

Monitoring the use of sustainable aviation fuels in the UK

You

Q1. Your (used for contact purposes only):	
name?	Cait Hewitt
email?	c.hewitt@aeef.org.uk

Q2. Are you responding:
on behalf of an organisation?

Organisation details

Q3. Your organisation's:	
name is?	Aviation Environment Federation
size is?	We represent 50 community and locally-elected bodies around the UK's airfields and airports.
country of location is?	UK

Q4. Your organisational area of work is:
non-government organisation?

SAF proposal

Q5. Do you agree or disagree that a SAF mandate should be introduced in the UK?	
Agree	
Your reasons are?	
We agree as long as it is possible to design a mandate that delivers genuine emissions mitigation at an economy-wide level, avoids wider environmental harm, and does not distract from the need for other measures to be delivered in parallel, in order to achieve aviation decarbonisation. While SAF has become a widely used, catch-all term within the industry, given the wide range of feedstocks and environmental impacts associated with them we would prefer the term 'alternative jet fuel' to be used. Nevertheless, for simplicity we refer to 'SAF' in our response.	
There are two key points we want to make by way of introduction to our consultation response.	
(i) The LCA analysis for any alternative fuels should be based on an assumption that all sectors are on a net-zero-compliant trajectory.	
We very much support the Department's approach of considering the current evidence base and the possible architecture of a SAF mandate in advance of proposing specific levels of SAF, and of committing to refining its analysis prior to a second stage consultation. While SAF could play a part in putting the aviation sector onto a net zero trajectory, the fuels that are currently available commercially are not pathways and deliver limited CO2 mitigation, with much of the supposed emissions savings associated with waste fuels related to claimed methane avoidance. Fuels generated using captured CO2 and green hydrogen offer a better option in a net zero context but are not yet available for purchase and will probably be very expensive in comparison. While we acknowledge that this consultation adopts an evidence-based approach, we're concerned that the proposed measures to ensure SAF integrity could be undermined by political ambitions: the modelling presented in the Jet Zero consultation paper, for example, assumes both 100% emissions mitigation from all SAFs, and that they will enter the market at zero cost (and therefore without impacting passenger demand levels).	
We support the principle of LCA for SAFs. At present, however, we are not aware of any analysis that considers the emissions mitigation potential of SAFs in a future where all sectors are net zero compliant. This analysis – we increasingly believe – could be the missing piece of the puzzle in assessing the appropriate future role of the various SAF options, and needs to be available before any mandate levels are set. Stimulating the wrong kind of SAFs now could risk diverting investment from more expensive but potentially more effective long-term climate solutions including e-fuels, but also Greenhouse Gas Removals.	
(ii) It should be acknowledged that SAFs cannot offer 'actual' CO2 reductions, and that they must therefore be accounted for in aviation's 'net' emissions trajectory	
Understanding the appropriate role for SAFs in the context of aviation decarbonisation requires that they are conceived of accurately. We believe that SAFs should be considered as a category of aviation offsets and included in the 'net' rather than the 'actual' trajectory for aviation decarbonisation. This is because they emit at least as much CO2 as kerosene, with any GHG 'savings' that they offer arising from either CO2 captured (as with e-fuel that uses DAC or with biofuels), or GHGs avoided (as in the case of methane that might otherwise arise from landfills).	
There are, of course differences with other offsets. One is that using SAFs avoids burning fossil fuel. Keeping most fossil fuels in the ground is likely to be a necessary but not a sufficient step in preventing dangerous warming, however. Taking plastics out of the waste stream and burning them in aircraft will still generate CO2 for example, while some SAFs (such as biofuels that cause direct or indirect land use change) could actually result in increased global warming compared to using kerosene. Another difference is that with SAFs the emissions 'savings' is made in advance. As an alternative to burning fossil fuels in planes and then capturing and storing the CO2, it has some advantages as it ensures that (i) the reduction has in fact taken place (whereas no engineered removals are yet being delivered) and (ii) that it is paid for by polluters. Nevertheless, with the Government having set out, in the Jet Zero consultation, both 'net' and 'actual' pathways for the sector, accurate carbon accounting must recognise that SAFs will not reduce 'tailpipe' emissions.	

Q6. Do you agree or disagree that an obligation to supply SAF in the UK should sit outside the Renewable Transport Fuels Obligation?	
Agree	
Your reasons are?	
This should help to avoid administrative complexity and potential double counting, notwithstanding the fact that no SAF credits have yet been claimed under the RTFO.	

Q7. Do you agree a greenhouse gas emissions scheme based on tradable credits should be preferable to a fuel volume scheme when designing a SAF mandate?	
Agree	
Your reasons are?	
A volume mandate risks creating fuel requirements that cannot be met sustainably. A GHG emissions scheme should offer more environmental integrity, greater flexibility and a potential cost incentive to purchase SAF which offers a greater LCA reduction.	

