

Why Heathrow can't solve its carbon problem

March 2019

In December 2018, Heathrow published a “carbon neutral growth roadmap”¹ setting out the airport’s plans in relation to the emissions from a third runway.

This short paper sets out our concerns about the roadmap, namely that:

- Its target – of ‘neutralising’ any growth in CO2 emissions from the airport once a third runway opens – appears designed to smooth the way for runway expansion rather than to meet the real climate challenge
- It very largely repackages existing industry and government initiatives on climate change
- The idea that offsetting makes a tonne of CO2 from aviation “neutral” is misleading; if an offset pays for an emissions reduction that needs to happen anyway then that tonne of CO2 emitted from the aircraft will still cause warming and be inconsistent with a “net zero” climate goal
- It creates the impression that the airport has figured out how we can fly more without adding to the climate problem, when in fact far more radical solutions than any included in Heathrow’s roadmap will be needed to ensure that the aviation sector is compatible with net zero emissions as required by the Paris Agreement.

What’s behind the roadmap?

Heathrow’s a big business and, like many other corporations, promotes environmental policies as part of its corporate social responsibility agenda. Its sustainability director was shortlisted last year for “Sustainability Executive of the Year” in the Business Green Leaders Awards² and the airport recently joined 15 other “big-name corporates” calling for the EU to set a legally binding net zero emissions target for 2050.³

Heathrow has also had to hone its lines of argument in relation to environmental impacts in making the case for a third runway. A carbon neutral growth aspiration was included in Heathrow’s “2.0” sustainability strategy published in December 2017 – six months before the critical vote on the third runway – but with no detail about what the commitment related to or how it would be delivered. While we were sceptical about the plan, some prominent environmentalists came out in support of it, which doubtless helped boost the airport’s credentials among MPs at a critical moment. The sustainability consultancy Futerra,

¹ <https://your.heathrow.com/wp-content/uploads/2018/12/Heathrow-Carbon-neutral-growth-online.pdf>

² <https://www.businessgreen.com/bg/news/3029958/businessgreen-leaders-awards-2018-finalists-announced>

³ <https://www.edie.net/news/6/Big-name-businesses-call-on-EU-to-set-net-zero-emissions-target-for-2050/>.

for example, wrote a blog declaring describing the plan as “a huge, bold and courageous aspiration”.⁴

Even before the court has reached a judgement on the five legal challenges⁵ to the third runway proposal (including two focussing exclusively on its climate change impacts), Heathrow has begun drafting and consulting on its Development Consent Order application, the airport’s plan for delivering the third runway scheme as set out in the Airports National Policy Statement (NPS). The climate change conditions in the NPS were vague and weak, with the focus being on action the airport could take to limit emissions from the infrastructure of the building. Nevertheless, Heathrow’s carbon neutral roadmap notes:

“As part of the development consent process for the new runway we will have to comply with the requirements of the Airports National Policy Statement in relation to carbon. This includes ensuring that expansion must not result in an increase in carbon emissions so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets, including carbon budgets.”

The roadmap appears to be Heathrow’s answer to this challenge. By working up a description of existing initiatives into a Heathrow-badged plan the airport attempts to show that expansion will have no (net) impact on the airport’s emissions and therefore no “material impact” on the Government’s ability to meet climate change targets.

What’s in the plan?

The document identifies four core areas in which, it says, Heathrow can use its scale to influence change.

1. To accelerate the arrival of new aircraft technology:
 - From 2019 Heathrow will consider CO2 emissions (alongside noise and air pollution impacts) when drawing up its ‘fly quiet and green’ league table of airlines
 - The airport will use its influence “to encourage the development and deployment of lower carbon aircraft and fuel”
 - It will waive the landing charges for the first year for the first electric aircraft that operates a commercially-viable flight from Heathrow
 - And it will consider how to “attract the quietest and cleanest aircraft possible” in the context of slot allocation
2. To modernise airspace and make ground operations more efficient:
 - Heathrow will deliver airspace change in line with national commitments
 - It will encourage aircraft on the ground to plug in to electrical power rather than using their engines
3. To encourage the production and take up of sustainable alternative fuels:
 - Heathrow will help to provide the right infrastructure to receive and distribute sustainable aviation fuels in its pipelines
 - It will consult with airlines on the role that landing charges can play in incentivising uptake of sustainable fuels
 - It wants to explore with local authorities whether sites in the area around Heathrow could be suitable locations for sustainable fuel plants in the future

⁴ <https://www.aef.org.uk/2017/09/11/why-heathrows-sustainability-strategy-doesnt-quite-cut-it/>

⁵ <https://www.aef.org.uk/2018/10/17/heathrow-judicial-reviews-proceed-to-full-hearing-next-march/>

4. To promote the right carbon pricing to support innovation and developing best practice for offsetting in the UK:

- Heathrow's peatland pilot project will help offset a portion of the emissions from Heathrow's own facilities
- The airport will help make the case for UK peatland offsets to be eligible for use in CORSIA, the global aviation carbon offsetting scheme for airlines flying international routes
- For the 5% of Heathrow traffic not covered by CORSIA (such as flights to small island states and some of the world's least developed countries), the airport will engage with airlines and governments on steps that could be taken to close the gap
- It will engage with aviation industry partners in the UK and beyond on how to work together on climate change

What's not to like?

