The Environmental Impact of Heathrow

Noise

The European Environment Agency has estimated that more than 4.1 million people were exposed to noise levels above 55 dB Lden from aircraft at 85 major airports in 2011.

The CAA in its CAP 1524 paper states that 766,000 people around Heathrow were exposed to noise levels above 55dB Lden in 2011.[1]

Current UK policy recognises 54dB LAeq as the day threshold for 'significant adverse impact' from noise – a recent reduction from 57dBLAeq. However, the WHO strongly recommends noise levels should not exceed 45dB Lden (equivalent to 43dB LAeq) in the day.

The third runway would result in an additional 270,000 more flights every year at Heathrow, or an additional 700 planes in the skies every day above local communities. This would result in as many as 250,000 more falling within the 54dB LAeq noise contour area. On top of this 419,803 already 'significantly affected' will receive a doubling of flights overhead (most will also be unaware of this too).

Disturbance from aircraft noise has negative impacts on the health and quality of life of people living near airports and under flightpaths. The CAA Survey of Noise Attitudes - SoNA (2017)[2] found that the public is becoming more sensitive to aircraft noise, to a greater extent than noise from other transport sources, and that there are health costs associated from exposure to this noise.

SONA also found that 9% of people are highly annoyed when the average is 54 decibels. In geographical terms around Heathrow that goes as far as about Clapham to the east and about 16 miles to the west.

2019 analysis on noise forecasts from the CAA (CAP 1731) anticipates that by 2050 the geographical area exposed to noise around all UK airports may shrink but that the total number of people exposed to aircraft noise will increase.[3]

Industry Progress on Noise

There were big improvements in reducing aircraft noise which between the late 1960s and the late 1990s – new planes were around 15dB quieter. However, the improvement since 2000 has been limited.

[1] https://publicapps.caa.co.uk/docs/33/CAP1524EnvironmentalInformation29032017.pdf
[2] https://publicapps.caa.co.uk/docs/33/CAP%201506%20FEB17.pdf
[3] https://publicapps.caa.co.uk/docs/33/CAP1731AviationStrategyNoiseForecastandAnalyses_v2.pdf

Whilst individual aircraft have become less noisy there are hundreds of thousands more flights in the skies above the UK today than in previous decades. At Heathrow alone, the figure rose from 225,000 per annum in the 1970s to 475,861 in 2019, significantly increasing the individual number of noise disturbances caused.

Flights at Heathrow have also tended to become more concentrated over the last decade or so both on landing and departure. These days it tends to be the sheer volume of aircraft passing overhead which most disturbs people.

The Sustainable Aviation Noise roadmap reveals that any further improvement delivered by UK aerospace manufacturing will be incremental. The report estimates (based on historical trends) that the rate of noise reduction will be around 0.1 decibels per annum.[4]

Carbon

Aviation is already a significant source of CO_2 emissions (making up 2-2.5% of global emissions) and is one of the fastest growing sources of emissions in the world. Indeed, the International Council on Clean Transportation (ICCT) reveals CO2 emissions from commercial flights worldwide are increasing up to 70% faster than predicted by the UN's International Civil Aviation Organisation (ICAO).

Heathrow is the single largest polluter in the UK, and its emissions account for over half of all UK aviation emissions. It currently emits around 20MtCO2 of carbon annually. A 3rd runway would increase this by approximately 7MtCO2 to 27MtCO2.

Annual emissions from surface access transport at Heathrow are just under 1MtCO2 per annum currently. This might reduce to 0.91 Mt CO2 in 2050 if there were just two runways - and perhaps 1.25MtCO2 with the third runway – a difference of approximately 0.25MtCO2 per year.

Further, construction of the 3rd runway and associated works is expected to result in an additional 3.7MtCO2 of emissions up to 2050.

UK Emissions

Aviation made up 8% of UK carbon emissions in 2019. Overall, emissions from domestic and international aviation in 2018 were 124% above 1990 levels.

According to the Committee on Climate Change (CCC) UK aviation emissions in 2018 were the same as in 2008, as falls in domestic and military aviation emissions have been balanced by a rise in UK international aviation emissions.

[4] https://www.sustainableaviation.co.uk/wp-content/uploads/2018/06/SA-Noise-Road-Map-Report.pdf

The CCC's Balanced Pathway to net zero GHGs (2020), anticipates that the aviation sector will still be emitting 23MtCO2 in 2050, all of which would need to be balanced by carbon removals. This considers maximum feasible technology and improvements and would also require passenger demand growth to be limited.

- Include Aviation emissions in sixth carbon budget,
- Commit to Net Zero emissions by 2050,
- Greater monitoring and reporting of non-CO2 impacts of aviation and how best to tackle them.

Electric Planes & Biofuels

The International Energy Agency expects electric flights to cover 10% to 30% of emissions by 2070. (IEA's Energy Technology Perspective 2020 - https://www.iea.org/topics/energy-technology-perspectives)

The **Electric Dreams Report** **(A Free Ride)** provides an analysis of routes flown from UK airports which reveals that electric aircraft in development today have the technical potential to cut 13% of UK aviation's greenhouse gas emissions.

