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# Department for Transport consultation on 'Jet zero: our strategy for net zero aviation'

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CREDS is the Centre for Research into Energy Demand Solutions, funded by UK Research and Innovation to support the transition to a net-zero society. CREDS responds to consultations and calls for evidence from government, agencies and businesses, providing insight and expertise to decision-makers.

This document was written on behalf of CREDS by Dr Sally Cairns and Prof Jillian Anable, University of Leeds, as part of the Transport & Mobility theme. It was submitted to the Department for Transport's public consultation on its strategy for net-zero aviation.

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Answers are given to questions 2, 3, 4, 10, 13, 14 and 15.

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## Key points

- The range of scenarios modelled is too limited. Scenarios should be included in which emissions reduce from 2019 onwards and a wider range of policy options are considered (Q2).
- Inclusion of policies restricting airport expansion and increasing ticket taxation are essential in order to make a difference quickly. Policies to support alternatives and to encourage transition within the aviation industry could also be valuable (Q10).
- More frequent review than every 5 years, and focusing on years closer than 2050 are both important (Q3, Q4).
- Providing carbon information about flights to consumers will be much less effective if the overall policy framework is one of growth and expansion (Q13, Q14).
- It is urgent to address non-$CO_2$ emissions, and expert advice should be sought on the potential for focused demand management measures - i.e. restricting the categories of flight that have the greatest negative climate impact as a result of non-$CO_2$ impacts (Q15).

## Q2) Do you agree or disagree with the range of illustrative scenarios that we have set out as possible trajectories to net zero in 2050? Are there any alternative evidence-based scenarios we should be considering?

In his response to the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment (2021), the UN Secretary General stated[1]:

*"Today's IPCC Working Group 1 Report is a code red for humanity… The internationally agreed threshold of 1.5 degrees Celsius is perilously close…We need immediate action on energy. Without deep carbon pollution cuts now, the 1.5-degree goal will fall quickly out of reach. This report must sound a death knell for coal and fossil fuels, before they destroy our planet."*

In that report, only emissions pathways with immediate, rapid and large-scale reductions of all greenhouse gases within the next 5 – 10 years are consistent with limiting global warming to 1.5 degrees. The report is also unequivocal that global warming is accelerating.

In this context, it is almost inconceivable that the only scenarios that have been modelled are ones which see an *increase* in emissions from aviation up to about 2030 - and that demand management, perhaps the only policy that could make a big difference quickly, has not even been considered. This is particularly the case given that aviation levels are currently

[1] Secretary-General's statement on the IPCC Working Group 1 Report on the Physical Science Basis of the Sixth Assessment | United Nations Secretary-General

substantially reduced as a result of the pandemic, yet the modelling assumes levels will simply revert to pre-pandemic levels. The huge boom in domestic holidays and remote meeting technologies both provide new opportunities to 'build back differently'.

Limiting airport expansion, increasing passenger taxes and/or introducing new passenger taxes could all have an immediate effect on whether aviation reverts to previous trajectories, and would all help to ensure that emissions do not rise. Instead, the modelling assumptions about airport capacity are based on two government documents which support a major increase in airport capacity[2], and it is unclear how carbon pricing is expected to affect ticket prices. Passenger numbers are envisaged to rise from 273 million terminal passengers (in 2018) to between 461 and 466 million in 2050 (depending on scenario), indicating that their effect is expected to be relatively small.

The stated purpose of this document is to define "*an ambitious framework to support the aviation sector to decarbonise*" and "*to put the sector on the road to net zero*". If it is to have credibility, **this strategy needs to consider a wider range of policy measures and scenarios, which look at ways of ensuring that emissions do not rise, and which include policies on airport expansion and ticket taxation**, since these are practical and could make a rapid difference.

## Q3 Do you agree or disagree that we should set a $CO_2$ emissions reduction trajectory to 2050?

## a. Should the trajectory be set on an in-sector $CO_2$ emissions basis (without offsets and removals) or a net $CO_2$ emissions basis (including offsets and removals)?

## b. Do you agree or disagree with the possible trajectories we have set out, based on our high ambition scenario, which have in-sector $CO_2$ emissions of 39 Mt in 2030, and 31 Mt in 2040 and 21 Mt in 2050, or net $CO_2$ emissions of 23-32 Mt in 2030, 12-19 Mt in 2040 and 0 Mt in 2050?

We strongly support the need to set a $CO_2$ emissions reduction trajectory. In particular, given the need for urgent action, whilst 2050 is an important time point, a clear trajectory with unambiguous interim targets will be very important to focus on what needs to be achieved in the years before that time. Explicit emission targets should be set for 2025 and 2030, and

[2] Beyond the horizon the future of UK aviation (publishing.service.gov.uk) and Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England (publishing.service.gov.uk)

these should be aiming for a reduction in emissions, compared with 2019. Moreover, the targets should be set on an in-sector basis, given the considerable debate around the viability of removals and offsets for solving the climate change problem more generally[3].

