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How far off is green air travel?

As airlines prepare for a post-COVID travel surge, decarbonisation must be a priority. To rise to the challenge, we'll need a combination of government policy and private innovation.

In the coming months and years, demand for air travel looks set to ricochet back to where it was pre-pandemic. In fact, this long, hot, vaccinated summer may see the start of people flying abroad in numbers much greater than before COVID-19 hit.

Add pent-up demand to a general trend towards more air travel — passenger numbers are growing at around 4.7% per year — and you get a heady cocktail of holidays, business trips (minus those now overwhelmingly declared pointless) and carbon emissions.

It's a good time to revisit some of the conversations we were having around air travel back in 2020 — when airlines' organic revenue had been decimated, and government finance was given out in response.

IAG, which owns British Airways, saw a £6.3B loss last year — and thousands were let go from their jobs. But at the same time, many asked: did we really want government money funnelled into an industry with such sizeable climate impact?

A campaign emerged in response, urging that all bailouts be dependent on binding environmental conditions — whether via taxes, targets or green investments. Faiza Oulahsen, a spokesperson for Greenpeace, *said*:

“Public bailouts must come with strict conditions to protect jobs and slash the aviation sector’s soaring contribution to climate breakdown.”

The UK’s air travel industry was largely opposed to this, saying it had already committed to net-zero by 2050 and has its own plans to achieve it. But failing to hold airlines to higher standards was a missed opportunity.

While the French government issued a €7B grant to Air France on the condition that it reduced emissions, stopped offering domestic flights for routes with a viable green alternative, and sped up its shift to alternative fuels, in the UK it’s a different story.

Ryanair is cutting prices significantly to incentivise post-COVID flying, and the Sun’s Deputy Political Editor *tweeted a couple of weeks ago* that ‘Treasury Minister Jesse Norman hints that air passenger duty could be slashed on domestic flights so Brits are encouraged to catch a plane within the UK’.

A section of Transport & Environment’s Bailout Tracker. See the whole thing here.

While there is good news in terms of investment — at the end of January, the government announced an £84M boost for green aerospace tech via the Aerospace Technology Institute — policy is still lagging.

Things are changing after years of almost total lawlessness in monitoring and cutting aerospace emissions, but they can’t change fast enough. This year will see the publishing of a revised *transport decarbonisation plan and net-zero aviation strategy*, which must herald the introduction of more stringent policy measures to go on top of increased investment.

Although airlines need cash to invest in net-zero technology, measures designed to foster more trips by air are the antithesis of what we need. Governments can and should help airlines in a way that helps their workers and the environment, rather than the opposite, while minimising flying in the short term while there is an absence of fossil-free solutions.

A green recovery will entail less growth

According to Gabi Matic, Programme Director of the *ATI Boeing Accelerator* — an initiative from the Aerospace Technology Institute with sponsorship from Boeing and GKN Aerospace, demand will be rising again soon — for better or worse, depending on who you are.

“As much as in the past decade, I think the industry has improved, the airplanes have become more fuel efficient, and big corporates have managed to optimise and create more sustainable processes in producing parts and things like that…” says Matic.

> *“At the same time, we’ve seen people wanting to travel in a really kind of exponential way, which almost offset the progress that’s been done.”*

“We’re still at a point where there’s so much that needs to be achieved.”

Although air travel only constitutes 2.5% of the world’s carbon emissions at the moment, *there are fears this could rise to 25% by 2050* if passenger growth continues and decarbonisation efforts fall short.

Gabi Matic, Programme Director of the ATI Boeing Accelerator.

Sustainable Aviation, a coalition made up of leaders in UK aviation, says it can accommodate a ‘70% growth in passengers by 2050’ at the same time as getting to net-zero. However, this target is heavily dependent on the success and scalability of biofuels — a realm where almost everything is still to play for — as well as controversial measures like carbon capture and offsetting.

At least in the short term, we should be steering away from growth — primarily through encouraging the tiny minority of people who take the vast majority of flights to cut back, and eradicating routes where travel by land is feasible.

“I just don’t believe in the idea that the number of international visitors to New Zealand can grow and grow and grow without limits”, Air NZ’s chief environmental advisor Sir Jonathon Porritt said in a recent interview on post-COVID travel and tourism.

“I just don’t believe that is credible and I don’t believe it’s right. So, if a higher price for the privilege of flying to New Zealand puts some people off, good.”

Looking to decarbonisation and more frequent flying

Porritt’s are not the kind of words you would expect to hear from someone employed by an airline, but they are encouraging. It looks like sustainability is becoming more than just a nice-to-have for the industry — as Matic from the ATI Boeing Accelerator also emphasises.

“We are very lucky with the partners we have on our programme”, she says.

“Not only have they been supportive for the startups in helping them grow their businesses, but we’ve really seen that sustainability is not just a box-ticking exercise anymore.”

The ATI Boeing Accelerator is a programme for startups in the UK aerospace industry; there’s a particular focus on sustainability-enabling technology, from production and lifecycle right through to batteries and fuel. Accelerators like this, which injects £100K into each participating startup, will be vital if we ever want to get away from a world where the only real way to fly sustainably is to not fly at all.

Matic continues: “It’s something that genuinely needs to be achieved and is being taken seriously, which I think is why it’s really exciting to be a startup in this space at the moment.”

> *“This is the time to start doing it, because a lot of these solutions will take time to actually come into fruition.”*

At the moment, the path to decarbonising air travel is a long and thorny one. In terms of fuel, the two prevailing options are alternative energy, where success is dependent on progress we make in solving the energy storage dilemma, and biofuels.

Biofuels are basically the same as fossil fuels, but come from organic waste — they harness carbon that would have been released into the atmosphere anyway, as opposed to ancient carbon that ought to have stayed buried underground. They aren’t totally carbon neutral, and there are also important concerns about the impact mass production of biofuels would have on biodiversity and food production. Both solutions remain prohibitively expensive.

“For some of this to actually be affordable for the industry”, Matic says, “the more we support startups that can help the corporates do things cheaper and quicker, the quicker we’ll get there.”

The most recent ATI Boeing Accelerator cohort saw innovation in the fuel field from companies such as *PhycoBloom* and *HiiROC*.

The former alleges that algae oil is the only biofuel we can possibly produce sustainably at scale; via synthetic biology, it adapts algae to stay alive throughout the process, meaning it can continue to capture carbon afterwards. The latter operates in the hydrogen space, producing the ‘silver bullet’ element through an affordable and clean plasma process.

Cofounder of Phycobloom: Ian Hu, CTO, and John Waite, CEO.

Interactions between the public and private sector

Supporting and ultimately incorporating tech like PhycoBloom and HiiROC’s will be necessary if the aerospace industry wants to survive. “It’s really hard to be innovative if you’re huge — like some of these big aerospace manufacturers”, admits Matic.

“What I’ve seen happen a lot on these programmes is that, by forcing yourself as a team to be exposed to innovation, to be exposed to startups and the way they think, can really make change internally.”

“That is something the industry urgently needs.”

However, while startups can help with this — governments can force it. For a start, we should be levying taxes to disincentivise flying, rather than cutting Air Passenger Duty to encourage people to fly when they could just as easily take a train or a bus.

Is it hard to find internal cash for sustainable investment when aviation is struggling in general? I ask Matic. Not when metrics and sustainability goals are made mandatory.

“Though it might be hard now, especially because of COVID, this is going to be cost-saving down the line”.

Article by FLORENCE WILDBLOOD