There's nothing new being offered

Delivery of the carbon neutral pledge will in fact require almost no action from Heathrow. While many of the initiatives described are worthwhile, there is hardly anything in the plan that is additional to what's happening anyway: almost all the proposed actions involve Heathrow riding on the coattails of other Government or industry initiatives.

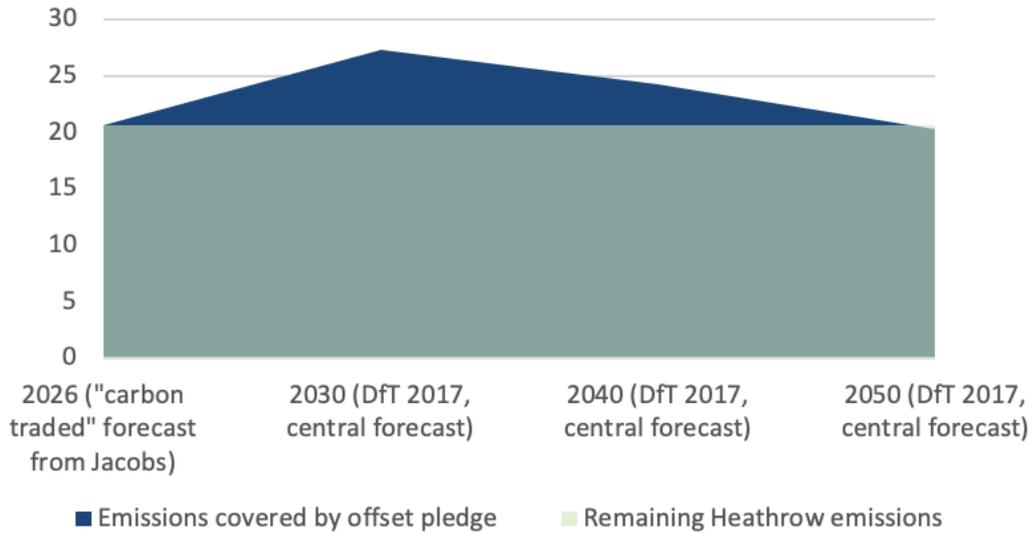
The roadmap for a carbon neutral third runway, as set out by Heathrow, could maybe be divided into three categories:

- Aviation emissions should be reduced as far as possible, for example through efficiency measures (driven by airlines and their manufacturers) and biofuel use (again being developed by airlines rather than airports).
- To the extent that emissions increase after the new runway opens, airlines will offset them by way of CORSIA, the UN scheme set to become mandatory for airlines flying international routes from 2020; Heathrow doesn't have to do anything for this to be implemented, and it says the scheme will apply to 95% of the airport's traffic.
- Since CORSIA allows exemptions (for flights to small island states and some of the world's least developed countries, for example), Heathrow will consider how the shortfall for emissions associated with the new runway can be addressed. Again, Heathrow is not offering to do this itself but instead plans to "engage with airlines and governments on steps we can take to achieve that, including voluntary agreements with carriers" despite the fact that most exemptions are based on social equity concerns.

As it turns out, only a relatively small wedge of Heathrow's total emissions are even covered by the carbon neutral commitment. Given the likely continuation of incremental improvements in aircraft efficiency, emissions per plane are set to reduce in the coming decades. As a result, the Department for Transport forecasts that a three runway Heathrow will emit less in 2050 than a two-runway airport in 2026 (20.3MtCO₂ vs 20.6MtCO₂). Emissions are forecast to peak in 2030, at over 27MtCO₂, before declining back to below the baseline. Most of these emissions will be offset directly by airlines through CORSIA. The graph below combines data from the analysis conducted for the Airports Commission, and the latest national level aviation forecasts to illustrate this point⁶.

⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/437260/carbon-further-assessment.pdf;

Forecast CO2 from Heathrow flights



Current actions are not enough

Giving moral support to the actions already underway on climate change would be fine if the sum of those actions amounted to a comprehensive plan to tackle the aviation emissions challenge. But Heathrow's 'plan', as outlined in the box above, fails to make clear all the ways in which these measures fall short.

