



Safe Landing

AVIATION WORKERS
FOR A SUSTAINABLE FUTURE

UK JET ZERO: FLYING AVIATION WORKERS INTO DANGER

This is Safe Landing's response to the UK Government *Department for Transport* Consultation: [Jet Zero: updated evidence and analysis to inform our strategy for net zero aviation.](#)

Pilots and safety critical aviation workers are trained to always have a Plan B. If we find ourselves with an uncertain outcome and we don't have a credible back-up plan, we have failed to manage the risk and have failed to do our job. That is precisely what the UK *Jet Zero* scenarios propose. If we go down this path with huge uncertainty and it fails, then we have no back-up. The jet fuel has been burned, the temperature has risen, there is no going back. There will be no Safe Landing.

The *Jet Zero* consultation proposes 4 scenarios, all of which involve high levels of air traffic growth to 2050. The scenarios rely heavily on successful development and deployment of unproven technology to achieve net-zero emissions. What if the promised developments don't happen? We believe in the precautionary principle. We should act now to reduce aviation emissions, while simultaneously developing the technology to help us meet our obligations. Should technological developments prove to be successful, they can be utilised. If not, we've still met our targets.

As aviation workers within this technically-minded sector, we've assessed the options relied on by the *Jet Zero* scenarios, and believe they are overly-optimistic and unlikely. In some cases, they are dangerous to the environment, the economy, society and our own industry.

If we fail to recognise this and return to 'business-as-usual' growth based on improbable technological developments, we risk having the rug pulled from under us, and will face a cliff-edge of sudden air traffic reduction. This will inevitably cause a major industry crash. We would like to avoid such a crash by seeing necessary policies applied through early design, rather than by late disaster. If there is to be any security for those of us in the industry, we recognise that a credible path to net zero for aviation is essential. The *Jet Zero* scenarios are not that path.

Consultation Questions and Safe Landing responses:

1. 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? (question 2 of the initial consultation)

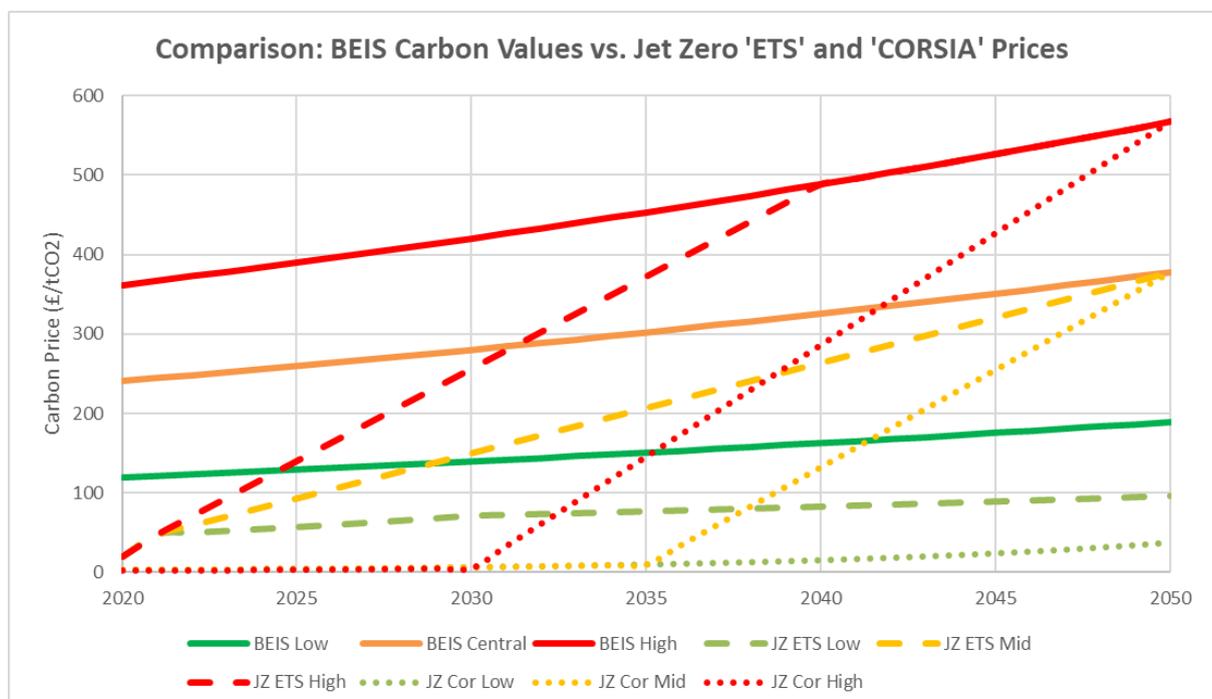
Safe Landing response:

We believe a variety of scenarios are missing:

- Air traffic constraints: scenarios with various limits on air traffic growth, particularly of long-haul aviation as recommended by the IEA "[Net Zero by 2050](#)" report
- Increased emissions pricing: particularly assessing the impact of the 'High' BEIS carbon values which are far higher, far earlier than the Jet Zero modelled ETS and CORSIA 'Mid' prices. A scenario with a CORSIA price that ramps up far earlier across the 2020s to enter the BEIS carbon value range, would also demonstrate the importance of reforming CORSIA.
- A scenario modelling the total climate impact of UK aviation, including non-CO2 emissions.

The updated Jet Zero consultation models 4 scenarios, all of which involve a large growth in UK aviation over the next three decades to 2050. This growth is even greater in the updated 2022 scenarios than in the scenarios originally modelled in the initial 2021 Jet Zero consultation. Such air traffic growth flies in the face of advice from the UK Climate Change Committee (CCC), the International Energy Agency (IEA) and the Intergovernmental Panel of Climate Change (IPCC). We believe this level of growth will lead to an industry crash and is actively dangerous for the future job security of workers in the aviation sector.

The updated scenarios have updated carbon prices modelled which are split into intra-EU/UK (ETS) and extra-EU/UK (CORSIA) prices. These make reference to recently updated UK Department for Business, Energy and Industrial Strategy (BEIS) carbon values:



However, despite 'High' values (red) from ETS and CORSIA being referenced in the documentation, these prices are not used in any scenario and only 'Mid' (orange) and 'Low' (green) prices are

modelled. Additionally, all carbon prices modelled only reach parity with BEIS carbon values in 2050 and remain significantly lower over the three decades prior. This is particularly true for the CORSIA 'Mid' and 'Low' values which remain far lower than even the BEIS 'Low' values until after 2040.

It should be noted that a large proportion of UK aviation emissions are attributed to flights currently covered by CORSIA, rather than ETS pricing. Reforming the CORSIA scheme therefore appears to be of great importance. It would be useful to have a scenario where 'High' BEIS prices are applied to all UK aviation emissions to assess the emissions reduction benefit and to make the case for reform.

We can see clearly that curtailment of air traffic is necessary. We can also see that higher emissions prices are inevitable and will have an impact on demand. This fact needs to be recognised and planned for by the government, the regulators and industry - otherwise, we are setting ourselves up for an industry crash. We would like to see these constraints and prices phased-in as early as possible, so they can be applied as smoothly and as gradually as possible. The later we wait, the steeper the changes required will become, which will increase the chances of a severe industry crash.

We would expect that an additional range of scenarios could be provided showing the impact of airport / air traffic capacity constraints and emissions pricing that ramps up higher and earlier. As a minimum, the 'High' ETS and CORSIA carbon price lines provided could have been used. A scenario with the 'High' BEIS prices would be most useful though. Without providing these scenarios, it is impossible for groups responding to this consultation to assess the relative impact of such policies.

In addition, we would expect an attempt to model the total climate impact of UK aviation, including non-CO2 emissions. A recent paper ([M Klöwer et al 2021](#)) has demonstrated how to do this.

2. Do you agree or disagree with the possible trajectories we set out, which have in-sector CO2e emissions of 36Mt in 2030, 28Mt in 2040 and 15Mt in 2050, or net CO2e emissions of 24-29Mt in 2030, 12-17Mt in 2040 and 0Mt in 2050? (question 3b of the initial consultation - values updated in line with the new analysis)

Safe Landing response:

We disagree, as we think there should be more trajectories available for assessment (see answer above), including at least one scenario with an emissions trajectory that is compatible with IPCC pathways that are likely to limit global warming to below 1.5°C. This would involve more significant emissions reductions by 2025 and 2030 and would not rely on the use of carbon offsets.