## Q4) Do you agree or disagree that we should review progress every five years and adapt our strategy in response to progress?

We propose that more frequent progress reviews will be needed, given the nature of the climate emergency (i.e. the need for rapid action and the need to adjust policies as their impact on emissions is assessed), and also the high level of uncertainty around many of the measures outlined in the document. These reviews should include updated modelling based on the actual emission reductions being achieved by the different measures considered.

## Q10) What further measures are needed to support the transition towards zero emission aviation?

**Demand management – i.e. actively implementing measures to discourage people from flying - is the fastest and most effective way in which emissions from the sector will be minimised**. In practice, this will mean that limiting airport expansion, increasing passenger taxes and/or introducing new passenger taxes will be essential. This requires the government to acknowledge that maximising growth is no longer an appropriate aim for this sector.

As part of achieving political acceptability around demand management, it might also be helpful if the government could start a conversation about whether certain categories of people might benefit from tax reductions or exemptions, if their flight is considered to be of particular 'value'. Research shows that people themselves view some of their flights as essential whilst others as relatively discretionary[4]. For example, tax reductions for a given number of flights for overseas students or those with immediate family overseas might help to make general aviation tax rises more acceptable. A change to taxation could also help to reduce some of the existing inequality whereby ability to fly is determined by wealth, and about 15% of people are estimated to take 70% of all flights[5]. The practical viability of some form of simplified frequent flier tax has already been discussed in CREDS response to HM

[3] 10 myths about net zero targets and carbon offsetting, busted (climatechangenews.com)
[4] Can we fly less? Evaluating the 'necessity' of air travel - ScienceDirect
[5] Do 15% of people take 70% of flights? - Full Fact

Treasury's consultation on aviation tax reform[6]. It is critical that these issues are given proper consideration alongside more technological solutions, if the net zero goal is to be achieved.

In parallel with measures to manage aviation demand, the government should also consider measures that could increase the attractiveness of alternatives to flying and that could enable transition within the aviation industry. For example, these could include policies to support and develop the domestic tourism market and to encourage and enable the use of remote technologies for international meetings (including 'mixed mode' meetings, involving both remote and physically present participants, where there is a currently a 'gap' in existing solutions). Airports could arguably increase their role as meeting hubs; whilst expertise from airline staff could perhaps be utilised in domestic tourism roles. The aviation unions are already involved in discussions about how a positive transition could start taking place[7], [8].

## Q13) Do you agree or disagree with the overall focus on influencing consumers?

## Q14) What more can the Government do to support consumers to make informed, sustainable aviation travel choices?

Encouraging consumers to fly less often, and to visit closer destinations, would be helpful alongside providing information on the carbon emissions of individual flights.

In addition, **the government needs to consider the overall messaging generated by its policy**. If it encourages ongoing airport expansion and growth in this sector, it is fundamentally saying that these emissions do not matter very much, and that consumers do not need to change their behaviour in any significant way in order to meet our climate commitments. Many consumers appreciate that choosing between two different flights is relatively unimportant, if the total number of flights is increasing dramatically. What difference will an individual decision appear to make if Heathrow increases flight numbers by 60%? Conversely, with a more restrictive strategy, consumers would be more likely to 'play their part', since it would be more logical that doing so could make a difference. Perceptions

[6] CREDS-submission-aviation-tax-reform-consultation.pdf
[7] A Rapid and Just Transition of Aviation - Shifting towards climate-just mobility | Stay Grounded (stay-grounded.org)
[8] At least 70,000 jobs in aviation and aviation supply chains at risk — Possible (wearepossible.org)

of outcome efficacy have been shown to be a strong factor determining whether consumers will adopt less climate-damaging behaviours[9].

It should also be noted that this is a relatively price-sensitive sector, and flights with lower levels of emissions may be more expensive as a result of investment in new technologies. Consumers will justifiably wonder why they should make choices that are not necessarily optimum for them, if the Government is not restricting the sector as a whole.

## Q15) What could be done further or differently to ensure we tackle non-$CO_2$ impacts from aviation?

Any demand management measures would have the benefit of reducing non-$CO_2$ emissions as well as $CO_2$ emissions. The huge magnitude of the impacts of non-$CO_2$ emissions[10] means that they need to be addressed now – not at some future point. **Focused demand management may have a role to play** – for example, if certain categories of flight (such as long-haul night flights in winter) contribute disproportionately to contrail-cirrus effects, restricting these trips might also have a disproportionate benefit. Those with scientific expertise on the topic need to be consulted about how focused demand management – not just changing flight paths or alternative fuels – could help to address non-$CO_2$ impacts.

[9] Meta-analyses of factors motivating climate change adaptation behaviour | Nature Climate Change

[10] The Potential Climatic Significance of the Global Reduction in Aviation During the Pandemic[v1] | Preprints