Q8. Do you agree that the proposed obligation to reduce the carbon intensity of jet fuel through SAF use should be placed on fuel suppliers that supply aviation fuel (avtur) to the UK?	
Agree	

Q9. Should the SAF obligation apply to all avtur supplied in the UK, regardless of whether it is subject to fuel duty?	
Yes	
Your reasons are?	
We would support the widest possible scope for the obligation, irrespective of whether the fuel is subject to duty or not.	

Q10. If the obligation applies to all avtur supplied into the UK should:			
	Yes	No	Don't know?
there be a threshold below which fuel is not obligated, in a certain obligated period?		X	
this distinguish between dutiable and non-dutiable fuel?		X	
Your reasons are?			
Consistent with a whole economy approach to delivering net zero, we would prefer there to be no threshold.			

Q11. 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)?	
We don't have a view on this.	

Fuel eligibility criteria

Q12. Do you agree or disagree that only certified SAF that meets the Def Stan 91-091 should be eligible under the proposed SAF mandate?	
Don't know?	
Your reasons are?	
We are not aware of any reason to disagree with use of the DEF STAN 91-091 specification.	

Q13. Do you agree or disagree with the sustainability criteria set out?	
Disagree	
If you do not agree, what alternative or additional criteria would you recommend?	
We would support stronger and additional criteria. We agree with the principle that Fuels must achieve a minimum GHG emissions saving on a lifecycle basis'. The consultation claims 'When fully replacing kerosene, SAF use achieves, on average, over 70% GHG emissions savings, on a lifecycle basis' but this statement is not referenced.	
We are concerned, meanwhile, that current LCA appears to be based on comparisons with what happens today or what could happen under Business as Usual, rather than what needs to happen under an economy-wide net zero trajectory. In particular, it fails to deliver a future-proof SAF policy it seems to us that 'avoided emissions' should not be included in LCA. Many serious LCA inventories appear to model the potential for SAF to prevent methane release as being so significant that the fuel may be able to deliver more than a 100% reduction in emissions.	
This is surely ludicrous if it suggests that more flying could have a climate benefit, and highlights the potential pitfalls of LCA. While avoiding greenhouse gas release from landfills is clearly necessary, generating SAFs is unlikely to be the best way to do it. We recognise some of the advantages of SAF over GGR, not least that they require measures to be taken up front and paid for by the polluter, but if the benefit of SAF really relates to avoided emissions, or to the burning of energy that would have otherwise remained inert, then it is a poor substitute for technologies that would actually remove CO2 from the atmosphere, and in which airlines should probably be investing.	
The consultation proposes use of 'low carbon' hydrogen. Our view is that only zero carbon hydrogen use is acceptable, and that blue hydrogen could be used to produce e-fuels.	
Finally, the Government should also consider a non-CO2 criterion for SAF. The Government's Jet Zero proposals and the CCC's 6th carbon budget advice both recognise the need for action on these impacts. The latest scientific evidence now indicates that aviation's non-CO2 impacts have caused twice as much warming to date than CO2. Evidence suggests that some SAFs are likely to reduce non-CO2 warming compared to kerosene by emitting considerably fewer particles that allow contrails to form. This should be taken into account when assessing which SAFs to prioritise for the future.	

Q14. Do you agree or disagree with the feedstocks set out?	
Disagree	
If you do not agree, what alternative or additional feedstocks would you recommend?	
Waste-based fuels are problematic, in our view, since some release CO2 that would otherwise remain inert and others use carbon that was captured historically (rather than dealing with current levels of atmospheric CO2). The benefits of these fuels in LCA analyses often appear to relate meanwhile to methane avoidance which – in a net zero future – we need to be achieved in addition to aviation decarbonisation, not instead of it.	
We are surprised and concerned about the inclusion of RCFs in the list of possible feedstocks, as our analysis we've seen suggests they would not pass the proposed 60% minimum LCA test unless as part of mixed waste, with RCFs being used in small quantities. Turning non-biodegradable waste into fuel appears to us very hard to justify if the aim of the policy is to cut emissions, and not just to avoid fossil fuel use.	

Q15. Do you agree or disagree that the baseline lifecycle GHG emissions intensity for aviation fuels for reporting purposes under a UK SAF mandate should be 89 gCO2e/MJ?	
Agree	
You do not agree, what should the baseline emission be and how should it be calculated?	
We note ICAO's estimates of the range of GHG emissions intensities of conventional jet fuel, and have no reason to disagree with the use of ICAO's standard definition of 89 gCO2e/MJ.	