There are no electric aircraft currently in development which could compete with the majority of the current global civil aviation fleet on range or capacity.

The **CCC** advises that we shouldn't plan for sustainable aviation fuels (**biofuel and synthetics made from renewable power)** to exceed 25% of total aviation fuel use by 2050.

Offsetting

Heathrow and the Government say that Heathrow's emissions can be 'offset' by paying other sectors in other countries to cut emissions. However, the kind of offsetting that the UN carbon offsetting scheme CORSIA will deliver isn't designed to deliver a zero emissions target. CCC has recommended that CORSIA credits should not at present be used for compliance with the UK's Climate Change Act.

Industry Progress on emissions insufficient

The Sustainable Aviation Roadmap commits the UK's aviation sector to achieving net-zero CO2 emissions by 2050. However, this includes high demand growth forecasts mitigated by large improvements in efficiency, uptake of sustainable aviation fuels and significant use of market-based measures (offsets and removals).

Sustainable Aviation's own roadmap shows almost nothing being done in the next five years – forcing larger carbon reductions on other sectors of the economy. This road map still talks

about offsetting which has been widely discredited and biofuels which help drive deforestation. The claimed efficiency gains range from the possible (15% of the fleet electric by 2050) to the wildly speculative.

In 2010 the aviation industry pledged to source 10% of fuels from sustainable sources in 2020. Yet by 2018, the industry had managed to source a grand total of 0.002%.

The current global targets for alternative jet fuel use in 2050 would require 3 new bio-jet fuel refineries to be built every month for the next 30 years. Today there are just two facilities – the market is not delivering at the pace required.

Air Pollution

Poor air quality is known to have a damaging effect on health. Pollutants are emitted from aircraft engines, particularly affecting those working and living near an airport. Ground vehicles operating at airports, passenger transport, employee transport and delivery vehicles also contribute to aviation's pollutant emissions.

Airports can significantly impact air pollution as a result of emissions both from aircraft, and from staff, passenger and freight traffic on the ground. Among UK airports, Heathrow stands out as presenting a particular air pollution problem given (i) the scale of its operation (ii) the fact that background air pollution levels remain high, with roads near the airport remaining persistently in breach of NO2limits, and (iii) its plans for expansion.

EU Member States are set air quality targets through European legislation. Local authorities are required to assess air quality and Air Quality Management Areas (AQMAs) are declared if national air quality objectives are not being met. Two of these targets are for average mean levels of 40µgm-3 for NO2 and PM10 in the UK.

The area around Heathrow is the second major hot spot for nitrogen dioxide (NO2) pollution in London, with breaches of legal limits having been recorded close to the airport – see CAA paper CAP 1524 (2017).[5]

Heathrow LHR2	53	52	54	53	50	50	50	48	48
Heathrow Harlington	38	37	37	35	36	34	34	33	38
Heathrow Green Gates	36	37	38	38	38	41	35	33	33
Heathrow Oaks Road	38	33	38	35	33	37	30	30	34

[5] https://publicapps.caa.co.uk/docs/33/CAP1524EnvironmentalInformation29032017.pdf

However, there are no specific air quality targets for the UK aviation industry. Instead, air quality at airports is measured as part of a local authority's duties around air quality and any issues are dealt with between the airport and local authority.

The Government's Air Quality Plan does not refer to Heathrow expansion despite a recommendation from the Environmental Audit Select Committee that it be directly addressed. The Air Quality Plan has also been widely criticised for seeking to pass responsibility onto local authorities without providing any finances or mechanisms for them to address the issue.

It is notable that several local authorities in the vicinity of Heathrow Airport Including Richmond, Wandsworth, Hillingdon and Hammersmith & Fulham) expressed such strong opposition to the planned expansion, on the basis of its air quality impacts, that they committed to a legal challenge against the Government.

Analysis by the Airports Commission (2014) found that by 2030:

- The 3rd runway scheme would increase emissions of nitrogen oxides by 26% above the 'do minimum' two-runway scenario predominantly as a result of increased aircraft emissions;
- Expected exceedences of the National Emissions Ceiling Directive (NECD) limits for both NOx and particulate matter would be exacerbated by expansion. The UK has so far been compliant with the NECD but current projections suggest future breaches are likely.

The Airports Commission Report (2015) also showed that, without mitigation, Heathrow expansion would lead to the Bath Road having the worst NO2 concentrations in Greater London.

Analysis by TfL shows that a third runway would result in increased delays at junctions and average speeds becoming slower on the local road network. This would inevitably result in an increase in emissions too.

The Government even accepts Heathrow expansion would have a "significant negative" effect on Air Quality.

Yet, the Government has provided no evidence to show how Heathrow can expand and comply with legal limits and there are currently no enforcement methods should Heathrow not meet legal requirements.