



A Livery Company of the City of London

The Guild of Air Pilots and Air Navigators

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POSITION PAPER

UK AIRPORT POLICY

Edited by

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The Guild of Air Pilots and Air Navigators publishes Position Papers to convey its official opinion and policy on what often may be contentious matters. It also publishes Study Papers to provide guidance on a variety of aviation topics and Discussion Papers to inform public knowledge of often-contentious areas that remain the subject of debate within the Guild's committees. Prior to publication, Position Papers and Study Papers are formally endorsed by the Court of the Guild, its governing body, and therefore represent the Guild's official stance or guidance on a given topic. However, Discussion Papers are not formally endorsed by the Court of the Guild and therefore are not necessarily reflections of the Guild's current or future policy.

Position Papers - official Guild opinion on the matters concerned

Study Papers - helpful guidance notes on a variety of aviation topics

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UK Airport Policy

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UK HUB AIRPORT POLICY

About the Guild of Air Pilots and Air Navigators

1. The Guild of Air Pilots and Air Navigators was established in 1929, by a small group of commercial pilots at the instigation of Sir Sefton Brancker, the Director of Civil Aviation, who became the first Master and Squadron Leader Ernest L Johnston, who became the Deputy Master. They and other aviation luminaries of the time, including Sir Alan Cobham, were largely responsible for ensuring that their contemporaries enjoyed a professional status and one of the Guild's prime objectives has been to foster and improve that standing.

2. The Guild became a Livery Company of the City of London in 1956, a rarely bestowed mark of distinction. This was a great factor in increasing not only the influence of the Guild, as the 81st Livery Company to be formed in 800 years, but of the entire profession of air pilots and navigators in the United Kingdom and overseas.

3. The Guild is unique amongst City Livery Companies in having active Regional Committees in Australia, Hong Kong, New Zealand and North America. The Guild is a charitable organisation and all the members of the Court and the Committees are unpaid. The only salaried staff is the Learned Clerk and a small secretariat.

4. The principal activities of the Guild are centred on ensuring that aircraft are piloted and navigated safely and efficiently by aviators who are highly competent, self-reliant, dependable and respected. The Guild supports the education and training of pilots from initial training of the young pilot to specialist training of the highest levels. Through its charitable activities, education and training, technical committee work, aptitude assessment, scholarships and sponsorships, advice and recognition of the achievements of fellow aviators worldwide, the Guild succeeds in keeping itself at the forefront of the aviation world.

Introduction

5. Safety, efficiency and environmental friendliness are major areas of activity for the Guild. The UK Government recognises the important economic impact of the wider aviation industry¹ as is demonstrated by a thriving international hub airport providing

¹ Aviation Framework Policy, Department for Transport, 22 March 2013: "Aviation benefits the economy through its direct contribution to GDP and employment, by facilitating trade and investment, manufacturing supply chains, skills development and tourism. The whole UK aviation sector's turnover in 2011 was around £53bn and it generated about £18bn of economic output. The sector employs around 23,000 workers directly and supports many more indirectly. The UK has the second largest manufacturing

connectivity to international and domestic travellers. Each year over 4 million long-haul passengers visit Britain after arriving at the UK's international hub airport, Heathrow². These visitors spend £4.4 billion a year, making up more than 5% of total spending in the UK tourist industry sector. Including long-haul visitor spending, aviation at Heathrow is estimated to benefit the British economy by adding £11.1 billion to GDP and providing 220,000 jobs. Even more importantly, by being located close to the UK's financial heart, Heathrow's air routes facilitate the majority of face-to-face business meetings between UK and overseas business people, which represents £590 billion a year of business deals that add more than £150 billion to the UK's GDP³ each year.

6. If the UK is serious about retaining its status as the home of an international hub airport close to its capital with the attendant benefits that provides to the UK's economy and business, urgent action is needed to sustain the current pre-eminent position of Heathrow against competition from mainland Europe and beyond. In the face of increasingly successful international competition, it is vital that the UK signal and start planning a solution capable of providing those same benefits to the UK's economy and business for both the short and longer term (2050+). In making these decisions, local environmental objections are important but these must be considered in the overall context of benefits to the UK economy.

