Jet zero: our strategy for net zero aviation

Introduction

Thank you for responding to our consultation your views will help shape our final jet zero strategy.

Closing date is 8 September 2021.

View all the questions

This survey provides questions based on user choice, a full copy of the questions is available (opens in a new window).

Print or save a copy of your response

When you get to the end of this questionnaire, you will be offered the chance to either print or save a copy of your response for your records. This option appears after you press 'Submit your response'.

Save and continue option

You have an option to 'save and continue' your response at any time. If you do that you will be sent a link via email to allow you to continue your response where you left off.

It's very important that you enter your correct email address if you choose to save and continue. If you make a mistake in the email address you won't receive the link you need to complete your response.

Accessibility statement

Read our accessibility statement for SmartSurvey forms (opens in a new window).

Confidentiality and data protection

This consultation is about gathering views to help shape our final jet zero strategy.

We are asking for:

- your name and email address, in case we need to ask you follow-up questions about your responses (you do not have to give us this personal information, but if you do provide it, we will use it only for the purpose of asking follow-up questions)
- whether you are representing an organisation or yourself
- your, or your organisations, location to ascertain if views across the UK have been collected

For organisations we are also asking for the type of organisation you are in order to better understand how this strategy will affect your work.

Your consultation response and the processing of personal data that it entails is necessary for the exercise of our functions as a government department. DfT will, under data protection law, be the controller for this information. DfT's privacy policy (opens in new window) has more information about your rights in relation to your personal data, how to complain and how to contact the Data Protection Officer.

Any information you provide will be kept securely and destroyed within 12 months after the closing date. Any information provided through the online questionnaire will be moved to our internal systems within 2 months of the consultation period end date.

Personal details

1. Your (used for contact purposes only):

name Stephen Turner

email President@ioa.org.uk

2. Are you responding: *

☐ as an individual? (Go to 'Individual details')

X on behalf of an organisation?
The Institute of Acoustics

Organisation details

3. Your organisation is in:

☐ academia?

☐ industry?

☐ the public sector?

☐ a non-governmental organisation?

X a charity?

☐ another type of organisation?

4. Your organisation is based in:

The Institute of Acoustics is a national body and represents acousticians throughout the UK and Ireland.

☐ Cymru Wales

☐ East Midlands

☐ East of England

☐ London

☐ North East & Cumbria

☐ North West

☐ Northern Ireland

☐ Scotland

☐ South East

☐ South West

☐ West Midlands

☐ Yorkshire & the Humber

[Now go to ‘Introduction’]

Individual details

5. You are located in:

- [ ] Cymru Wales
- [ ] East Midlands
- [ ] East of England
- [ ] London
- [ ] North East & Cumbria
- [ ] North West
- [ ] Northern Ireland
- [ ] Scotland
- [ ] South East
- [ ] South West
- [ ] West Midlands
- [ ] Yorkshire & the Humber

Introduction

The overall aim of the jet zero strategy is to reach net zero aviation emissions – or jet zero – by 2050.

We are consulting on:

- having a clear goal, but multiple solutions, including:

  - setting an earlier target for UK domestic aviation to reach net zero by 2040
  - setting a range of scenarios as possible trajectories to net zero in 2050
  - setting a carbon dioxide (CO2) emissions reduction trajectory for aviation from 2025 to 2050 against which we will monitor progress
  - reviewing our strategy every 5 years and adapting our approach

- system efficiencies, including:

  - that all airport operations in England should be zero emission by 2040 (scope 1 and scope 2 emissions)
  - voluntary agreement from all airlines to avoid tankering when there is no practical reason
  - asking for thoughts on whether there are wider changes to policy that might incentivise improved efficiencies for:

    - airport charges and slot allocation
    - making provision for Air Navigation Service Providers to implement differential charging based on environmental performance within their controlled airspace
    - identifying where changes to regulations may be needed to implement new CO2 emission saving operations
    - if there are other ways to stimulate investment in greater operational efficiencies across the aviation system

- sustainable aviation fuels (SAF), including:

  - negotiating in ICAO for comprehensive SAF sustainability standards and a future global SAF objective
  - reviewing the feasibility of using SAF on UK Public Service Obligation (PSO) routes
  - a SAF-specific review by 2030, once the supportive policy framework is in place, and SAF production is being scaled up, and using this to confirm a SAF trajectory to 2050
  - working across government to pioneer the accelerated procurement and use of SAF
  - whether further policies are needed to encourage UK SAF production

- zero emission flight, including:

  - ensuring the UK is at the forefront of deploying zero emission aircraft. Our aspiration is to have zero emission routes connecting the United Kingdom by 2030
  - reviewing the feasibility of using zero emission aircraft on UK PSO routes
  - working with industry to encourage the adoption of innovative zero emission aircraft and aviation technology in General Aviation
  - working through the Jet Zero Council to consider the wider enabling framework for zero emission flight, including the infrastructure, regulatory and commercialisation

requirements

- markets and removals, including:

  - strengthening carbon pricing for aviation to ensure we continue to apply the ‘polluter pays’ principle and consider incentives for greenhouse gas removal methods
  - exploring how we can support other states that may need help implementing CORSIA effectively

- influencing consumers, including:

  - exploring whether mandating the provision of environmental information to customers at the time of booking flights could influence consumer decision-making
  - looking at other ways to support consumers to make sustainable choices when booking flights and rewarding those parts of the aviation sector that move faster to decarbonise

The full consultation is available on GOV.UK (opens in a new window)

Clear goal, multiple solutions

Through the final jet zero strategy, we will commit the UK aviation sector to reach net zero by 2050 and are consulting on a potentially earlier target for UK domestic aviation to reach net zero by 2040.

Many of the technologies we need to achieve this are at an early stage of development or commercialisation and it is too early to specify the optimal mix.

We are asking for your views on how we can reach this goal, the different technological pathways to get there, and our approach to reviewing the strategy every 5 years.

6. Do you agree or disagree that UK domestic aviation should be net zero by 2040?

- [ ] Strongly agree
- [ ] Agree
- [ ] Neither agree nor disagree

☐ Disagree (Go to ‘CO2 emission reduction trajectories’ after Why?)

☐ Strongly disagree (Go to ‘CO2 emission reduction trajectories’ after Why?)

X Don't know?

Why?

The Institute of Acoustics is the UK’s professional body working in the field of sound, acoustics, noise and vibration. We do not have a view on this ambition

Implementation

7. How do you propose that net zero domestic aviation by 2040 could be implemented?

We have no suggestions to offer *per se*, but the Institute welcomes the integrated nature of the intention by recognising that measures implemented to reduce CO2 emissions could affect the management of noise from aviation operations (as mentioned in paragraph 1.8).

CO2 emission reduction trajectories

We propose to set a CO2 emissions reduction trajectory for aviation from 2025 to 2050 against which we will monitor progress. This is based on our ‘high ambition’ scenario, whilst noting the uncertainty regarding the future technological use.

The graph supplied sets out 5 scenarios in total which include:

- **do nothing**, in this scenario there is no carbon price, no action on SAF or zero emission aircraft, and only minor annual efficiency improvements. Total UK aviation emissions reach 57 Mt CO2 in 2050