3. Do you have any other comments in relation to the updated illustrative scenarios?

Safe Landing response:

All updated scenarios include a significantly increased uptake of Sustainable Aviation Fuels (SAF) despite a lack of evidence that such fuels can be scaled to the quantities modelled without competing with other sectors for limited resources and causing adverse social, ecological and environmental impacts. Increasing assumed quantities of 'SAF' will inevitably lead to higher risk of these adverse impacts. As stated in Para. 3.19:

"a significant amount of feedstock would be required, and it is likely that aviation would need to be prioritised amongst other competing sectors. It is also likely that power-to-liquid SAF would need to be deployed at scale to meet this fuel demand."

Producing synthetic jet fuel from either waste biomass or renewable electricity is a very inefficient use of those resources. As such, prioritising aviation over other sectors could make decarbonisation across all sectors of the economy both more difficult and more expensive. Viewed holistically, the more SAF that is produced, the higher overall emissions are likely to be. Therefore, a realistic quantity of 'SAF' could be derived by estimating the amount of 'SAF' co-product that would be produced when prioritising more efficient uses elsewhere.

We believe that the quantity of 'SAF' produced in any given year should be strictly limited on a basis that ensures positive environmental and social impacts. We suggest that this quantity should be determined not by any given industry, but by governments at a national and international level, through careful economy- and society-wide assessment, and prioritisation of available resources.

The importance of carefully utilising globally scarce biomass and renewable electricity resources has been recently highlighted by the impact of the Ukraine Crisis and resulting energy, fertiliser and food shortages which have caused rising energy and grocery bills and greatly impacted people on low incomes. The emphasis of the latest IPCC report (AR6 WG III) on the likely need for significant use of Bioenergy Carbon Capture & Storage (BECCS) for future greenhouse gas removals also highlights that there is likely to be very limited quantities of sustainable waste biomass available to produce 'SAF'.

We therefore reject any proposed 'SAF' mandate that fails to provide a cross-economy impact assessment of environmental and social risk. Otherwise, we'll end up banking on a certain amount of feedstock to make aviation fuels which will never realistically become available.

It is very clear to us that any 'SAF' mandate is of secondary importance to any policies required to constrain total fuel consumption by the aviation industry (and indeed other transport industries).

We reject any proposed 'SAF' mandate that fails to place a cap on total fuel consumption first. This cap should be set by assuming all fuel burned is fossil fuel kerosene (given the uncertainties of technological readiness, and environmental & social impacts of alternative fuels produced at scale) and by assuming an emissions reduction trajectory compliant with limiting global warming to 1.5°C.

The aviation industry needs to undergo a huge transformation across aerospace manufacturing, airline operations and airport infrastructure – we believe that government support should primarily be targeted here – rather than used to finance the fuels industry through subsidies or incentives to encourage fuel production which is likely to result in negative impacts.

In addition to these impacts, 'SAF' is many multiples more expensive than fossil fuel and this is particularly true for the fuel pathways with a higher probability of scalability and sustainability.

The Jet Zero Strategy advocates for the "Polluter Pays" principle i.e. those who produce pollution should be the ones paying to reduce and clean it up - so it's inconsistent to then model emissions prices that are far lower than the social cost of carbon and the abatement measures being proposed.

This is a contradiction that runs throughout the Jet Zero scenarios: they assume optimistic improvements, increasing scale and decreasing costs across aircraft, fuel and greenhouse gas removal technology - yet the very policy levers that would help push these developments, e.g. earlier and higher emissions pricing, are not modelled alongside.

As aviation workers, we can see this contradiction. While it might not be apparent to everyone now, it is lurking and will inevitably come back to bite us. We would like policy-makers to recognise and resolve this through careful early design, rather than by late disaster that could leave us to face a cliff-edge of sudden air traffic reduction (which could prove permanent), and associated job losses.