

**Written evidence submitted by the Aviation Environment
Federation (AEF) (AAS0021)**

1. The Aviation Environment Federation campaigns on aviation, for people and the environment. Our focus is on aviation policy (relating to climate change, noise and air pollution), and we have participated in numerous Government engagement groups over the years. We currently have a seat on the Jet Zero Council. We have given oral evidence to several parliamentary committees including the Transport Committee and the Environmental Audit Committee and – on the topic of airport expansion – to committees of the London Assembly. Internationally, we are a lead member of the NGO grouping ICSA (the International Coalition for Sustainable Aviation) which has observer status to the UN’s International Civil Aviation Organisation.

2. We welcome the opportunity to respond to this inquiry. We have responded only to questions that relate to the strategic aims of aviation ‘recovery’ and to aviation sustainability. Our view is that the narrow construct of recovery may conceal the fundamental problems in aviation pre-pandemic, including in relation to fossil fuel dependence, employment, and local environmental impacts. Delivering a net zero aviation sector is essential but will be both difficult and expensive. Less aviation, as well as radically new technologies, will need to be part of the picture.

Recovery of the UK aviation sector

3. The premise of ‘recovery’ is the assumption that pre-pandemic the industry was in good health. In fact, it was suffering several deep-running problems.
 - (a) Aircraft were powered almost entirely by kerosene, having been unable to match the technology revolutions in sectors such as road transport or rail, both of which can now be operated using renewable energy. The aviation industry’s current focus on calling for increases in Sustainable Aviation Fuel (SAF) does not represent a scalable solution, as the SAFs

currently available will reduce only net, not actual aviation emissions. We return to this issue below.

- (b) Employment per passenger was meanwhile in long term decline even before the pandemic, as a result of the rise of low cost air travel and increasing automation at airports, so maintaining the workforce at its existing level was contingent on continued growth in passenger demand.
 - (c) The noise impacts of the sector remained contentious, and harmful to human health. Individual aircraft had become less noisy, but the combination of increasing traffic volumes in some cases, and airspace changes including increase concentration of flight paths (and therefore noise) as a result of the increasing use of Performance Based Navigation, had resulted in ongoing noise problems.
 - (d) The growth in demand was being driven in part by artificially low air fares that didn't reflect the cost of climate change, and were not subject to the usual taxes and duties applied to the other sectors. BEIS recently published a policy paper setting out revised greenhouse gas emissions values consistent with meeting a net zero target by 2050. This paper put a value on carbon in 2020 of £241 per tonne of CO₂. Current carbon prices paid by the aviation sector are a fraction of this level however. This under-pricing inhibits the uptake of lower carbon in-sector solutions, as well as the possibility for other modes to compete with air travel on price, creating a price differential that favours the continued use of kerosene.
4. It is currently unclear to what extent air travel demand will bounce back, though many commentators have speculated that business travel in particular may never return to its earlier levels, as a result of firms having embedded new ways of working (including online meetings) and in some cases also having made their own net zero commitments and being aware that staff air travel can represent a significant part of large corporations' carbon footprint.
 5. Given how far the aviation sector currently is from rolling out zero carbon technologies or fuels, meanwhile, in order to meet the UK's climate commitments, air travel will – in our view – need to be limited. 2019 should

be regarded as the peak year for UK aviation emissions. The focus in terms of policy should not therefore be on stimulating air travel and in particular public funds should not be used to boost aviation demand by way of tax cuts or similar. Instead, the Government should consider how to:

- Support those facing job losses in the aviation sector with opportunities for retraining in sustainable employment
- Support domestic tourism and leisure
- Provide certainty about the timeline for decarbonisation in the aviation sector, to help generate market conditions for zero carbon technologies and fuels
- Support regional connectivity through investment in public transport
- Increase the level of tax paid by airlines to help support investment in the UK recovery

Sustainability, including how to maintain a competitive aviation sector while ensuring the net zero goal is met

6. Aerospace manufacturers have been successful in increasing the efficiency of aircraft through better engine and airframe design, a trend that is likely to continue. Together with the shift towards low cost air travel with more passengers per plane this has helped to reduce the emissions per passenger.
7. Nevertheless, the growth in air travel and the fact that these changes have been incremental rather than revolutionary meant that 2019, just before the pandemic, recorded the highest ever level of civil aviation emissions from aircraft departing the UK. Most airlines recognise that this trend can't continue now that the Government has made clear its expectation that all sectors of the economy, including international aviation and shipping, must achieve net zero by 2050. Yet unlike most sectors of the economy, aviation does not have technology solutions ready to roll out in order to deliver decarbonisation.

