

RTFA response to the SAF mandate Consultations

The Renewable Transport Fuel Association was formed in 2020, to create a strong voice for the interests of renewable and low carbon fuels.

The RTFA's membership has interests across both aviation and road transport. It includes all the prospective SAF project developers known (to us) and most of the companies shortlisted for the Green Future Green Skies Competition, as well as all the UK's biodiesel and bioethanol manufacturers, and biomethane suppliers. A full list of members is appended to this submission.

RTFA general principles

- The RTFA subscribes to evidence-based policy making, taking into account the full life cycle impacts of technology and fuel choices.
- The RTFA subscribes to the principle of being technology / fuel neutral – encouraging long-term policy measures which focus on the objectives sought, enabling innovation, and letting the market play out.
- Carbon emissions need to come down rapidly, and overall carbon budgets are important. The sooner action is taken, the less dramatic later carbon saving measures need to be. The RTFA recognises that some fuels, in some applications, may only have a transitional role in the journey to net zero. However, our focus is on driving forward the achievement of nearer-term decarbonisation goals, and welcoming (but not over-focusing on) more distant policy objectives.
- The RTFA will acknowledge where solutions are not perfect.
- We welcome the opportunity to respond to this consultation.

Key points

- A UK SAF mandate is welcome but is not enough on its own to stimulate domestic production of SAF. A programme of Contracts for Difference (CfDs), must operate in parallel¹.
- A SAF mandate should come into effect **after** the CfD programme has become operational and production of SAF from supported projects has begun. In the early days of the mandate, the obligation should ramp up in line with output from CfDs.
- A SAF incentive must avoid forcing a diversion of feedstocks away from existing waste-biodiesel investments and into SAF. This does not preclude incentivising the uptake of lipid-based HEFA under a mechanism that supports a level playing field and market competition.
- We support a GHG-based mechanism for the SAF mandate.
- With respect to sustainability requirements and administrative procedures, the SAF mandate should be as closely aligned to the RTFO as possible
- We also encourage as much alignment with EU policies for encouraging the decarbonisation of aviation as possible.

¹ The RTFA was involved in initiating a consultancy project, being taken forward under the auspices of Sustainable Aviation, to develop the CfD proposal, and have facilitated our members' input into that work.

The Consultation Questions

A greenhouse gas emissions scheme to reduce the carbon intensity of jet fuel

1. Do you agree or disagree that a SAF mandate should be introduced in the UK?

We agree.

A mandate for SAF is an effective means of creating demand for the consumption of this fuel for the purposes of decarbonising aviation in the UK. However, the Government needs to decide between two competing approaches, both of which have merit.

1. Does it want to achieve the decarbonisation of aviation via the cheapest means possible, irrespective of where the fuel is produced, and rely on other countries to develop the strategically-important, longer term fuel production pathways?

or

2. Does it want to encourage a sustainable domestic SAF industry, alongside achieving GHG targets?

Meeting the first objective can be achieved by a simple mandate, ideally without complexities such as caps, sub-targets and / or multipliers. Such refinements will not deliver bankable projects, and Government must be under no illusion that it will succeed in establishing domestic SAF production by going down this route.

The second objective can only be met if a price support mechanism, such as a programme of CfDs, is introduced alongside the mandate.

This dichotomy is so fundamental that we have had to frame many of the answers to this consultation in an either / or format. One answer for a SAF mandate with a complementary CfD programme and the other for a SAF mandate in the absence of CfDs.

For clarity, we strongly favour approach number two. As well as enabling the UK economy to benefit from the added value and balance of trade benefits inherent in producing rather than importing SAF, there are also benefits in terms of

- improved energy security,
- better adherence to the proximity principle (as we will deal with more of our waste locally), and
- the co-production of biopropane (a valued renewable fuel for heating and transport applications in other sectors).

2. Do you agree or disagree that an obligation to supply SAF in the UK should sit outside the RTFO?

Agree.

At the moment the development fuels sub-target of the RTFO creates an incentive for aviation fuels made from wastes and RFNBOs, however the RTFO does not place any obligation on the suppliers of aviation fuel and the costs fall on the motorist. It is therefore appropriate to have the SAF mandate outside of the RTFO, (and once implemented, remove aviation fuel from the list of eligible development fuels (as per answer to Q 28)).

For the longer term we can see merits in an overarching Transport Fuel Obligation, covering land air and sea (road, aviation and maritime) see answer to Q 10).