7. The Guild believes these decisions must consider operational and safety factors. Regardless of which of the potential options discussed below is enacted, the Guild of Air Pilots and Air Navigators will continue to monitor and seek to improve the safety standards of operations into and out of all airports. Furthermore, wherever possible the Guild will suggest means to improve efficiency and cost benefits in aviation activities in the UK (and worldwide). It will also strive to suggest means of reducing any environmental impact created by airport and aircraft operations.

The South-East UK Major Hub Airport

8. A hub airport is usually defined as, "an airport with flights to lots of different places, where people can arrive from one city or country and get flights to other cities or countries."⁴ Hubs rely primarily on transit passengers but many are also points of destination or departure in their own right, often attracting significant tourism and business activity. Heathrow, with its extensive, densely populated catchment area, fulfils all these functions and is Europe's busiest airport, handling more than 65 million passenger trips a year. The largest share of the UK's passengers⁵, airmail and airfreight pass through Heathrow and its 90 airlines provide two thirds of the long-haul

industry in the world, after the USA. And will benefit economically from growth in employment and exports from future aviation growth."

² Frontier Economics Connecting for growth: the role of Britain's hub airport in economic recovery

³ Frontier Economics, Connecting for growth: the role of Britain's hub airport in economic recovery

⁴ Cambridge Dictionaries Online

⁵ CAA UK Airport Statistics: 2012-11 Table 02 2 Summary of Activity at UK Airports shows that in November 2012 Heathrow handled 37% of all scheduled air passengers, 30% of all transit passengers, 81% of all scheduled airfreight and 93% of all scheduled airmail. When only London Area Airports (Gatwick, Heathrow, Luton, Southend, Stansted) are considered, Heathrow's contribution in each sector rose to 56%, 87%, 88% and 95% respectively.

commercial flights originating in the UK to some 180 destinations, including seven out of the world's top ten business routes.⁶ Its world ranking is shown in Table 1.

Table 1 – World Airport Ranking 2010⁷

Rank	City	Airport	Country	Pax (,000)
1.	Atlanta	Hartsfield Int`l	USA	89,332
2.	Beijing	Capital	China	73,892
3.	Chicago	O`Hare Int`l	USA	66,665
4.	London	Heathrow	UK	65,884
5.	Tokyo	International	Japan	64,069
6.	Los Angeles	International	USA	58,915
7.	Paris	Charles de Gaulle	France	58,167
8.	Dallas/Fort Worth	International	USA	56,905
9.	Frankfurt	International	Germany	53,009
10.	Denver	International	USA	52,211
11.	Hong Kong	International	China	50,411
12.	Madrid	Barajas	Spain	49,786
13.	Dubai	International	UAE	47,181
14.	New York	John F.Kennedy	USA	46,496
15.	Amsterdam	Schiphol	Netherlands	45,21

9. Other nations have increased their national hub airport's capacity by either extending existing airports or by building new facilities at the scale needed to meet current and future demands. In contrast, expansion at Heathrow has been restricted to passenger rather than aircraft handling facilities so it now operates close to (if not at) maximum capacity. Heathrow is fortunate in being able to operate year round without closures for prolonged periods of crosswinds but its lack of spare capacity limits its resilience. Lack of resilience leaves the UK's principal airport vulnerable to unplanned events, which can be as diverse as deliberate malicious acts or periods of severe weather. With no operating contingency, anything that impedes Heathrow's operating rates causes flight cancellations, as there it has no spare capacity to recover a backlog. Aside from the more obvious loss of flights when snow covers the airport, low visibility conditions reduce the landing rate for operational reasons⁸ and flights are lost during periods of high wind strength. Current air traffic procedures keep approaching aircraft at least 2.5 nm apart, regardless of the speed at which they make their approach; as headwind strengthens and the aircraft's speed over the ground reduces, each aircraft takes longer to travel the statutory 2.5 nm separation and landing rate reduces as the time between each arriving aircraft increases. Without spare capacity, any delays caused by reduced operating rates escalate into cancellations to recover to the normal schedule. Disruption at a major hub airport hurts domestic passengers and the international transit passengers on whom the airport depends for its international routes and hub status; UK airport disruption, visible to the whole world, also reflects badly on the nation.

