

Beyond the horizon: The future of UK aviation

Response from HACAN

HACAN (The Heathrow Association for the Control of Aircraft Noise) gives a voice to residents under the Heathrow flight paths. This response has been agreed by our management committee.

We welcome the fact that a new Aviation White Paper will be published. It will provide a useful framework for the significant developments in aviation that can be expected over coming decades.

We recognise the consultation takes as a given the building of a third runway at Heathrow but we believe that the work proposed in this strategy be done before that decision is finally made.

1. Growth and Forecasts

Forecasts are necessary in any policy development but, inevitably, can be unreliable! The consumer-led, market-based approach advocated in this consultation document is much better than an over-reliance on simply forecasting what may happen many decades ahead in a fast changing world. A number of factors can knock forecasts askew: levels of wealth and poverty, unexpected environmental issues, new technology. What, for example, will be the impact of driverless cars, super-fast trains or digital developments on demand for aviation? Forecasts, therefore, need to be more of a flexible guide to future demand rather than the guiding principle of policy. This uncertainty also suggests Government should be less involved in decisions about *where* expansion should take place than it has tended to be up until now and instead to allow the default position to be consumer-led and market-based. But we would add that there needs to be more clarity about what is meant by a consumer-led approach. Some research is required into, for example, whether the consumer is being assisted by any state or regional subsidies or whether consumers are paying the full economic cost of flying, i.e. are the externalities such as health and pollution costs reflected in the price? So, consumer-led growth rather than Government predict and provide but more information is required on the extent to which consumers are being subsidised.

The consumer-led, market-based approach is much better than an over-reliance on forecasting what may happen many decades ahead in a fast changing world.

Government, though, will need to manage any potential downsides of aviation growth. Because of the inherent uncertainty of how much growth there will be, it is impossible to be make a fully accurate assessment of the downsides. But it is rightly recognized in the consultation document that will be climate, noise and other impacts.

Because the environmental impacts may require future growth to be managed and current forecasts revised, it would make sense for the DfT to assess them earlier than it had intended when drawing up the new Aviation White Paper.

2. The opportunities and challenges of growth

Our members will have different views about the role of aviation in the world but most would acknowledge that the growth of aviation has brought benefits in terms of trade, economic development and job creation. But, perhaps inevitably, an organisation like HACAN will focus on the challenges.

“Balancing aviation growth with negative environmental impacts is one of the greatest challenges facing the aviation sector” DfT vision document

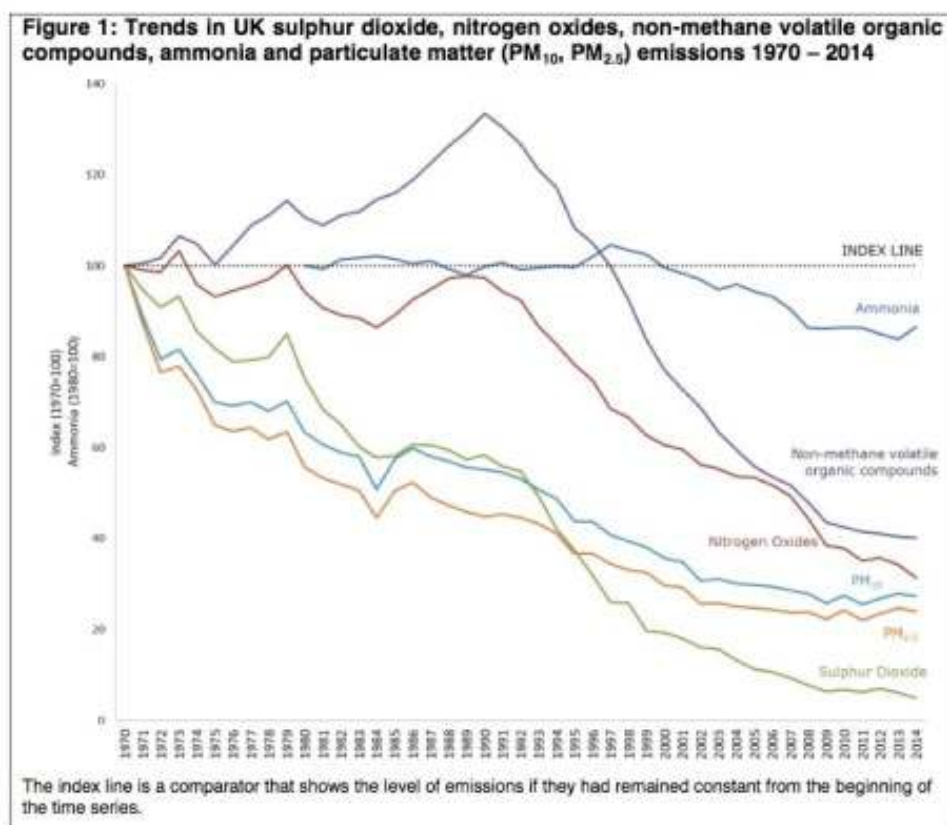
We agree! The consultation document envisages demand at UK airports to almost double by 2050. That would result in a huge increase in flight numbers. We will argue in our response this will be challenging as far as emissions are concerned and may be impossible if local noise impacts are to be kept within bearable levels. We will deal with climate emissions, noise and air pollution but would add that areas such as the impact of growth on areas like biodiversity and ancient woodlands do need to be considered whether in the Aviation White Paper or through the planning system.