3. Do you agree or disagree that a GHG emissions scheme based on tradable credits should be preferable to a fuel volume scheme when designing a SAF mandate?

We agree that a GHG scheme is preferable, as:

- it is most closely aligned to the ultimate objective, which is to reduce GHG emissions
- it gives a better incentive with respect to plant design and operation (and encourages continuous improvement in operation)
- it reduces (and arguably eliminates) the need for GHG thresholds for qualifying fuels, the existence of which can distort or create perverse incentives
- it is aligned with the UK ETS and CORSIA
- it enables the benefits of negative GHG fuel to be realised

4. Do you agree or disagree that the proposed SAF mandate obligation should be placed on fuel suppliers that supply aviation fuel (avtur) to the UK?

Agree.

5. Should the obligation apply to all avtur supplied into the UK, regardless of whether this is subject to fuel duty or not?

Yes.

6. If the obligation applies to all avtur supplied into the UK, should there be a threshold below which fuel is not obligated, in a certain obligated period? Should this threshold distinguish between dutiable and non-dutiable fuel?

We do not see the need for a threshold. Generally speaking (pandemic aside), general aviation (i.e. private flights) is a profitable market and the burden should not be excessive, indeed some of the smallest fuel customers may even be best able to pay. (We are assuming that the physical chain of custody extends only to the assessment point (Q7 below), so there is no need to ensure the physical flow of SAF to every small airport).

7. Where do you think the assessment point should be placed for jet fuel not subject to fuel duty, and how is this going to affect the definition of the proposed obligated party (aviation fuel suppliers to the UK)?

It would seem logical to make the assessment point for SAF consistent with the existing aviation fuel quality certification process defined by DEF STAN 91-091 Issue 11. According to this MoD standard, aviation fuel quality assurance is based on two key concepts: batches and traceability.

A batch of fuel is defined as a distinct quantity of jet fuel that can be characterised by one set of test results. This assessment point is either at the point of manufacture or at the point of blending including the blending of SAF. The manufacturer or blender shall issue a Certificate of Quality to certify that the batch of fuel complies with all the requirements of the standard and it is at this point where the batch should be assessed under the SAF obligation for supply into the UK aviation fuel market. If the manufacturing or blending takes place outside of the UK then the point of import should become the assessment point and the supplier of aviation fuel on the UK side of the import becomes the obligated party. Documentation shall be provided by the supplier to the purchaser to show that the fuel meets the requirements of both the quality standard and the SAF mandate and demonstrates traceability to the point of manufacture or blending. In addition to the test requirements, the quality standard also contains requirements for how the fuel shall be handled and documented in the distribution chain. Further guidance on manufacture and distribution of jet fuel may be found in the industry Standard EI/JIG 1530.

Fuel eligibility and sustainability criteria

8. Do you agree or disagree that only certified SAF that meets the DEF STAN 91-091 specification should be eligible under the proposed SAF mandate?

We agree with the general intention here, but the specific wording is not right. What is produced in SAF plants is Synthesized Paraffinic Kerosene, SPK, which needs to be consistent with both the pathways permitted and the characteristics specified by ASTM D7566. SPK is then blended (up to a pathway-specific limit prescribed in ASTM D7566) into Jet A-1 to produce a blend which meets the DEF STAN 91-091 specification.

See the following quote from IATA guidelines:

“To be acceptable to Civil Aviation Authorities aviation turbine fuel must meet strict chemical and physical criteria. There exist several specifications that authorities refer to when describing acceptable conventional jet fuel such as ASTM D1655 and Def Stan 91-91. At the time of issue of this document, different types of blends have been found to be acceptable for use under these specifications, but must first be certified under ASTM D7566. Once the blend has demonstrated compliance with the relevant product specifications, it may be regarded as equivalent to conventional jet fuel certified under ASTM D1655.”²

Any SAF that meets the ASTM D7566 standard should be eligible (subject to sustainability criteria as discussed below) provided that it is then blended to meet the DEF STAN 91-091 specification for Jet A-1 to be sold in the UK.

9. Do you agree or disagree with the sustainability criteria set out here? If you do not agree, what alternative or additional criteria would you recommend?