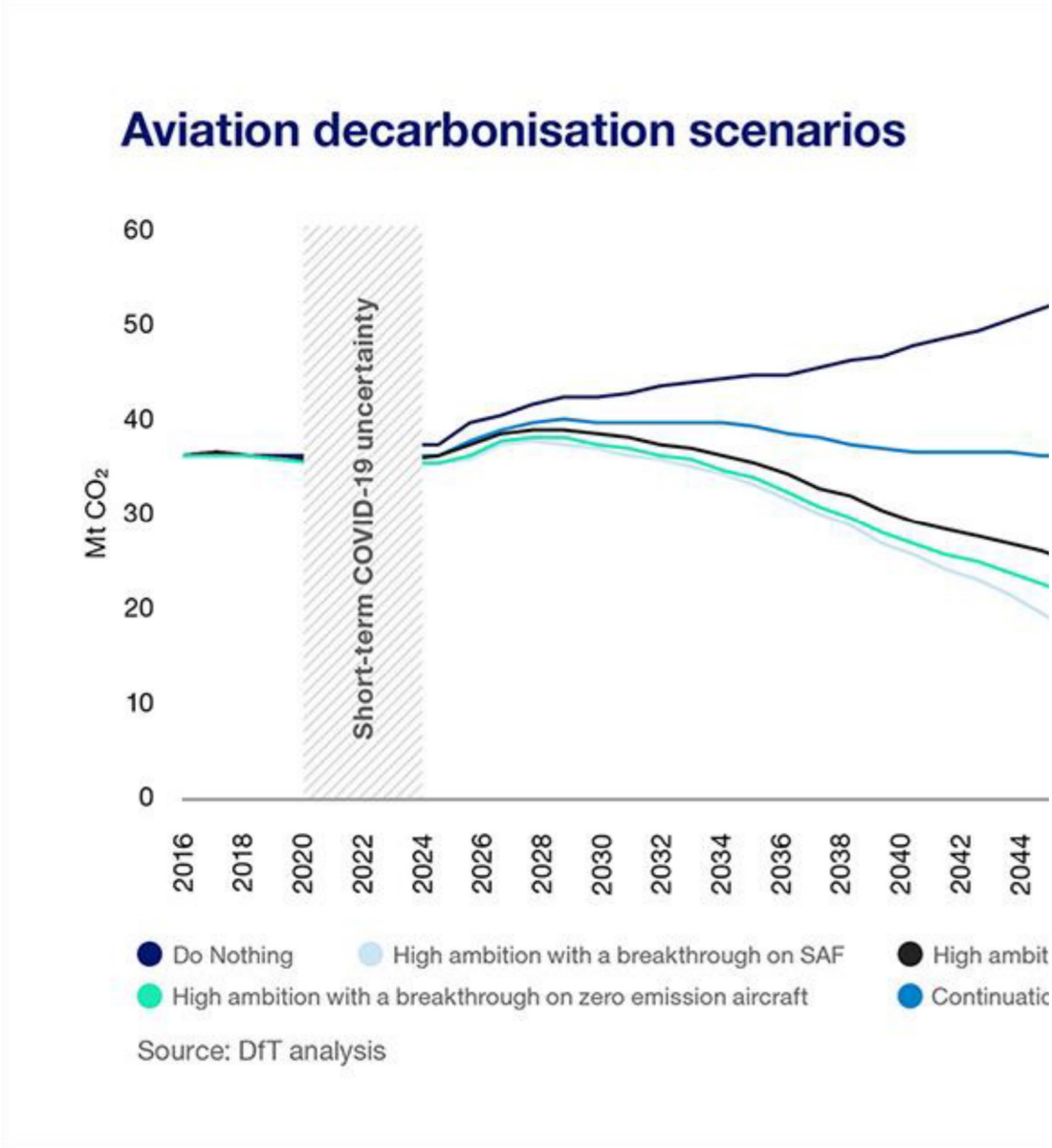
- **continuation of current trends**, there is no step-up in ambition on SAF or annual efficiency improvements, nor any introduction of zero emission aircraft. This scenario does include a carbon price on international flights that are not currently captured by the Emissions Trading Scheme (ETS) and this will require significant effort and international cooperation to achieve. Total UK aviation emissions reach 36 Mt CO2 in 2050

- **high ambition**, this scenario is more ambitious than "continuation of current trends", it

includes the same assumptions on demand, carbon price and capacity but there is a step-up in ambition on efficiency improvements, SAF uptake and the introduction of zero-emission aircraft. Total UK aviation emissions reach 21 Mt CO2 in 2050

- **high ambition with a breakthrough on sustainable aviation fuels**, this is a speculative scenario in which carbon prices prove to be higher than under the "high ambition" scenario and SAF emerges as a more cost-effective solution, comprising a very high proportion of aviation fuel usage by 2050. Total UK aviation emissions reach 9 Mt CO2 in 2050

- **high ambition with a breakthrough on zero emission aircraft**, this is a speculative scenario in which carbon prices are higher than under the "high ambition" scenario and there is a significant advance in zero emission technology (far higher than past rates of improvement in battery technology), alongside an acceleration of current aircraft replacement rates. SAF uptake is kept consistent with the "high ambition" scenario. Total UK aviation emissions reach 17 Mt CO2 in 2050



Greater detail can be found in the supporting evidence and analysis document in the consultation material (opens in a new window).

8. Do you agree or disagree with the:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know?
continuation of current trends scenario?	☐	☐	☐	☐	☐	X

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know?
high ambition scenario?	☐	☐	☐	☐	☐	X
high ambition with a breakthrough on SAF scenario?	☐	☐	☐	☐	☐	X
high ambition with a breakthrough on zero emission aircraft scenario?	☐	☐	☐	☐	☐	X

Comments:

As mentioned above, as an organisation we have no particular view on any of the options. However, we do support care being taken that the effective management of noise from aircraft operations is not adversely affected by implementing ambitious CO2 emission reduction measures

9. Do you think there are alternative evidence-based scenarios we should be considering?

☐ Yes

☐ No (Go to 'CO2 emission reduction trajectories)

X Don't know? (Go to 'CO2 emission reduction trajectories)

Other scenarios

10. What are the alternative evidence-based scenarios you think we should be considering?

[Attach any documentation to your return]

Comments:

CO2 emission reduction trajectories

11. Do you agree or disagree that we should set a CO2 emissions reduction trajectory to 2050?

- [ ] Strongly agree
- [ ] Agree
- [ ] Neither agree nor disagree
- [ ] Disagree
- [ ] Strongly disagree
- [X] Don't know?