8. Up till now the sector has relied heavily on carbon offsetting as a climate policy tool. Even when done well, however, offsetting (at least of the kind currently available) cannot offer a long term solution in the context of net zero, as all UK sectors will need to make big emissions cuts to achieve net zero and the CCC has advised the Government that it should not be using international offset credits to meet the UK's domestic commitments.

9. At present, much of messaging from both the industry and the Government is about the potential for Sustainable Aviation Fuels, (SAFs) to be scaled up as a means of delivering 'guilt free travel' (<https://www.thetimes.co.uk/article/cop26-leaders-will-use-fuel-made-from-sewage-to-fly-home-hxhnbmngf>). Yet the kind of fuels being promoted in the run-up to the COP – those made from wastes – cannot be scaled up, and the claimed emissions savings often relate to avoided methane emissions from landfill which, just as with other offset projects, will need to be cut in addition to and not instead of aviation decarbonisation. E-fuels, made from captured CO₂ combined with green hydrogen, can in theory offer a net zero carbon solution, but are currently being made only in tiny quantities and will require large new infrastructure and surplus renewable energy to produce.

10. Ministers have also been keen to talk up the potential for what they are calling 'jet zero': zero emissions flight. It is absolutely appropriate and necessary to be researching and testing these technologies, but it is also important to be realistic about what they are likely to be able to offer at this stage – less than 30 years from the net zero deadline. Battery-powered aircraft are likely to exist only for very short haul regional routes until after 2050, while hydrogen options may be able to operate on longer trips but would need investment in new aircraft, refuelling infrastructure and in the hydrogen itself. While promising, small-scale demonstrators exist, it is premature to herald an era of 'guilt-free flying' when no zero-carbon technologies or fuels are even close to commercialisation for medium or long haul flights.

11. Finally, almost all proposed pathways for the aviation sector achieving net zero, whether from the CCC, the DfT, or the industry coalition Sustainable Aviation, assume the sector will still be emitting large amounts of CO₂ in 2050 – in excess of 20MtCO₂ annually - that will need to be removed and permanently stored every year (Greenhouse Gas Removal using Carbon Capture and Storage) in order to meet the net zero target. Yet while this technology has existed in theory for decades it has never yet been delivered in the UK.

12. Given both the level of uncertainty and the need for really large-scale investment to make any of these technologies successful – investment that should be made, or else recovered, from the aviation industry – we should assume both that flying will in future need to be more expensive and that we should not be planning for more airport expansion or growth in passenger numbers in advance of solutions reaching the market.

13. In terms of competitiveness impacts (and potential carbon leakage) it is worth noting the following about climate actions being pursued by competitor countries.

(a) The EU is developing a package of measures to tackle aviation emissions.

All emissions within and between EU member states are included in the EU Emissions Trading System, and carbon prices are now increasing as the system is linked to increasingly stringent emissions targets. The UK ETS is being designed with a view to keeping up with the EU's level of ambition.

(b) The EU is, like the UK, committed to net zero by 2050, and the 'Fit for 55' package aims to align climate, energy and transport-related legislation with both 2030 and 2050 climate goals. The package includes new policy measures to tackle aviation emissions including the introduction of a kerosene tax rising to €0.38 a litre by 2033 on intra-EU routes.

(c) A proposal to expand Charles de Gaulle Airport with a view to increasing passenger capacity by 50% was turned down by the French Government in February this year on the basis of climate and other environmental concerns. <https://www.reuters.com/article/us-france-adp-idUSKBN2ABOWS>

(d) Almost every country in the world has signed the Paris Agreement and there are states in every region and continent that have adopted emissions targets of net zero by at least 2050, either in law or policy. The Paris Agreement's temperature targets implicitly apply to all sectors, although states are at different stages in terms of how these are being translated into policy.

(e) Closer to home, the Scottish Transport Minister recently addressed Scotland's parliament on the need to cut flying in order to achieve the nation's commitments on climate change. "There are no easy solutions", he said. "Without a reduction in aviation demand, the transport sector will not be able to achieve its emissions envelope for 2030."

<https://www.heraldsotland.com/politics/19601325.radical-change-aviation-demand-scotland-needs-fall-one-third-2030-hit-climate-aims/>

14. Acting on aviation emissions, even if it imposes costs on the sector and reduces demand, is unlikely to impose competitiveness impacts on the industry to the extent that other countries are taking comparable action. We would argue in fact that the downsizing of the aviation sector during the pandemic presents an opportunity to focus on building sustainable businesses (including in the carbon removals and other technologies that will be needed for aviation to continue to operate in a net zero future) that will protect the UK's wider competitiveness and benefit businesses, their staff and the wider public rather than continuing with the problematic course that aviation was on before the pandemic.

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