The potential challenges

a. Air Pollution

At present this is a high-profile concern. However, the evidence would suggest that over the coming decades it can be dealt with in the UK if tough Government action is taken. Things can change but at the time of writing it seems likely tough action will be taken at both a national and local level to tackle the major sources of air pollution – such as road vehicles – which will result in a continuing improvement in air quality over the coming decades.

Levels of PM10 and Nitrogen Oxides have fallen considerably in recent decades



Aviation makes up less than 10% of national NOx emissions.

Defra National Statistics Release: Emissions of air pollutants in the UK, 1970 to 2015

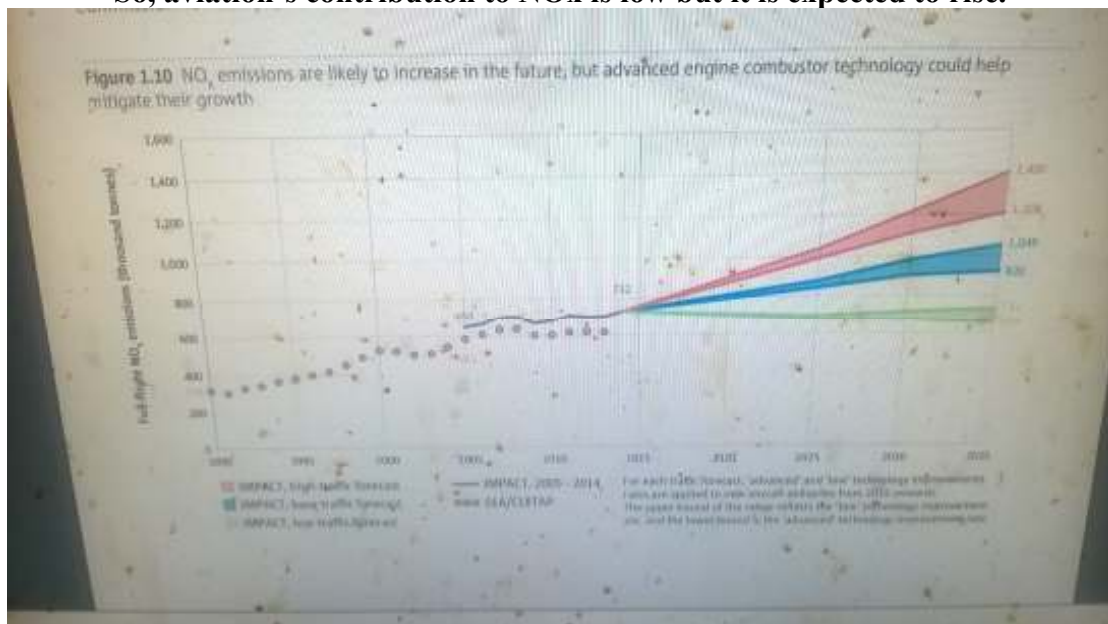
Table 2: Emissions of air pollutants by source in the UK, 2014 and 2015 (Thousand tonnes)