We broadly agree, but with the following caveats:

- We do not see the need for a threshold of carbon intensity were a GHG-based mandate to be introduced (see Q12).
- Nuclear and renewable electricity should be treated similarly, i.e. if SAF production must not direct renewable electricity away from existing applications, then neither should it direct nuclear electricity away from existing applications.
- The position on renewable electricity for RFNBOs may need refinement. In any event the rules should be aligned with the RTFO in this respect.
- Paragraph 3.10 states “Where hydrogen is used as a process input, the hydrogen must be low carbon”; we agree with this but believe that the definition of “low carbon” needs to be on a level playing field with other uses of hydrogen.
- The list of feedstocks should be expanded to include non-food / non-feed C5 and 6 hemi-cellulosic waste. The reasoning for this is given in Appendix 1.

10. Do you agree or disagree with the feedstocks set out here and listed in Annex B? If you do not agree, what alternative or additional feedstock(s) would you recommend?

We broadly agree with the feedstocks proposed, at least initially, but see below. However feedstock *availability* will change over time, with decarbonisation of road transport.

The challenge is how to achieve the following objectives;

² IATA Guidance Material for Sustainable Aviation Fuel Management 2nd Edition. 2015. <https://www.iata.org/contentassets/d13875e9ed784f75bac90f000760e998/iata20guidance20material20for20saf.pdf>

1. To enable non-HEFA SAF production pathways to be established
2. To increase the rate of decarbonisation of road transport, while decarbonising aviation, without creating perverse incentives to favour one over the other. We certainly would not want existing investments in UK biofuel production facilities undermined by having their feedstocks diverted
3. To maximise the overall contribution of biogenic feedstocks and enable them to transition from use in road transport fuel to aviation fuel, in line with progress on electrification
4. To bring on RFNBO SAF production as required

A SAF mandate with a CfD programme

The challenge is achievable if the mandate is complemented by a CfD programme to support the strategically-important non-HEFA SAF fuels. The CfD supported projects would produce the lowest priced fuel (to the airlines) as airlines would expect to pay the reference price for the fuel. However in order to not to create perverse incentives (point 2 above) is particularly important to maintain alignment and parity between the RTFO and SAF mandate, so that feedstocks can be used where they deliver best carbon savings.

A simple SAF mandate with a CfD programme would simultaneously lead to the production of the cheapest non-HEFA/non crop-based aviation fuel projects (through competitive bidding rounds) as well as allowing the mandate to be met by the cheapest fuels (through normal market competition).

A SAF mandate in the absence of a CfD programme

This scenario would favour HEFA as it is the only established production process for SAF at present. This HEFA would be likely to be imported, and risks diverting lipid feedstocks away from land-based transport. A cap would inevitably be set at an arbitrary level, would need to change over time, and might partly limit – but would not solve - the problem. It would be difficult to predict in advance, and having a moving cap in a tradeable mechanism is far from ideal.

Other comments on feedstocks

As well as expanding the list of eligible feedstocks to include non-food / non-feed C5 and 6 hemi-cellulosic waste (see Appendix 1) there is also a role for first generation ethanol in aviation fuel production in the longer run (see Appendix 2).

We particularly welcome the inclusion of Recycled Carbon Fuels – this is an important contributor to the volume of suitable feedstocks available for SAF. It is important that their contribution is fully valued in proportion to the carbon savings they can deliver (taking into account suitable counterfactuals); without this, many waste-based plants could be unviable.

11. Do you agree or disagree that the baseline lifecycle carbon intensity for aviation fuels for reporting purposes under a UK SAF mandate should be 89 gCO₂e/MJ? If you do not agree, what should the baseline emission be and/or how should it be calculated?

Agree. This is intrinsically linked to the next few questions below.

12. What should the minimum carbon intensity reduction SAF will need to meet be (subject to the final GHG methodology used)?

With a GHG-based scheme and the feedstock eligibility proposed, a GHG threshold would not be necessary and on principle we would not recommend one. Introducing an arbitrary threshold introduces the risk of distortion or perverse incentives. As the proposed biomass feedstocks eligible for the SAF mandate are wastes the GHG savings are already likely to be significant, and the market will naturally seek the higher GHG saving fuels as these would deliver most value. With respect to RFNBOs, achieving a significant enough GHG saving can be achieved by specifying the nature of the electricity regarded as eligible for their production.

If at a later stage crop-based ethanol were to be made eligible a GHG threshold should be considered.

13. Are there any land use (direct or indirect) or other implications associated with the feedstocks set out earlier that we should reflect in the eligibility criteria and minimum GHG threshold?