Why?

As mentioned above, as an organisation we have no particular view on this issue

12. How do you think the trajectory should be set?

☐ On an in-sector CO2 emissions basis (without offsets and removals)

☐ On a net CO2 emissions basis (including offsets and removals)

X Don't know

☐ On something else:

Why?

As mentioned above, as an organisation we have no particular views on this issue.

13. Do you agree or disagree with the in sector CO2 emissions trajectory set out which has CO2 emissions of 39 Mt in 2030, 31 Mt in 2040, 21 Mt in 2050 and why?

As an organisation we have no particular view on this issue

14. Do you agree or disagree with the net CO2 emissions trajectory set out which has CO2 emissions of 23 to 32 Mt in 2030, 12 to 19 Mt in 2040, 0 Mt in 2050 and why?

As an organisation we have no particular view on this issue

15. Do you agree or disagree that we should review progress every five years and adapt our strategy in response to progress?

☐ Strongly agree

☐ Agree

☐ Neither agree nor disagree

☐ Disagree

☐ Strongly disagree

X Don't know?

Why?

As an organisation we have no particular view on this issue

System efficiencies

We can reduce CO2 emissions by increasing the efficiency of our existing aviation system, through improving the efficiency of our aircraft, changing how our airports operate, and optimising the use of our airspace.

To achieve this, as well as our existing policy commitments, we are proposing:

- that all airport operations in England should be zero emission by 2040 (scope 1 and scope 2 emissions)

- a voluntary agreement from all airlines to avoid tankering when there is no practical reason

We are also asking for thoughts on whether there are wider changes to policy that might incentivise improved efficiencies for:

- airport charges and slot allocation

- making provision for Air Navigation Service Providers to implement differential charging based on environmental performance within their controlled airspace

- identifying where changes to regulations may be needed to implement new CO2 emission saving operations

- if there are other ways to stimulate investment in greater operational efficiencies across the aviation system

16. Do you agree or disagree with the overall approach to improve the efficiency of our existing aviation system?

☐ Strongly agree

☐ Agree

☐ Nether agree nor disagree

☐ Disagree

☐ Strongly disagree

X Don't know?

Why?

As an organisation we have no particular view on this issue. Having said that, we do support care being taken that the effective management of noise from aircraft operations is not adversely affected by implementing efficiency measures

17. In your opinion, to ensure we maximise efficiency within the current aviation system, what more could be done or done differently?

No comment

Sustainable aviation fuels

The development and scale-up of sustainable aviation fuels (SAF) could play a key role in decarbonising aviation, whilst also representing an industrial leadership opportunity for the UK. Our vision is to scale up SAF over the coming years, such that out to 2050 they are primarily used on flights that may be more challenging to conduct by zero emission aircraft.

To achieve this, as well as our existing policy commitments, we are proposing to:

- consider whether further policies are needed to encourage UK SAF production
- continue to negotiate in the International Civil Aviation Organization (ICAO) (opens in new window) for comprehensive SAF sustainability standards and a future global SAF objective
- review the feasibility of using SAF on UK Public Service Obligation (PSO) routes
- carry out a SAF-specific review by 2030, once the supportive policy framework is in place, and SAF production is being scaled up, and using this to confirm a SAF trajectory to 2050
- work across government to pioneer the accelerated procurement and use of SAF

18. Do you agree or disagree with the overall approach for the development and uptake of SAF in the UK?

No comment

19. What, if any, further measures, do you believe, are needed to support the development of a globally competitive UK SAF industry and to increase SAF usage?

No comment

Zero emission flight

Zero emission flight technologies such as hydrogen-electric and battery-electric aircraft have already been demonstrated in the UK. Continued investment in these technologies, as well as other lower and zero emission technologies could lead to a significant reduction in global aviation emissions.

As well as our existing policy commitments, we are proposing to:

- ensure the UK is at the forefront of deploying zero emission aircraft. Our aspiration is to have zero emission routes connecting the United Kingdom by 2030
- review the feasibility of using zero emission aircraft on UK PSO routes
- work with industry to encourage the adoption of innovative zero emission aircraft and aviation technology in General Aviation
- work through the Jet Zero Council to consider the wider enabling framework for zero emission flight, including the infrastructure, regulatory and commercialisation requirements.