Source	2014						2015					
	SO ₂	NO _x	HMVOC	NH ₃	PM ₁₀	PM _{2.5}	SO ₂	NO _x	HMVOC	NH ₃	PM ₁₀	PM _{2.5}
1 Energy industries (Combustion in power plants & Energy Production)	166.9	291.3	4.0	0.1	7.5	4.6	125.4	262.5	4.3	0.1	5.9	3.5
2 Manufacturing Industries and Construction	75.5	149.9	19.0	1.7	16.0	16.0	50.2	151.2	19.6	1.9	16.4	17.4
3 Road Transport	1.2	321.1	28.7	5.7	290	14.4	1.2	311.4	28.0	5.1	29.9	13.9
4 Non-road transport	7.9	69.1	11.3	0.0	9.7	3.5	2.3	57.1	11.4	0.0	3.7	3.3
5 Other sectors (Commercial, residential, agriculture and fishing stationary and mobile machinery)	41.5	53.9	49.3	9.8	44.9	45.9	40.4	64.6	51.8	2.1	48.9	48.3
6 Other (Other (including military))	3.9	95.1	1.0	0.0	0.4	0.4	1.1	18.0	1.0	0.0	0.4	0.4
7 Fugitive emissions	7.7	2.1	150.1	0.2	2.1	1.4	5.3	2.2	145.7	0.7	2.1	1.8
8 Industrial Processes	7.9	1.6	488.4	4.4	27.8	10.2	7.9	1.7	485.9	3.5	27.3	10.1
9 Agriculture	NA**	NA**	102.3	204.2	15.1	3.9	NA**	NA**	102.3	204.9	15.9	3.8
10 Waste	0.5	1.3	4.8	21.0	1.9	1.7	0.3	7.3	4.6	23.3	1.8	1.7
11 Other (included in national total for waste facility)	NA**	0.1	7.0	18.2	2.1	1.9	NA**	0.1	1.0	18.2	2.1	2.0
NATIONAL TOTAL	325.4	146.7	640.6	34.6	145.9	103.9	230.1	918.1	835.4	192.8	145.5	104.8
International	72.3	371.8	101.1	9.7	34.0	38.9	40.9	142.8	99.9	9.4	32.1	16.4

* Items have reported, but EXCLUDED from protocol totals, include: International/National Aircraft (trajet), International Shipping, forest fires, natural emissions, N₂O emissions, total acid gases and halons
** NA (Not applicable) the source exists but relevant emissions are considered zero to occur
Source: National Statistics; DEFRA Inventory

Ref: DEFRA 21/12/2016: Emissions of air pollution in the UK, 1970-2015

So, aviation's contribution to NOx is low but it is expected to rise.



This chart covers Europe and is taken from EASA Report (2016):

<https://ec.europa.eu/transport/sites/transport/files/european-aviation-environmental-report-2016-72dpi.pdf>

The consultation document asks for views on whether the DfT should take a **more pro-active approach to cutting emissions from aviation**. It is not immediately obvious that this would be required. Any increase in emissions from aviation is unlikely to significantly dent the general improvement in air quality that is expected to result from Government action to reduce emissions from other more important sources of poor air quality. It is, therefore, difficult to see how much value a more pro-active approach would add - the exception could be if there was a problem at any particular airport - Heathrow being the most obvious example - or, of course, if Government action in dealing with pollution from other sources was not effective.

b. Climate (CO₂) Emissions

Aviation accounts for 8% of total UK CO₂ emissions. It makes up for 22% of the country's transport emissions. And its share of CO₂ emissions is steadily increasing as other sectors are falling.

But things are not straightforward.

Firstly, aviation has an important role to play in facilitating trade which will assist in bringing yet more people out of poverty which, in turn, will make them and their countries less vulnerable to the impact of climate change.

Secondly, the UK economy may suffer if it imposes much tougher climate targets on aviation than the rest of the world does.

Thirdly, it is more difficult to significantly cut emissions from aviation than from most other sectors.