Q16. What should be the minimum GHG emissions intensity reduction SAF will need to meet to be considered eligible under the mandate (subject to the final GHG methodology used)?	
We don't feel able to answer at this time. We believe it will only be possible to identify the right kind of LCA numbers once a GHG methodology is available to determine the appropriate intensity in a future where all sectors are on a pathway to net zero.	

Q17. What are the, if any, land use (direct or indirect) or other implications associated with the feedstocks list that we should reflect in the:	
eligibility criteria?	-
minimum GHG threshold?	-
Your reasons are?	
We are not aware of any additional LUC or ILUC issues associated with these feedstocks. However, there are implications for carbon accounting related to assigning carbon reductions to the aviation sector for what are essentially offsets. There is, in particular, a need to avoid any double counting in relation to emissions avoidance.	

Q18. As more CCUS becomes available and the GHG emissions intensity of fuels decreases, should the envisaged minimum threshold be raised over time?	
No	
Your reasons are?	
We are minded to support the principle of a high intensity threshold from the start even if this means that volumes need to be smaller, to avoid the risk of delaying the necessary investments and market signals to achieve zero emissions.	
Investment from the aviation sector is meanwhile likely to be necessary to deliver CCUS at the volume needed.	

Q19. How do you think our GHG methodology should calculate the carbon intensity of fuel?	
A methodology is needed that uses net zero assumptions for all sectors as its counterfactual, as set out in our response to earlier questions.	

Q20. How, in your view, should the GHG methodology vary to take into consideration the different:	
fuels?	Each fuel needs to be assessed separately in terms of what it can deliver as part of an economy-wide-net-zero-compliant trajectory, as set out above.
feedstocks?	-
power sources?	-
production pathways?	-

Q21. Do you agree or disagree that SAF that does not meet the proposed eligibility and sustainability criteria should incur an obligation?	
Agree	

Overarching trajectory

Q22. Do you agree or disagree that a SAF mandate should start in 2025?	
Neither agree nor disagree	
If you disagree, when should it start and why?	
We agree, as long as that is realistic without incentivising unsustainable production, either in the UK or abroad, and isn't reliant on imports. We support action to cut aviation emissions beginning today.	

Q23. Do you agree or disagree to that the targets should assume:			
	Agree	Disagree	Don't know?
an exponential growth after 2035?		X	

Q24. Which scenario do you think represents the best trade-off between ambition and deliverability?	
None of the listed scenarios	

Q25. What evidence can you provide to support your position?	
Comments:	
While we understand that some of the SAF technologies that may be possible to roll out in future are currently in their infancy, we feel cautious about supporting a pathway that assumes that significant SAF supply becomes available after 2035.	
We don't feel able to advocate for a particular trajectory given all the variables. It is currently difficult to know what the appropriate balance is between SAF and GGR for aviation, and therefore to know what level of ambition is correct. We note meanwhile that total fuel used may be lower than anticipated in the scenarios presented if SAF makes flying more expensive or if other policies are implemented in parallel to tackle aviation emissions, such as carbon pricing, Renewable energy requirements, as well as the number of plants, will meanwhile vary depending on the type of fuel being produced. The Jet Zero consultation's proposed periodic reviews are an opportunity to ensure the right policy mix taking into account any progress on zero carbon flight technologies and GGR.	

Q26. Do you agree or disagree that we should include review points in (depending on initial mandate levels):			
	Agree	Disagree	Don't know?
2030?	X		
2040?	X		

Q27. In your view should the amount of HEFA able to be claimed under the SAF mandate be capped over time?	
Yes	

HEFA capping

Q28. In this case:	
how could the cap work, given the scheme will be based on carbon emissions savings?	-
how should the cap be calculated?	We are not convinced that HEFA – produced from waste oil – should form part of a SAF mandate as the UK could alternatively, therefore, consider a provision similar to that in Refuel EU that requires a certain proportion of fuel uplifted to come from SAF airports. Article 5 of Refuel EU specifies that 'The yearly quantity of aviation fuel uplifted by a given aircraft operator at a given Union airport shall be at least 90% of the yearly aviation fuel required' and that that this quantity should take into account 'the necessary compliance with fuel safety rules'.

Overarching trajectory

Q29. How can power-to-liquid fuels innovation and roll-out be accelerated?	
Appropriate carbon pricing, potentially including a kerosene tax, could help to reduce the price difference between zero carbon and low carbon aviation fuels compared with conventional fossil-based fuels by making kerosene more expensive. From the 1st January 2021, the UK's air service agreement with the EU permits the taxing of fuel uplifted in the UK for flights to EU destinations.	

Q30. Should a:	
sub-target be introduced?	
Your reasons are?	We would support a sub-mandate over a multiplier to help avoid the risk of inappropriate carbon accounting and double rewards.