We are not aware of any.

14. As more CCUS becomes available and the carbon intensity of fuels can decrease further, should the envisaged minimum carbon emissions intensity threshold be raised up over time?

As we don't support a threshold, this is not relevant.

15. What GHG methodology should be used to calculate the carbon intensity of fuel?

We recommend using the RTFO methodology, and as mentioned in the opening remarks as a general principle the two should remain as closely aligned as possible.

16. How should the GHG methodology vary to take into consideration the different fuels, feedstocks, power sources and production pathways?

It should be aligned with the RTFO methodology. We note, however, that there are some remaining concerns relating to the RTFO methodology, including the treatment of input electricity for RFNBOs and various aspects relating to Recycled Carbon Fuels. The Government has yet to publish its decisions on the former, and will be consulting further on the latter.

17. Do you agree or disagree that SAF that does not meet the proposed eligibility and sustainability criteria should incur an obligation?

Agree.

Overarching trajectory

18. Do you agree or disagree that a SAF mandate should start in 2025?

This depends on how fast a CfD programme can be put in place. We understand from the CfD consultancy project referred to earlier in this response that it would be unlikely that the first CfDs could be allocated before 2023. If they were available in early 2023, then projects should be able to commence operation at the very earliest by 2025, but more likely 2026.

A SAF mandate with a CfD programme

In order for the UK to benefit from domestic production, CfDs must be available in a timely manner for the commissioning of production capacity. A great deal needs to happen for this to be a reality, including a consultation on a price support mechanism, the second SAF mandate consultation, the passing of secondary legislation and setting up the necessary administrative processes. The DfT must signal its intentions with respect to embarking on this trajectory as soon as possible, in order that project development companies retain investor interest and build momentum. For production to commence in 2025, the final investment decisions for SAF plant would need to be taken in 2023. The regulations for CfDs must therefore be in place by the end of 2022 so that the contracts themselves can be let in 2023. The timing of the introduction of the mandate should coincide with the CfD timetable.

A SAF mandate in the absence of a CfD programme

If there is to be no CfD programme, the SAF mandate may as well start in 2025. Such a mandate will not bring forward domestic production of SAF, and will pull in imports of HEFA with all the downsides of this that are described earlier.

19. Do you agree or disagree that the targets should assume a linear growth up to 2035 and an exponential growth after 2035?

Agree in principle, but it does require consideration of feedstock constraints as discussed earlier. Power to liquids fuels are almost certainly necessary in order to achieve the higher ambition scenarios. However, it makes sense to initially fulfil the mandate with sustainable bio and recycled carbon fuels, given their inherent cost and energy advantage compared to e-fuels.

20. What scenario do you think represents the best trade-off between ambition and deliverability? What evidence can you provide to support your position?

A SAF mandate with a CfD programme

This approach directly links delivery with ambition. The targets could rise to at least accommodate output from CfD projects, in the expectation that HEFA-based SAF will be the next marginal fuel brought in. Another advantage of a concurrent CfD programme is that the timing can be flexed according to the rate at which technologies mature.

However, none of the scenarios are ambitious enough in the early years (if we assume a linear ramp-up from 0.5% in 2025 to the 2030 level). The first round of CfDs could result in 200-300 kT of production capacity (representing 1.6-2.4% of demand). This could be in place in the UK by 2026, therefore the mandate should be at least at that level.

It is reasonable to suppose that the capacity would more than double between 2026 and 2030, as that gives time for each of the developers of the first set of plants to add another of the same type, and we can expect there to be some additional first-of-a-kind plants in that time as well. Therefore Scenario D makes sense for 2030, covering a realistic growth of domestic supply and allowing for some imports.

After 2030, a significant factor in the growth of the industry will be feedstock availability; this will interface with other areas of government policy, such as the rate of electrification of road transport. Another factor governing the availability of feedstock is the permitting of waste incineration plants, and their treatment under UK ETS. This should recognise the superior GHG reductions available if that waste is used to make jet fuel – once the latter route is established. This will then ensure additional feedstock to contribute to the growth trajectory. Similarly, we expect e-fuels (made from CO₂ using renewable power) to make a big contribution (eventually perhaps a dominant one) to SAF supply, but the speed of growth of this will be governed by the development of electricity generation and transmission capacity, and by other demands for that electricity. Given the inherent energy intensity of e-fuel production, its costs will always be greater than that of most renewable biofuels. It makes sense to meet the obligation at the lowest cost and therefore it would be anticipated that it is met preferentially by sustainable biofuels and RCFs, with ramping up when required.

