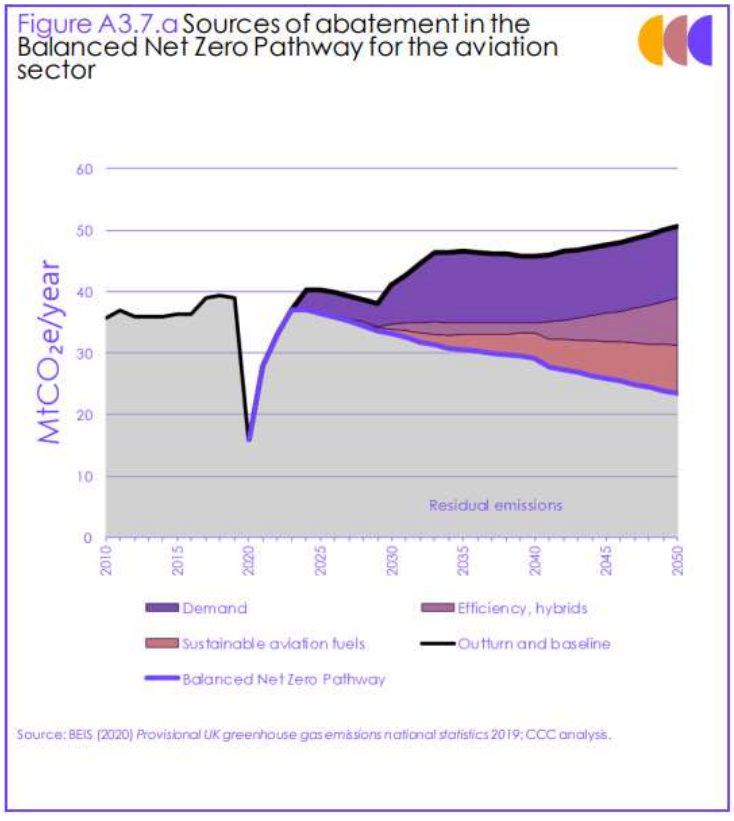
# Briefing for Westminster Hall debate on decarbonising aviation

Transport is the UK's highest emitting sector, accounting for 31 per cent of carbon emissions in 2018. Of those, aviation accounted for 7.3 per cent, with international flights responsible for 6.8 per cent and domestic flights 0.3 per cent. Carbon emissions from UK aviation have more than doubled since 1990.

Aviation also produces non-CO2 emissions which contribute to climate change, such as nitrogen oxides and cirrus contrails. Because of these additional non-CO2 effects, aviation's total contribution to climate warming is estimated to be three times higher than that associated with CO2 emissions alone.

To reduce aviation emissions, we must take fewer flights and fly shorter distances. This is because technological, efficiency, and offset options alone cannot put the sector on track to net zero by 2050. The Climate Change Committee's (CCC) balanced pathway allows for a 25 per cent growth in demand by 2050 compared to 2018 levels, rather than the 68 per cent growth projected by DfT in a business as usual scenario. The biggest share of emissions cuts needed for aviation comes from policies that reduce demand for flying [see CCC graph below]. The government recently published its Transport Decarbonisation Plan and Jet Zero consultation. However, the government's aviation strategy is not adequate because it does not recognise the need for policies which reduce growth in passenger numbers.

Earlier this year the government announced it would include emissions from international aviation and shipping (IAS) into the sixth and future carbon budgets. This is a very welcome step. Policies must now be put in place to reduce emissions from the aviation and shipping sectors in line with the UK's target to cut emissions by 78 per cent by 2035.



## Encouraging more sustainable choices

Given that new technologies and alternative fuels are yet to be deployed at scale, there should be no expansion of any airport in the UK. Reducing the number of flights and distance flown is the easiest way to cut aviation emissions. The CCC says that, compared to 2019 figures, passenger numbers should rise by no more than 68 million in 2050. But Heathrow's new terminal alone could grow passengers by 55 million, and plans to expand Gatwick, Stansted and Luton could increase the number by a further 58 million. Outside London, Leeds-Bradford, Southampton and Bristol airports also have plans to expand, which would again grow passenger numbers. These expansions are incompatible with pathways to net zero and should not go ahead. Instead, the government should issue a moratorium on all airport expansions.

