining supply chain in order to process the wastes in scope (Phase 1) and what the alternative/competing uses of these wastes could be outside the refinery supply chain (Phase 2).

Four waste-to-fuel (WTF) pathways were selected for examination, being focused on non-agricultural/forestry residues:

- Mixed plastic waste > pyrolysis to pyrolysis oil > refining
- Sewage sludge > hydrothermal liquefaction (HTL) to HTL oil > refining
- Mixed residual waste (MRW) > gasification to Fischer-Tropsch (FT)-wax > refining
- Municipal biowaste (including food and garden waste) > anaerobic digestion (AD) to biogas, to bioCH<sub>4</sub>, to FT-wax > refining

Phase 1 has just been concluded, with the main findings provided in the report. The project will now move into Phase 2, considering these conclusions to provide further information.

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<sup>9</sup> <https://www.concawe.eu/wp-content/uploads/Waste-to-products-technology-and-economic-assessment-phase-1.pdf>

<sup>10</sup> <https://www.concawe.eu/wp-content/uploads/Sustainable-Biomass-Availability-in-the-EU-Part-I-and-II-final-version.pdf>