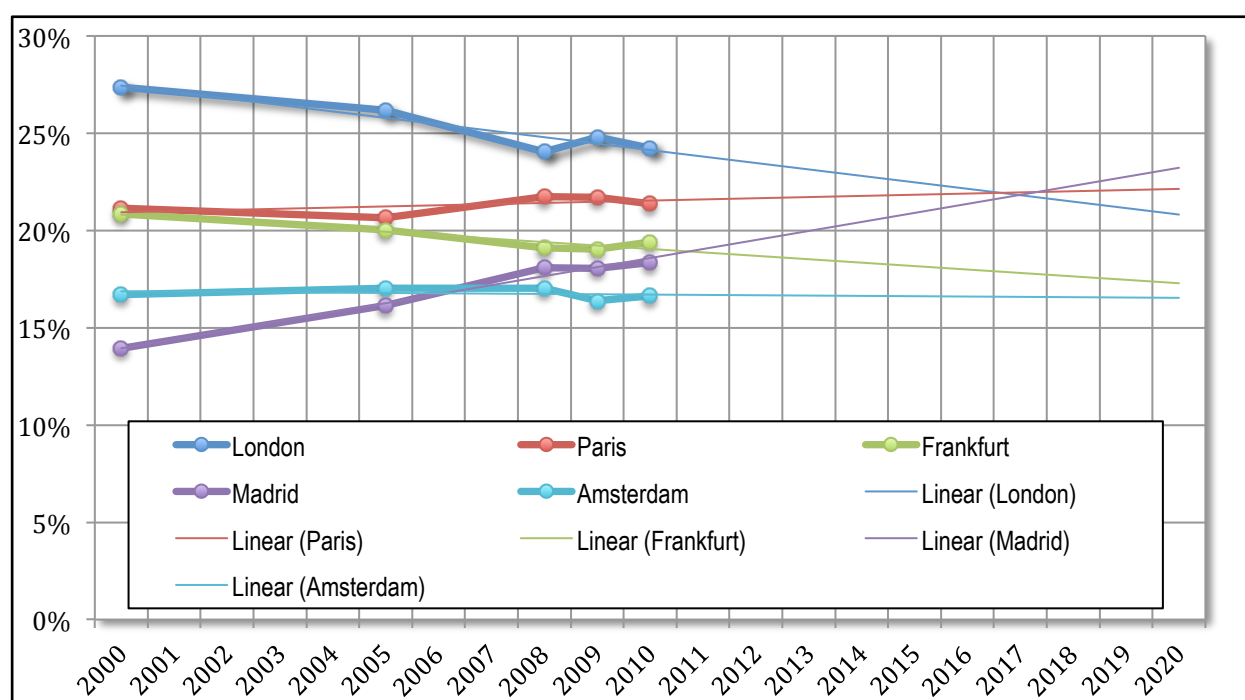
⁶ <http://www.priorityheathrow.com/economic-benefits-page.php?id=35>

⁷ Airlines Inform 2012 www.airlines-inform.com

⁸ ICAO EUR Doc 013 European Guidance Material on Aerodrome Operations under Limited Visibility Conditions

10. Lack of spare capacity also means the development of new routes to meet demands for travel to developing markets and countries is only possible by either sacrificing existing routes to established market or by curtailing domestic flights. The loss of domestic and long-haul routes then degrades the attractiveness of Heathrow to transit passengers, further threatening Heathrow's international routes and hub status. When airlines from developing countries find they cannot access Heathrow airport, their response is to look to alternative major hub airports elsewhere, rather than to alternative UK non-hub airports. Figure 1 shows that the migration of passenger activity away from the UK to alternative hubs in Europe is occurring already.