Broadly we would support scenarios towards the upper end of the range (C-E) after 2030, but with the caveat that their achievability will depend upon factors outside the control of the fuels industry.

Comparing the volume and GHG scenarios in 4.4 and 4.12, the average GHG saving (% CO₂ saving / % by volume) appears to rise and then fall again in each scenario. We are not sure of the reason for this. We believe an assumption of around 70% reduction per unit of fuel, applied to the volumes above, would be a reasonable basis for setting the GHG mandate level in the early years, although some projects will achieve over 100%. Towards 2050 when the grid has decarbonised and power-to-liquids plays a bigger role, we would expect the average reduction to rise towards 90% (there will still be legacy projects by that time).

A SAF mandate in the absence of a CfD programme

If there were no CfD programme, we would expect the mandate to be met with imports, certainly in the early years. It is difficult for the RTFA to recommend specific targets in these circumstances. It is clear that there is some risk of diversion of HEFA feedstocks from other uses, with little or no GHG benefit, but difficult to assess the level at which this becomes significant.

Attempting to bring in sources of SAF other than HEFA by virtue of the design of the mandate (e.g. caps, sub-targets, multipliers) creates a risk that some forms of SAF could be over-rewarded and whilst others are insufficiently incentivised.

Conversely, there is also a risk of shortage of supply, therefore having a buy-out to limit the cost to consumers, takes some of the pressure off the mandate system and makes it easier to be ambitious without harmful consequences in terms of cost to consumer.

21. Do you agree or disagree that we should include review points in 2030 and 2040, depending on initial mandate levels?

A SAF mandate with a CfD programme

If a CfD programme is run alongside the mandate then each round of allocation is effectively an opportunity to review progress, and to structure the round accordingly (in terms of numbers of projects supported, technologies supported, eligible feedstocks etc).

A SAF mandate in the absence of a CfD programme

Review points become more important without the benefit of a CfD programme, as the mandate should aim to cater for changing circumstances, in particular the rate of decarbonisation of road transport. Reviews could be triggered when diesel consumption for road transport has decreased by certain amounts. However, for the sake of simplicity, we would suggest simply setting dates for review points. If progress in other areas of decarbonisation has progressed more slowly (or

rapidly) a review can always be delayed or advanced, (in which case significant advance warning of the change of review date should be given).

22. Should the amount of HEFA that can be claimed under the SAF mandate be capped over time? If this is the case, how could the cap work in practice, given the scheme will be based on carbon emissions savings? How should the cap be calculated?

We do not support having a cap on HEFA in the SAF mandate. However, we would not want to see feedstocks pulled away from current pathways in decarbonising road transport and undermining existing investments. This supports the argument for parity with the RTFO in terms of reward levels, otherwise this would harm the UK biodiesel industry. This is challenging with having the RTFO on a volume basis and the SAF mandate based on GHG savings. We therefore see reinstating the GHG savings regulations which operated alongside the RTFO during 2019 and 2020 as a key part of ensuring parity, and ensuring that the highest GHG saving materials are not drawn away from road and into aviation/the EU. With the entire EU going down the route of a GHG basis for procuring its renewable energy, the danger of the UK becoming the most attractive venue for low GHG saving fuels and feedstocks becomes an even greater concern.

A SAF mandate with a CfD programme

As explained earlier, a HEFA cap is not necessary with a CfD programme. If the level of the mandate is increased at broadly the rate of growth of CfD project output, additional demand for HEFA is controlled. Whilst it would not be a requirement that CfD output be used to fulfil the mandate, its proximity and cost makes it likely that this would be the case. It would be the cheapest fuel available for meeting the mandate, if the reference price were set at the fossil fuel level.

Generally speaking, we have concerns with proposals such as having caps, specific sub targets or multipliers within obligations / mandates. Such measures add complexity and are generally a blunt instrument with the potential to introduce unintended consequences. In the longer run, members feel that a GHG-based obligation acting across all modes of transport is likely to be optimal. If oil companies are required to achieve continually reducing carbon intensities for their product, irrespective of the sector it is supplied to (road, rail, aviation or maritime) then the market can play out to deliver the most cost-effective outcome. More expensive production pathways such as power to liquids will be brought into play at scale as they are needed.