But undoubtedly a virtually doubling in passenger numbers by 2050 – if it came about – would provide a big climate challenge. It, therefore, would make sense to consider climate earlier in the process than is being proposed.

That consultation on climate would need to include an assessment of the three factors we have itemized above but also the measures which could be implemented to reduce emissions from aviation: market mechanisms such as the ICAO off-setting scheme or the EU's Emission Trading Scheme; and fiscal measures such as a carbon tax or a Frequent Flyers Levy. It would also need to assess the impact on future climate emissions of the very strong incentive there is for airlines to reduce their fuel costs by making new planes more fuel-efficient.

The aviation industry argues its carbon efficiency can be doubled by 2050 relative to 2010. That is a significant claim and would be a welcome achievement. The DfT needs to test if it can be met. The extent to which it can be would influence whether the Government felt it might need to introduce fiscal measures to manage demand.

c. Noise

It is the sheer volume of aircraft going overhead these days which tends to be the problem rather than the noise of individual planes (as is acknowledged in the consultation document). So, therefore, a big increase in aircraft numbers to cater for a near-doubling in passengers could bring unacceptable noise problems. There is a real challenge here – and a welcome acknowledgment of it in the consultation document: *“there remains a challenge when technological improvements in noise reduction do not appear to be sufficient to deal with the negative impacts on some communities’ quality of life”*.

The consultation document asks the key question: *whether it is possible to design targets for noise reduction*. It will not be easy! But we like the idea of ‘targets’ rather than a single target. A single target would be difficult to meet; a series of targets might be achievable.

The targets could focus on:

- The design of aircraft
- Operational matters
- Communication, compensation and redress
- A limit on the number of planes over any particular community

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We consider each one in turn.

The design of aircraft

We are not technically expert enough to assess what the current potential is for less noisy aircraft to come on-stream or the timescale when that might happen. But the trend is in the right direction. It is important that new aircraft are assessed in ‘real-life’ conditions, for example how they perform when landing and departing fully laden. We would also argue that, if, when designing a new plane, there is a trade-off to be made between reducing noise, NO_x and CO₂, noise should have the priority as there are more options (outside of aviation) to tackle the other two pollutants.

Possible target: The obvious target would be to set a date when the noisiest aircraft need to be phased out from UK airports. All aircraft submitted for certification on or after 31st December 2017 above 55 tonnes in weight will need to meet the new chapter 14 standard (ref: House of Commons Briefing Paper, Aviation Noise, 13/2/17). The concern will be how long the noisier aircraft operate at UK airports. The Government could set a target date for them to be phased out.

Operational matters

Much of this is about best practice. There are a number of things which can be done to reduce noise: the gradient at which planes land and depart; how far from the airport they drop their landing gear; the use of Continuous Descent Approach; the elimination of holding stacks; the decision whether to use multiple flight paths or concentrate all the planes on one route.

Possible target: A generic target covering these operational issues would be difficult because airports are so different from one another. Our suggestion would be that the forthcoming independent noise authority (ICCAN) works with each airport (possibly excluding the very small ones) to ensure that it has a target date to meet best practice guidelines and to require from it an annual progress report (including a sound explanation of any failure to meet the targets). When flight path changes are involved, the new CAA guidance would need to be adhered to.

Communication, compensation and redress

Under this heading we deal with the interaction between the industry and communities. On the whole the communication between most (but not all) airports, the CAA, NATS, the DfT, the airlines and local communities has been improving.

Further progress will be assisted by many of the measures expected to be included in the Government's forthcoming airspace policy strategy: a recognition that annoyance from aircraft noise starts at a lower level than previously officially recognised; the introduction of a new and more diverse range of metrics; the concept of noise envelopes; the recognition of the importance of respite.

The consultation document says in paragraph 7.33: *Given that conventional ways of mitigating noise have arguably failed to reduce public annoyance, particularly where there has been a noticeable increase in the number of flights, the government will explore whether a new approach to reducing noise annoyance is needed. This could include better information and engagement or creating a greater sense of 'fairness' and sharing of the benefits of aviation growth, including new forms of compensation and community investment.*

Possible targets:

Information: A requirement on each airport to provide high quality, accessible information.