Figure 1 – Percentage of European Hub Airport passengers⁹ 2000-2010 with Linear extrapolation to 2020



11. London airports other than Heathrow do have spare capacity but none are connected to Heathrow by transport systems (for people and baggage) that even approach the times and relative convenience of transit between Heathrow terminals. The plight of UK transfer passengers from Inverness or Newquay, who have to allow a minimum of an additional 3 hours connecting time at London just to get from an internal flight arriving at Gatwick to an international departure from Heathrow, illustrates this well. Furthermore, plans for future high-speed transit systems between the London airports do not exist and it is difficult to envisage such facilities becoming available in the near or even distant future. This means capacity at other London airports cannot meet the needs of the domestic or international transit passenger seeking to transfer quickly and easily from one flight to another. Even if inter-airport links were established, airlines would find it extremely unattractive (if not financially uncompetitive) to split their

⁹ EU Transport in figures – Statistical Pocketbook 2012 (p57 chart 2 – Air – Passenger Traffic at Major EU Airports).

operations across a number of different airports serving the same city or hub. KLM now sees and positions itself as the airline of choice for Scotland and other parts of UK, attracting increasing passenger numbers through its own hub airport at Amsterdam¹⁰.

Heathrow's Benefits

12. Heathrow's location, close to the London conurbation and within two and a half hours by road of almost half the UK population, provides excellent connectivity for domestic and international travel; it is an important international gateway and a crucial link for the 8 million international travellers who transit through Heathrow each year. Transit passengers are important to Heathrow's status as a hub airport because the high proportion of international transit passengers arriving from one country and able to transfer quickly to a connecting flight to another country sustains the economic viability of these international routes. Lack of sufficient transit passengers would deprive the UK of some of its international air routes. In today's world, connectivity is critical for trade, investment and social cohesion. Analysis of international aviation trends over the last 20 years¹¹ indicates that a new direct flight to just eight of the world's largest high-growth economies could be worth up to £1 billion of new annual trade for UK business.

13. Airports also have considerable local economic and social impact that extends beyond their immediate social surroundings. On average, airports support 4,700 direct, indirect and induced jobs per million passengers¹² while of the 5.6 million direct jobs generated by the air transport industry worldwide in 2010, at least 63% (3.5 million) were on-airport jobs.¹³ The UK Government recognises this important economic impact of the wider aviation industry.¹⁴ Each year over 4 million long-haul passengers arrive at Heathrow to visit Britain¹⁵. These visitors spend £4.4 billion a year, making up more than 5% of total spending in the UK tourist industry sector. Including long-haul visitor spending, aviation at Heathrow is estimated to benefit the British economy by adding £11.1 billion to GDP and providing 220,000 jobs. Even more importantly, by being located close to the UK's financial heart, Heathrow's air routes facilitate the majority of face-to-face business meetings between UK and overseas business people, which represents £590 billion a year of business deals that add more than £150 billion to the UK's GDP¹⁶ each year.

¹⁰ London Evening Standard 7 November 2012: Heathrow's third runway is here in Amsterdam says Schiphol airport

¹¹ Report by transport consultants Steer Davies Gleave, commissioned by the CBI in November 2012.

¹² Airports Council International (ACI) studies

¹³ Extract from the 9th Annual Assad Kotaite lecture at the ICAO headquarters in Montreal on 29 November 2012 by Angela Gittens, Director General Airports Council International (ACI). Reported in Aerospace Professional January 2013, pp11-13

¹⁴ Aviation Framework Policy, Department for Transport, 22 March 2013: "Aviation benefits the economy through its direct contribution to GDP and employment, by facilitating trade and investment, manufacturing supply chains, skills development and tourism. The whole UK aviation sector's turnover in 2011 was around £53bn and it generated about £18bn of economic output. The sector employs around 23,000 workers directly and supports many more indirectly. The UK has the second largest manufacturing industry in the world, after the USA. And will benefit economically from growth in employment and exports from future aviation growth."