Taxation must also be reformed to better reflect the environmental costs of aviation and so that the sector makes a fair contribution to HMG's finances. VAT should be charged on fuel for domestic flights. Introducing a frequent flyer levy would also be an effective way to reduce emissions from the aviation sector. This policy was a preferred option of the Climate Assembly UK: 80 per cent of assembly members 'strongly agreed' or 'agreed' that taxes that increase as people fly more often and as they fly further should be part of how the UK gets to net zero. The top 25 per cent of households by income spend five times as much on international air fares as the bottom 25 per cent.

Other forms of taxation should be considered to encourage a shift to less polluting modes of transport, such as rail. These include:

- An increase in air passenger duty (the government currently has plans to cut Air Passenger Duty on domestic flights and flights taken on private jets)
- Scrapping air miles reward schemes
- A higher tax on business and first-class flyers

Jobs per passenger in aviation have been steadily falling for many years, as a result of increasing automation at airports and higher demand for flying. It would not be sustainable to seek to increase the volume of air travel in order to protect jobs, so targeted support is needed to help aviation workers to transition to green jobs. At the very least, financial support packages for airlines and airports should be conditional on implementing effective green policies and investing in low carbon technologies such as alternative fuels.

## Scaling up the use of alternative fuels

The government is consulting on whether to introduce a mandate on alternative fuels – i.e. mandate that fuel suppliers sell a higher proportion of fuels that are more sustainable than conventional kerosene.

Such a mandate should be introduced as soon possible to reduce emissions in the short and medium term, but there should be strict criteria for what counts as a 'sustainable' fuel. Alternative fuels should not come from products associated with deforestation and land degradation, including those derived from palm and coconut. Furthermore, we should aim to drastically reduce waste, and as measures are put in place to do so, the availability of waste-based fuels will be limited. It is also important to note that these types of alternative fuels are not zero carbon: they are responsible both for emissions in the production process and at the tailpipe when they are burnt.

Ekerosene is the only fuel which can be zero carbon for aviation. It is generated by combining hydrogen and carbon dioxide. To be zero carbon, the hydrogen used must be 'green hydrogen' (hydrogen produced through electrolysis using renewable energy sources) and the carbon dioxide must come from direct air capture (extracted from the atmosphere). Ekerosene is not yet commercialised and is estimated to cost two to three times the average price of kerosene. A sub-mandate for ekerosene should be introduced alongside a mandate for alternative fuels, as is the case in the EU. This would encourage industry to invest more heavily in green hydrogen and direct air capture, as well as ekerosene plants.

## Investing in new technologies

Electric and hydrogen fuel cell aircrafts are currently being developed for short routes. However, zero emissions aircrafts for long haul flights, which generate the majority of emissions, are not anticipated to be developed until after 2050. While the sector should invest in these technologies, efforts should be focussed on limiting the number of flights and making remaining flights less polluting.

## Greenhouse gas removal (offsetting)

Given how far the aviation industry is from decarbonisation, greenhouse gas removal will be required for the sector to achieve net zero by 2050. But to reach net zero by 2050, aviation emissions must be reduced as much as possible over the next decades, so that the UK has sufficient greenhouse gas removal capacity across the economy to balance out residual emissions from aviation and from other sectors that are hard to decarbonise such as land use and heavy industry.

## Working internationally

ICAO, the UN agency for aviation, should set a long term global emissions reductions goal for aviation consistent with the Paris Agreement. It should also strengthen CORSIA, its offset and climate scheme, to align with this long term goal.

The UK government must use its diplomatic resources to push for a target and an emissions reduction plan at the ICAO, preferably to be agreed at the 2022 ICAO general assembly. It should also use its COP presidency to encourage other countries to include emissions from international aviation and shipping in their carbon budgets.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