Q31. How can SAF produced through pathways other than HEFA and power-to-liquid be accelerated?	
We don't have any comments on this.	

Interactions with other domestic and international policy

Q32. Do you agree or disagree that SAF GHG emissions reductions should be claimed only once under different schemes?	
Agree	
Your reasons are?	
There should be no double counting between schemes.	

Q33. 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?	
The setting of an effective long-term emissions goal under CORSIA and an environmentally robust UK ETS can both help to provide market certainty and more effective carbon pricing which could incentivise the use of lower carbon fuels. Historically the EU ETS allowed use of SAF to count as a 100% emissions reduction. We would be opposed to any such mechanisms being included in the UK ETS.	

Q34. Do you agree or disagree that SAF that has been produced on the back of industrial plants which have received competition funding from government can be claimed under the proposed UK SAF mandate?	
Agree	
Your reasons are?	
We agree, but consider that Government subsidy should be limited and directed specifically to Research and Development. In line with the polluter pays principle, the development of SAF plants should be driven primarily through airlines' investment.	

Q35. Do you agree or disagree that SAF should no longer be rewarded under the RTFO if a SAF mandate is in place?	
Agree	

Q36. What provisions, if any, do you think should the UK SAF mandate include to reduce the risk of carbon leakage and tankering even further?	
One option would be to impose a ban. We understand however that this would require the permitted level of 'excess fuel' to be defined, which may raise industry concerns about safety. To avoid fuel tankering arising from any SAF mandate, the UK could alternatively, therefore, consider a provision similar to that in Refuel EU that requires a certain proportion of fuel uplifted to come from SAF airports. Article 5 of Refuel EU specifies that 'The yearly quantity of aviation fuel uplifted by a given aircraft operator at a given Union airport shall be at least 90% of the yearly aviation fuel required' and that that this quantity should take into account 'the necessary compliance with fuel safety rules'.	

Providing SAF to the market

Q37. Do you agree or disagree that a more comprehensive policy framework beyond the SAF mandate is required to create a successful UK SAF sector?	
Agree	
Your reasons are?	
SAF take-up could be indirectly incentivised by way of a meaningful aviation policy framework that includes interim aviation emissions targets prior to 2025 followed by use of SAF to count as a 100% non-CO2 emissions, and effective carbon pricing and/or the introduction of a kerosene tax.	

Additional support

Q38. How, in your view, can this policy framework be designed (provide any evidence you have)?	
Comments:	
We have responded to the Jet Zero consultation in relation to all of the policy issues we have listed here.	

Providing SAF to the market

Q39. Should a buy-out be allowed?	
Don't know?	

Providing SAF to the market

Q42. What penalties should be introduced either in place or alternatively to a buy-out to ensure sustainable SAF, that meets the proposed criteria, is supplied?	
We don't have any comments on this.	

Scheme practicalities, reporting and verification

Q43. Do you agree or disagree that a mass balance approach should be the only chain of custody system permitted under the proposed SAF mandate?	
Neither agree nor disagree	
Your reasons are?	
We don't have a strong view on this. We would agree with CC's approach, however, of aiming to meet the net zero target domestically without the use of international offsets, and therefore that we should aim to source any SAF used to meet that target domestically. We note that SAF standards and targets elsewhere in the world may not match those being developed in the UK. We should ensure that UK entities are not importing SAF that does not match those standards.	

Q44. Where do you think the chain of custody should end?	
Comments:	
We don't have a view on this.	

Q45. 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?	
Don't know?	

Q46. What, if any, views do you have on:	
what information obligated fuel suppliers should report?	Type and origin of fuels would be the key information
the reporting calendar?	To the extent that the UK ETS and CORSIA allow for obligations to be reduced in line with SAF usage, the reporting calendar should be set to allow for appropriate and timely verification.

Q48. Should certification provided by voluntary schemes count as evidence of compliance with the sustainability criteria of the SAF mandate?	
Don't know?	

Scheme practicalities, reporting and verification

Q51. Do you agree or disagree that claims for credits under the SAF mandate should be verified?	
Agree	

Verification

Q52. Do you think should these be verified to a:	
reasonable assurance?	

Scheme practicalities, reporting and verification

Q53. What, if any, data on the related to the SAF mandate should Department for Transport make publicly available?	
Information about type and origin of fuels should be publicly available.	

Q54. How often do you think this should this information should be published?	
Quarterly	

Final comments

Q55. Any other comments?	
Question 26 did not provide a text box for comments in relation to that question we would add: Review points should tie in with the review cycle set under the net zero trajectory. This is currently proposed at 5 yearly intervals. We have advocated for more regular reviews in short term, and review points subsequently aligned with the carbon budget review cycle once international aviation emissions are included in carbon budgets.	