In terms of technology development, zero carbon aircraft are currently a very long way off. No electric aircraft big enough to carry passengers are anticipated even for short haul flights until around 2055. Airspace change might shave a few tonnes of CO2 off the total per flight. A recent EuroControl/EASA/EEA report found that between 2014 and 2017, better direct routing to date had saved 2.6MtCO2 from aviation, although overall, emissions had increased⁷. The main driving force behind airspace change is, in fact, to facilitate air traffic growth. Biofuels are only beneficial for the climate if the land needed to grow them is not better used in other ways, and it's unlikely they'll be available in any significant quantity once appropriate environmental controls are put in place (for example preventing palm oil being used for transport in the UK).

And then there's CORSIA. As we've set out elsewhere⁸, we welcomed the agreement of CORSIA on the basis that it represents a global recognition that aviation emissions are a problem, and a first step towards bringing the sector into line with wider climate change ambition. But it would be dangerous to regard it as in any way able to "neutralise" the

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/781281/uk-aviation-forecasts-2017.pdf

⁷ <https://www.easa.europa.eu/eaer/topics/air-traffic-management-and-operations;https://www.aef.org.uk/2019/02/05/european-aviation-in-numbers-highlights-significant-environmental-challenges-ahead/>

⁸ <https://www.aef.org.uk/uploads/2018/09/Climate-discussion-paper-.pdf>

growth in aviation emissions, let alone the vast bulk of emissions that would be left outside of the scheme, given the myriad of shortcomings in how it has been set up. Its goal is currently not aligned to the Paris Agreement or even to previous agreements of the UNFCCC; it has no long-term target, and is envisaged to run only until 2035; it addresses emissions only above their level in 2020 (emissions below that level are not accounted for); it does not have full global support (China has yet to confirm whether or not it will participate, and the voluntary phase between 2021 and 2026 will cover only around three-quarters of eligible emissions); and it is built on an unrealistic assumption that there will be a long term supply of cheap offset credits (decisions have yet to be taken on the likely units that will be eligible and how credible they are).

Offsetting doesn't make the emissions go away

But there's an even more fundamental problem with the idea that offsetting aviation emissions renders them "neutral" as Heathrow's plan suggests.

The concept of carbon neutrality implies that there is no carbon impact. This sounds like the right ambition given commitments under the Paris Agreement to move swiftly towards a net zero economy – to stop contributing to the problem of climate change, leaving only legacy issues such as historic deforestation and accumulated atmospheric CO₂ to deal with. Achieving the Paris Agreement temperature targets will require action from all countries and in all sectors. Aviation is likely to be one of the most difficult sectors to decarbonise, so that even with concerted policy action, aircraft will probably continue to emit CO₂ well beyond 2050. Under a net zero target, aircraft that used fossil fuels could only continue to fly if every tonne of CO₂ emitted was balanced by a tonne of CO₂ removed from the atmosphere using "negative emissions"⁹.

The kind of offsetting that CORSIA will deliver, by contrast, isn't designed to deliver a zero emissions target but instead to reduce emissions, at best, to half of what they might have been. In this context, the idea that offsetting makes a tonne of CO₂ from aviation "neutral" is misleading; if an offset pays for an emissions reduction that needs to happen anyway then that tonne of CO₂ emitted from the aircraft will still cause warming and be inconsistent with a "net zero" climate goal.

Consider the following example. A passenger taking a long haul return flight from Heathrow may emit one tonne of CO₂ but then pay someone else not to emit one tonne of CO₂ (or their airline may pay), perhaps by covering the cost of LED lighting in a factory elsewhere in the world, or helping to pay for measures to restore degraded UK peatland (As Heathrow's report points out, this is currently emitting around the same amount of CO₂ annually as all the flights from its airport.) But the result is one tonne of CO₂ being released (from the passenger's flight) rather than two tonnes (from the flight and from the other activity or emissions source). In short, to get to net zero emissions, and quickly, we'll need zero carbon lighting, peatland restoration, *and* limits to actual (not net) aviation emissions.

⁹ <https://eciu.net/briefings/net-zero/negative-emissions-why-what-how>

A step in the right direction? Or a dangerously misleading offer of comfort?

And that's why pretending to have answers on how to make airport expansion compatible with climate change ambition – even pretending to have them in reach – is so dangerous. Airport expansion is a long-term investment; the economic case for Heathrow expansion assumed at least sixty years of operation. Illusory ambitions on climate change can make it look as though aviation growth isn't a problem. If we're to have a chance of preventing the worst climate impacts we need an honest conversation about the problems. Heathrow's carbon neutral roadmap doesn't help.