20. Do you agree or disagree with the overall approach for the development of zero emission flight in the UK?

- [ ] Strongly agree
- [ ] Agree
- [ ] Neither agree nor disagree

☐ Disagree

☐ Strongly disagree

X Don't know?

Why?

As an organisation we have no particular view on this issue

21. In your view, what further measures are needed to support the transition towards zero emission aviation?

No comment

Markets and removals

We expect there will still be some residual CO2 emissions from aviation by 2050, therefore the development and implementation of carbon markets, such as the UK Emissions Trading Scheme (opens in a new window) and Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) (opens in a new window), as well as greenhouse gas removal methods - methods that take an equivalent amount of CO2 out of the atmosphere - will be vital in achieving our net zero goals.

As well as our existing policy commitments, we are proposing to:

- strengthen carbon pricing for aviation to ensure we continue to apply the 'polluter pays' principle and consider incentives for greenhouse gas removal methods

- explore how we can support other states that may need help implementing CORSIA effectively

22. Do you agree or disagree with our approach for using:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know?
carbon markets to drive down CO2 emissions?	☐	☐	☐	☐	☐	X
greenhouse gas removal methods to drive down CO2 emissions?	☐	☐	☐	☐	☐	X

Why?

As an organisation we have no particular view on this issue

23. What could be done further or differently to ensure carbon markets and greenhouse gas removal methods are used most effectively?

No comment

Influencing consumers

We want to ensure that we preserve the ability for people to fly whilst maintaining our jet zero goals. We intend to explore how we can influence consumers to make more sustainable travel choices through environmental information provision, whilst focusing on new fuels and technologies to reach net zero by 2050.

We are proposing to:

- explore whether mandating the provision of environmental information to customers at the time of booking flights could influence consumer decision-making

- look at other ways to support consumers to make sustainable choices when booking flights and rewarding those parts of the aviation sector that move faster to decarbonise

24. Do you agree or disagree with the overall focus on influencing consumers?

☐ Strongly agree

X Agree

☐ Neither agree nor disagree

☐ Disagree

☐ Strongly disagree

☐ Don't know?

Why?

Mainly because the principle of providing environmental information at the time of booking could be expanded to include issues relating to noise. For example, information about the noise generated from the aircraft type being used and how it compares with others. Also, information about the effect of flying at a particular time of day or night could have on those living under the flight paths.

25. In your view, what more can we do to support consumers to make sustainable aviation travel choices?

See above

Non-CO2 impacts

Tackling the climate impact of aviation is not just about reducing CO2 emissions. Whilst the long-life span of CO2 in the atmosphere makes tackling it of critical importance, there are other, non-CO2 impacts that also affect the climate and local air quality.

We are working to address non-CO2 impacts in the following ways:

- many of the measures to improve efficiencies, rollout SAF, and accelerate zero emission flight are expected to have a positive impact on reducing non-CO2 impacts. Where there is evidence to the contrary, we will carefully consider the overall impact on the climate

- we are improving our understanding of non-CO2 impacts and will ensure that the latest scientific understanding of aviation non-CO2 effects is used to inform our policy

- ICAO now has standards in place to regulate all aircraft emissions with significant climate effects. We will continue to negotiate for these to be improved over time as well as consideration of other measures such as operational guidance and regulation of fuel composition

- we will consider the outcomes of EUROCONTROL's Contrail Prevention Trial (opens in a new window) and whether it would be beneficial to undertake similar trials in the UK in the future

26. In your opinion, what could be done further or differently to ensure we tackle non-CO2 impacts from aviation?

Having mentioned how noise impacts might also benefit from reducing CO2 emissions it is hugely disappointing that noise management is conspicuous by its absence from this list. The Government's policy on noise as set out in the Noise Policy Statement for England states at paragraph 2.7 – *"the application of the NPSE should enable noise to be considered alongside other relevant issues and not to be considered in isolation".* Policies to reduce CO2 emissions must be developed alongside consideration of the consequences of those policies on the effective management of noise from aviation

Final comments

27. Do you have any other comments you would like to add?

[Attach any documentation to your return]

Comments:

As mentioned above, the Institute of Acoustics does not have any particular views on the main issues covered in this consultation. We welcome the fact that the issue of aircraft noise is mentioned occasionally in the document, but, as stated above, disappointed that the summary of 'Non CO2 Impacts' does not mention noise. The main thread of our response to this document is that in seeking CO2 emission reduction, it is essential that the consequential impact on effective noise management is fully considered. The adverse health effects of noise are well documented. They cannot be ignored.