It would be easier to move from a basic SAF mandate with CfDs into an overarching transport GHG mechanism, than it would be from a complex SAF mandate with caps and sub-targets etc.

A SAF mandate in the absence of a CfD programme

If a mandate is introduced without a CfD programme, this suggests that domestic production is not a Government objective, and achieving the lowest cost GHG reductions is the only consideration. If this is the case, there is little reason to have a cap. It would only create space for more expensive, non-HEFA SAF imports (as there would not be any domestic production).

23. How can power-to-liquid fuels innovation and roll-out be accelerated? Should a sub target and/or a multiplier be introduced?

No. We do not support sub targets or multipliers, as they add complexity and are generally a blunt instrument with the potential to introduce unintended consequences. How would the level of multiplier be set? Likewise, what is the right sub-target and what buy out price should apply?

We recommend specific support through CfD as a better way of stimulating strategically-important types of fuels such as power-to-liquids. That would ensure that such projects have the support they need without creating perverse incentives or increasing the cost of the mandate (whilst still not getting the benefit of domestic production).

24. How can SAF produced through pathways other than HEFA and power-to-liquid be accelerated?

Same comment as for 22 & 23, i.e. through targeted CfDs.

Interactions with other domestic and international policy

25. Do you agree or disagree that SAF GHG emissions reductions should be claimed only once under different schemes?

We are aligned with Sustainable Aviation's response on this. Producers should be able to obtain tradable certificates at the point of delivery of SAF into the system (similar to RTFCs, whether volume-based or GHG-based) but the airline should still be able to claim benefit under either the UK ETS or CORSIA. This would make the UK approach consistent with other existing global and EU rules on GHG accounting. All other jurisdictions that have implemented mandates, grants or production subsidies allow airlines using SAF to claim these emission benefits within either the CORSIA or the ETS.

26. How could the UK ETS, CORSIA and proposed SAF mandate be used together to continue to incentivise uptake, while preventing double counting of emissions reductions?

We will leave this question for those in the aviation industry, who are better-placed to answer it.

27. Do you agree or disagree that SAF that has been produced on the back of industrial plants or clusters which have received competition funding from government can be claimed under the proposed UK SAF mandate?

Agree.

28. Do you agree or disagree that SAF should no longer be rewarded under the RTFO when and if a SAF mandate is in place?

Agree, as no fuel type should be incentivised under two production support mechanisms.

29. What provisions should the UK SAF mandate include to reduce the risk of tankering even further?

The RTFA will leave this to those in the aviation industry who are better-placed to comment.

Delivering SAF to the market

30. Do you consider a more comprehensive policy framework beyond a SAF mandate is required to build a successful UK SAF sector?

Yes, as has been argued all the way through this response. It is also a recurring theme at the Jet Zero Council's SAF Commercialisation Sub-Group, raised by both representatives of the financial community and the renewable energy industry. The primary issue is that a mandate gives no security of price; thus financiers considering SAF projects (or the buyers of SAF, or both) have to take a view on the development of a market without relevant trading history and in a rapidly changing international policy and supply landscape. This presents a significant risk which these parties are not prepared to take. A CfD on the other hand gives price certainty to the supplier, a key contributor to making a project financeable.

CfDs would address the most challenging issue facing financing of SAF projects, namely price risk; however, first-of-a-kind projects also face challenges related to technology and execution risk.

These are not unique to SAF or fuels, and are best addressed by policy instruments that support the capital, such as equity investments or loan guarantees; the UK Infrastructure Bank has a very valuable role to play here.

31. If you believe this is the case, how can this policy framework be designed? Please provide any evidence you may have available to support your answers.

Sustainable Aviation has commissioned a specific study to inform this work. The final report is anticipated in September 2021, and the consultant is carrying out in-depth conversations with RTFA members as well as participants of the various Jet Zero Council delivery groups. Key aspects from the RTFA's point of view include:

1. Fixed contract length and strike price (i.e. the price which the producer receives assuming they are selling their fuel at the reference price);
2. Price setting through administrative action / negotiation in first round (since the market is not mature enough to support an auction) – auctions will be appropriate later;
3. Banding and/or selection criteria to ensure that feedstock/technology combinations of strategic importance to the UK (e.g. waste-to-fuels, including Recycled Carbon Fuels, e-fuels) are supported and to ensure that the contracts do not simply pull low carbon feedstocks away from the road sector;
4. Funding mechanism consistent with the SAF mandate and designed so as to minimise carbon leakage.