Engagement: A requirement on each airport to set up forums to ensure meaningful ongoing engagement takes place with the local community (this would be different from, and additional to, occasional consultations on specific topics). At some of the smaller airports the Consultative Committee may be sufficient but many airports would need to set up additional bodies such as the Heathrow Community Noise Forum.

A difficulty arises in that the provision of information and, particularly engagement, can be difficult to measure. Government would want to avoid getting involved in the nitty-gritty of monitoring this. Our suggestion would be that each airport (maybe with the exception of the very small ones) enters into an agreement with perhaps the independent noise authority about what information it will provide and what engagement will take place with the local community. The airport will be required to report on progress on an annual basis.

Compensation: the universal message is that people prefer less noise! But compensation does have an important role to play. In our view there are two categories of people who most value it: those under flight paths who can't move away (very often because they can't afford to); and those whose homes have been devalued when a new flight path has been introduced.

Those who can't move away want something to make life more bearable: this includes sound insulation and, particularly if it is a low income area, investment in community facilities which enhance the quality of life. This is something some of airports already do but it is patchy. A target needs to be set. It needs to be airport-specific - it is not possible, for example, to mandate that everybody within the 54 decibel contour should receive x for that would impose an unrealistic target on a big airport like Heathrow. What is more practicable is for each airport to agree a one or five year plan where it commits to very specific compensation and community investment measures. The situation where homes have become devalued requires a different kind of target. The DfT may wish to explore a scheme similar to that used when a new road is built.

A limit on the number of planes over any particular community

In our view this is *the* critical measure which would allow overall growth to take place while managing, and maybe in places even reducing, the impact on communities. For each community the critical thing is not the total number of planes which use an airport but how many of them pass over that community. Key to managing this is respite. Potentially, PBN technology can be used to create multiple routes which can be rotated so as to give predicable relief from the noise. Without this, the level of growth envisaged at most airports is likely to bring unacceptable noise impacts even if all the other targets were met. But with it, a level of expansion is possible.

The introduction of respite will not, though, be problem-free. The biggest concern will be the impact on any new areas which may be overflowed. Those should be limited wherever possible and any increase over them should be gradual. However, concern for new areas needs to be balanced by concern for those living under existing flight paths, many of whom did not expect the level of aircraft they now get far less what they might experience if significant expansion takes place.

Possible targets:

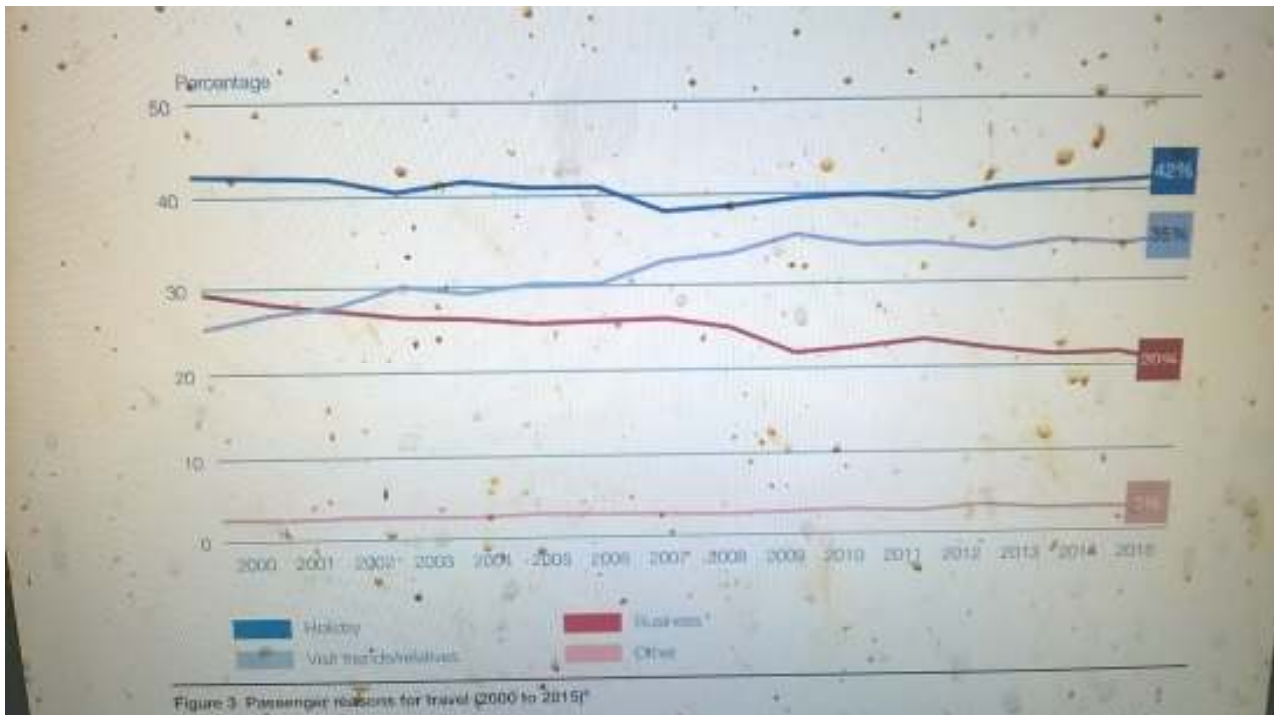
- Respite, through the provision of multiple routes, rotated, should be given to as many communities as possible, where they want it.
- A limit on the number of planes which use each route each day would be ideal. This may be as effective at some airports as a cap on the total number of movements, though there should be an overall cap at ‘city centre’ airports such as London City and Belfast City: we would argue that somewhere like Glasgow, very close to the heavily-populated areas of Paisley and Clydebank, also falls into this category.
- New areas should be avoided wherever possible but where they are impacted any increases on them should be gradual and as limited as possible.
- Compensation and mitigation measures should be concentrated on areas where respite is not possible.

All these noise targets, taken together, could have significant impact on the noise climate.

4. If overall demand has to be limited

There may be noise or climate reasons why future growth needs to be limited. Indeed, it is likely that, despite the adoption of tough noise targets, the full use of existing capacity at some airports would create an unacceptable noise climate. For example, the consultation document says that, in order to facilitate growth, the current caps on flight numbers might need to be lifted. This would cause real noise problems at places like London City Airport – where densely populated areas, some of them low-income, are overflowed – and would meet fierce resistance. Government also needs to be mindful of the potential conflict of interest in permitting full use of existing capacity at airports which are owned or part-owned by the local authority. Is there a case for an independent voice to assess any growth proposals they may put forward?

Demand can be managed through fiscal measures. At present Air Passenger Duty is imposed. The consultation document raises concerns that, because it is higher than equivalent taxes elsewhere in the world, it hurts the competitiveness of UK businesses (paragraph 6.12): *The government understands that there are concerns from industry and others about the impact that Air Passenger Duty (APD) has on the competitiveness of UK aviation but it also recognises that APD is the only tax paid by the airline sector. It goes on to say: This is an area of policy led by HM Treasury and the government is keen to explore the impact of APD on competitiveness and how aviation taxation policy could support the objectives of the strategy.*



The vast majority of trips are made for leisure purposes and in the UK 75% of flights are taken by the 15% of the population (most for leisure)

Any tax which was imposed in order to dampen down demand should aim to do so in as equitable a way as possible and without unduly hitting business. There are attractions to something like a Frequent Flyers Levy - <http://afreeride.org/> - which proposes that everyone is entitled to one tax-free return flight a year but that the level of tax rises with each subsequent flight taken. This would mean that most people would be better off than they are now, with the frequent leisure flyers hardest hit. It would both be equitable and dampen down demand since 75% of flights each year are taken by 15% of the population. Additionally, it is likely to have little impact on trips made for business purposes as they are the least price-sensitive. Whether or not this is exactly the right scheme, the principles behind it are worth pursuing.

This consultation document concentrates on aviation but the DfT, in developing its future aviation policy, would do well to coordinate it with future rail policy so as to be aware of any opportunities of a modal shift from air to rail.

John Stewart
Chair HACAN

