

AVIATION

Clipped wings



Before COVID-19 struck, commercial aviation had barely begun to reckon with the challenge posed by decarbonisation. Jennifer Johnson looks at how the ongoing economic crisis could accelerate, or perhaps stall, the sector's progress.

It seems strange to think that just one year ago, airline bosses were growing slightly uneasy about the impact of *flygskam* – or ‘flight shame’ – on their long-term growth prospects. The Swedish word describes the feeling of climate guilt associated with travelling by plane, and with many campaigners, including Greta Thunberg, vowing to use lower carbon means of transport, a long-term increase in passenger numbers no longer seemed inevitable.

Then coronavirus struck. Global lockdown measures virtually emptied airports and left 80% of the world's jetliner fleet standing idle on the tarmac. Estimates vary, but the general industry consensus is that it could take years for airlines to get back to business-as-usual.

However, it seems unlikely that the experience of air travel will ever be the same. Onerous health checks at international borders or compulsory onboard mask-wearing may make train or vehicle journeys look more appealing to travellers. Flight shame could very well be superseded by flight avoidance in a post-COVID world. This would naturally be good news for international carbon reduction targets.

But a significant collapse in air

travel would also have obvious economic consequences and leave tens of thousands of people out of work. While there is no disputing the fact that high emission plane journeys must be reduced, the chaotic collapse of the commercial aviation sector is not a desirable route to Paris Agreement compliance.

Bailouts or bust

Prior to the onset of the pandemic, the airline industry had been tasked with plotting an impossible course to two conflicting destinations. The first involved a massive reduction in CO2 emissions to prevent dangerous levels of planetary warming. The second required a steep increase in flight frequency and capacity to cater for growing travel demand among the world's emerging middle classes.

Last year, Airbus predicted that the number of commercial aircraft in operation would have to more than double to 48,000 in the next two decades. The company also said it expects that about 60% of the existing global fleet of almost 23,000 would be replaced with new, more efficient planes in the same timeframe. These models will undoubtedly consume far less fuel than their predecessors, though this will not compensate

for booming flight numbers.

On paper, it would appear that the French government is serious about imposing some emissions restrictions on its national carrier, Air France. In early May, EU lawmakers approved a €7bn national loan package to buoy the struggling airline. In turn, French ministers have made non-binding requests for Air France to purchase more fuel-efficient planes and reduce the number of domestic destinations it services. ‘When you can travel by train in less than two and a half hours, there is no justification for taking a plane,’ said the country's Economy Minister, Bruno Le Maire, in an interview with France Inter radio.

However, the NGO Transport & Environment (T&E) has pointed out that it will be necessary in the long term to tackle emissions from non-domestic flights, which make up 90% of all airline emissions in Europe.

‘France's green requests are a first but we had non-binding commitments for years and airline pollution ballooned,’ warns Andrew Murphy, Aviation Manager at T&E. ‘Marginally more efficient planes won't put a dent in emissions if airlines still burn fossil fuels that they buy tax-free. Governments should require the industry to take up greener fuels

Passenger numbers at London's Heathrow Airport, the busiest in Europe, fell by 97% in April compared with the same month in 2019.

Photo: Heathrow Airport

and pay taxes like the rest of us.'

There is clear division across Europe over whether now is even the appropriate time to begin levying environmental restrictions on the aviation industry. At the time of writing, Lufthansa is reportedly seeking a €10bn bailout from the German state, as it has only a few weeks' worth of cash reserves remaining.

At a virtual press conference held at the opening of this year's Petersberg Climate Dialogue, the country's Environment Minister, Svenja Schulze, stated that there's an immediate need for economic rescue measures as opposed to long-term green planning. 'What we have are short-term funds to help businesses survive this crisis. This is a protective shield for workers and employees,' she told reporters via videolink.

However, Austria's Vice-Chancellor and Transport Minister have both stipulated that any aid for Austrian Airlines – a Lufthansa subsidiary – *should* come with green conditions. If regulations aren't imposed at this critical juncture, there is a danger that emissions will rebound once the pandemic is through.

This phenomenon was observed in the aftermath of the financial crisis of 2008, with energy intensity rising in both OECD and non-OECD countries (by 0.4% and 0.2% respectively) in 2010. Analysis carried out in 2012 by the Global Carbon Project (GCP) revealed emissions in 2010 also grew by 5.9% – representing the highest annual growth rate recorded to that point.