32. Should buy-out be allowed? If so, how should the buy-out price set to encourage actual supply of SAF and delivery of carbon savings? How should the buy-out evolve over time?

The option of buying-out plays an important role in balancing ambition and deliverability, as mentioned in question 20. It enables a larger target, whilst at the same time limiting the cost to consumer.

Having a mandate with a buy out can be complemented by the CfD mechanism we advocate. Having a buy-out with no CfD mechanism, is unhelpful as it limits upside to the producers while not preventing downside.

With respect to the level of the buy-out, there needs to be an appropriate balance. It needs to be set at a level which provides sufficient incentive, otherwise it risks being regarded as a legitimate strategy for long-term compliance with the obligation. If set too high, it could create a perverse incentive for imports.

33. What penalties should be introduced in addition/alternatively to a buy-out to ensure sustainable SAF, that meets the proposed criteria, is supplied?

Penalties (depending on their severity / economic impact) can focus the suppliers' behaviour, particularly if the supplier still remains liable for fulfilling the shortfall in the following year (as is the case with the Netherlands' road fuel obligation). However, for reasons set out in answer to Q 23 as well as our general position that the SAF mandate should mirror the RTFO as much as possible, we don't advocate having penalties instead of a buy out, but there should be civil penalties for non-compliance with various administrative requirements, as is the case with the RTFO.

Scheme practicalities, reporting and verification

34. Do you agree or disagree that a mass balance approach should be the only chain of custody system permitted under the proposed SAF mandate?

We agree. Having said that, the concept of mass balancing did evolve in the context of supplying liquid fuels, and it can present challenges with respect to gaseous fuels, and particularly with electricity for the production of RFNBOs. Whatever rules emerge for power supplied for the production of RFNBOs for the RTFO, should apply to the SAF mandate.

35. Where do you think the chain of custody will need to end? Please refer to any evidence to support your position.

We propose that the chain of custody is consistent with the mass balance approach used for the RTFO. The chain of custody should end at either the blending point, the airport storage facility, or the point at which it is injected into a pipeline system which is connected to an airport. I.e. it should not extend to the aircraft wing.

36. Do you agree or disagree that obligated suppliers will need to report annually information on the aviation fuel supplied to the Department for Transport, regardless of whether they claim SAF credits?

Agree.

37. Do you have views on what information obligated fuel suppliers should report?

As proposed, there should be alignment with the RTFO (including interaction with the aviation fuel equivalent of the GHG reporting regulations).

38. Do you have views on the reporting calendar?

As above.

39. Do you have views on what the timescale for submitting claims and the information/evidence required by this process should be?

As above.

40. Should certification provided by voluntary schemes count as evidence of compliance with the sustainability criteria of the SAF mandate? If so, do you think this step should or should not be mandatory?

Agree with DfT approach: voluntary schemes would count but not be mandatory.

41. What information should the obligated party provide, either through verifiers or other means, to demonstrate compliance with the sustainability criteria?

We agree with what is set out in para 7.21 of the consultation.

42. Do you agree or disagree that claims for credits under the SAF mandate should be verified? If so, should these be verified to a 'limited' or 'reasonable' assurance?

We would not advocate the more detailed 'reasonable' assurance level (provided for under ISAE 3000 for fuel volumes), as it would add considerably (and unnecessarily) to the cost of verification of feedstocks and fuels. The 'limited' level (which is used for renewable fuel sustainability information in the RTFO) should also be appropriate for the SAF mandate.

43. What data related to the SAF mandate should DfT make publicly available? How often should this information be published?

The RTFO statistics contain a good level of data, which is beneficial in providing transparency. There is no reason why the SAF mandate should not follow this reporting template along with its timescales.

Appendix 1

Why Hemi-cellulosic C5 and C6 sugars should be an eligible feedstock for the SAF mandate

Technology could be integrated into the feed wheat bioethanol production process to increase the yield of ethanol. It does this by converting hemi-cellulosic C5 and C6 sugars within the feed grain feedstock into ethanol. We propose that ethanol produced by this technology should be eligible for the proposed SAF mandate. This material has no food value and currently ends up in the DDGS (the high protein animal feed) where it has a negative effect as it reduces its nutritional content. It is therefore a cellulosic material which is not food nor feed. The SAF consultation proposes that sustainable wastes or residues are eligible feedstocks, but that SAF produced from food or feed crops will not be allowed.

Hemi-cellulosic C5 and C6 sugars are detrimental to the quality of animal feed. The feed industry spends millions of pounds adding enzyme cocktails to try and help the animals break down these complex molecules and improve conversion rates in growing animals, with varying success. A benefit of removing C5 and C6 compounds during the fermentation process, i.e. removing it before it ends up in the animal feed as the following advantages:

- It would enhance the value and quality of the DDGS, as the protein and nutrient availability characteristics (for single-stomached animals) would be improved
- It enables the energy to be captured in the form of bioethanol, which would otherwise be lost (as it isn't available to the animals to which the DDGS is fed)
- The conversion process is performed when the grain is wet, whereas if attempted at the DDGS stage the efficiency is lower, and the GHG emissions are higher (as the DDGS is dried and then wetted again prior to enzyme treatment)

Appendix 2

Conflicting messages with respect to the role of crop-based bioethanol feedstocks in aviation

The SAF consultation document rejects the feed and crop-based biofuels as eligible feedstocks, as these “could lead to modest GHG emissions savings or, in some instances, to an increase in carbon emissions when taking into account their indirect land use change impact.” However, if these feedstocks can meet the required criteria, they should not be excluded.

In the Government’s response to its recent consultation on the **Renewable Transport Fuel Obligation** there is mention that ethanol feedstocks can be used to create aviation fuel³, and that their availability will increase as demand in road transport declines. This suggests that the DfT regards crop-based ethanol as a suitable feedstock for aviation fuel in the longer run. Timing will be important however, just as it is with UCO.

At present the RTFO includes aviation fuel when made from wastes or RFNBOs, but rules out segregated oils and fats, e.g. UCO - and rightly so. This is to prevent these lipid from being diverted from decarbonising road transport in order to decarbonise aviation. This is sensible as they have greater carbon reducing impact when used to make biodiesel than when used as feedstocks for aviation fuel. When the SAF mandate takes over from the RTFO (and aviation fuel is no longer supported under the latter) it is proposed that these feedstocks *will* be eligible (and we support that). However, avoiding diversion of UCO from road transport will remain an extremely important consideration for some time. There is no logic in moving feedstocks around for no carbon benefit, effectively robbing Peter to pay Paul, and undermining RTFA members’ existing investments. There is no intrinsic benefit in using these fuels in aviation rather than road, it is overall global GHG emission that need to be reduced. As and when lipid feedstocks become available without distorting the market, as a consequence of the decarbonisation of road transport, then it makes sense to utilise them as much as possible in the production of aviation fuel.

This same logic (of using feedstocks that become available with the decarbonisation of road transport) can also be applied for crop-based bioethanol. However, we note that crop-based bioethanol is *not* regarded as eligible in the SAF mandate, even in the long run. This appears to be a contradiction, and we would like to explore that with DfT officials.

³ Page 20 of the Government’s response to the RTFO consultation states

“A decline in renewable road fuel would increase biomass availability in the later 2020s. Both the waste-derived biodiesel feedstocks and the ethanol feedstocks can be used to create aviation fuel, with the appropriate processing technologies. This presents us, and UK industry, an opportunity to push forward the transition of feedstocks currently used for road fuel to other sectors.”

Appendix 3

List of member companies

2G BioPOWER
360 Environmental
AB Sugar
ACT Fuels B.V.
Advanced Biofuel Solutions Ltd
Air Liquide Advanced Business & Technologies UK Ltd
Alfanar Energy Limited
Alcogroup SA
Argent Energy (UK) Limited
Big Atom
Broadmanor Consulting Limited
Calor Gas Limited
Carlton Forest Renewables
CNG Fuels Ltd
Decarbonise Fuel Limited
Ensus UK Ltd
European Tyre Recycling / Fluidice
Flogas
Fulcrum BioEnergy Limited
Gasrec Limited
Greenenergy International Limited
In Perpetuum Partners LLP
John Lewis Partnership
Joulevert Limited
Lanzatech UK Ltd
Mint Green Sustainability Ltd
NFU
NNFCC
Nova Pangaea Technologies (UK) Limited
Olleco
Phillips 66 Ltd.
Velocys Plc
Warrens Emerald Biogas Ltd
Wastefront AS
WTEnergy Ltd
Zemo Partnership