'In terms of carbon dioxide emissions, it is as if the 2008–2009 global financial crisis did not happen,' said the study's lead author, Glen Peters of Norway's Centre for International Climate and Environmental Research. 'Many saw the [crisis] as an opportunity to move the global economy away from persistent and high emissions growth, but the return to emissions growth in 2010 suggests the opportunity was not exploited.'

Turning to technology

Ten years of continued emissions growth later, the world cannot afford to return to a high carbon status quo. But how could aviation – with its notorious lack of commercially-available low carbon technologies – decarbonise at the necessary speed and scale? A combination of rapid investment and technology development, as well as firm policy commitments, will be needed.

If regulations aren't imposed at this critical juncture, there is a danger that emissions will rebound once the pandemic is through

In recent years, some airlines have begun offering passengers the chance to 'offset', or neutralise, the emissions from their flights. However, such schemes are not likely to provide a truly sustainable way forward for the industry, largely because their efficacy is difficult to verify. Both EasyJet and IAG, the parent company of British Airways, made significant offsetting promises last year. The former vowed to offset all of its flights from late November 2019, while the latter said it would start offsetting all domestic flights from this year.

Many offsetting schemes take the form of forestry preservation or conservation projects. The problem here is that it's difficult to say for certain that a forest would have been felled or neglected in the absence of offset funding. And trees are vulnerable to fires and disease, meaning they're not the most reliable long-term stores for atmospheric CO₂.

But this isn't to say that tree planting schemes have no intrinsic value. In fact, the UK's Committee on Climate Change recommends that UK forestry cover is increased from 13% to 17% by 2050 to meet the government's net zero target. Ultimately, carbon sequestration is no substitute for carbon reduction, and thus offsetting is no panacea for greening aviation.

Biofuels are another much-discussed option that won't necessarily deliver critical emissions reductions. This is largely because of the scarcity of arable land, which would be required in abundance in order to produce biofuel crops. While it is also possible to make low-emissions fuels from waste and residues, research from T&E suggests that these feedstocks are limited, and other sectors are competing for access to them.

In its 2018 *Roadmap to decarbonising European aviation*, the NGO stated that synthetic electrofuels are the 'only technically viable solution' that would allow aviation to exist in a Paris-compliant world.

Electrofuels are made by combining hydrogen with carbon extracted from CO₂. If the hydrogen is produced from water using renewably-powered electrolysis, and the carbon is captured directly from the air, the resulting fuel would effectively be carbon neutral. Other production scenarios could involve trapping CO₂ from industry or making hydrogen from natural gas, but these are far less environmentally friendly.

In any case, T&E believes it's highly unlikely that electrofuels will ever reach cost parity with kerosene. This means that the inevitable cost increases would likely be passed on to passengers, further reducing demand for air travel.

Managing uncertainty

Even before the onset of COVID-19, it was clear that some structural changes in the aviation sector were inevitable. Bailouts could either end up radically hastening or dangerously delaying the industry's shift to low carbon energy sources. Airlines have warned that the worsening medium-term outlook for air travel could result in over 30,000 imminent job losses in Europe alone. Policymakers understandably want to do everything they can to cushion this blow. But no-strings-attached bailouts look increasingly short sighted.

One new study, forthcoming in the *Oxford Review of Economic Policy*, asked 230 of the world's leading economists to rank the post-crisis recovery policies of governments worldwide. High ratings were bestowed upon climate-friendly measures, such as building retrofits and clean energy investment. Meanwhile, unconditional airline bailouts fared poorly across all metrics.

Lawmakers worldwide must figure out how to protect the interests of airline workers while managing the drop in passenger numbers, which may never bounce back to their pre-crisis peak. There had been talk in European policy circles of forcing airlines to leave their middle seats empty so that social distancing measures can be enforced on aircraft as travel begins to resume.

However, politicians are expected to reject this measure while enforcing the wearing of masks onboard and in airports. Whether this will make passengers feel safe enough to travel in the short-to-medium term remains to be seen.

For now, it's difficult to predict what the aviation sector, and the world more broadly, will look like in 2021. And 2050 – a target year for many climate policies – is a bigger mystery still. Amidst all the uncertainty, it's vital that climate ambition doesn't fall victim to virus recovery plans. ●