¹⁵ Frontier Economics Connecting for growth: the role of Britain's hub airport in economic recovery

¹⁶ Frontier Economics, Connecting for growth: the role of Britain's hub airport in economic recovery

14. Besides its role as an international hub, Heathrow provides an important link to UK's non-hub airports. A CBI study¹⁷ indicated that "...Analysis of growth patterns from hub and non-hub airports in the last two decades demonstrates the complementary nature of the two models....Since 1993, demand at the ten selected hubs¹⁸ rose 128% on average while the non-hubs¹⁹ saw demand increase by 169% in the same period, albeit from a lower base." The CBI concludes that both models are vital to supporting growth in connectivity and underpinning UK trade. While the unique nature of the hub airport means it is well-positioned to act as the initial driver for long-haul routes, it is important not to ignore the markets which form the backbone of UK trading power: "New routes should not come at the expense of links with our established markets... The UK's aviation networks must have the capacity to serve both existing and potential markets - this cannot be an either/or decision..." The CBI emphasises that "...Connectivity is the lifeblood of trade. The UK's competitors understand this - it is why both Frankfurt and Paris now have four runways each. It is why Amsterdam is served by a six-runway airport, equaling the total number of runways across London's entire airport network."

15. The Guild notes that the UK Government appears to accept the importance of international air route connectivity through statements such as **"One of our main objectives is to ensure that the UK's air links continue to make it one of the best connected countries in the world. This includes increasing our links to emerging markets so that UK can compete successfully for economic growth opportunities."**²⁰ However, the Guild sees contradictions to this assertion, including the following:

- Lack of any plans for, or even the intent to develop, an integrated transport policy for the UK so that road, rail, air and sea links form an integrated network facilitating easy and efficient transition between modes while also minimising the environmental impact of domestic and international travel.
- The protracted failure of successive UK governments to have a coherent programme for the development of the UK's airports.
- More recently, the continued application of supposedly 'green' policy through the imposition of Air Passenger Duty that penalises those business and leisure passengers who choose to use the UK airport network rather than opting for alternative routes through non-UK airports.

16. The importance of a cross-Party agreement on the UK's future plans for aviation and a wider integrated transport policy is highlighted by reversals in strategic decisions on airport infrastructure over the last 5 years. National transport strategy is too

¹⁷ Report by transport consultants Steer Davies Gleave, commissioned by the CBI in November 2012.

¹⁸ Paris CDG, Frankfurt, Amsterdam, London Heathrow, Los Angeles, Atlanta, Dubai, Hong Kong, Singapore, and Shanghai Pudong;

¹⁹ Manchester, Lyons, Dusseldorf, Brussels, Taiwan, Bangkok, Guangzhou Balyun, Riyadh, Baltimore and San Diego.

²⁰ Aviation Framework Policy, March 2013, page 10

important to formulate on the fly; it must be considered and agreed in the broader national interest and not to satisfy short-term Party political aims.

Threats to Heathrow Airport

17. Despite Heathrow's importance to the UK as a major hub airport, it has been under threat from other European airports such as Amsterdam/Schiphol, Frankfurt/Main, Paris/Charles de Gaulle and Madrid/Barajas for a number of years²¹. In contrast to Heathrow, which can only expand international routes by sacrificing domestic (UK and European) connections, these competing airports have the spare capacity to take up additional international **and** domestic routes and the resilience to recover quickly from any unplanned operational delays. They are an inevitable draw for both UK and overseas business passengers²². The long-haul Airport Departure Tax that only UK applies exacerbates this problem. For instance, Turkey's recent announcement of its intention to build a 6-runway hub airport²³ and continuing expansion of recently built international hub airports in the Middle East shows these threats can only become larger in the future. The rate at which Heathrow and the UK is losing the economic benefit of air passengers is illustrated in Figure 1.

18. Unless the UK sustains a competitive major airport with multiple international and domestic UK and European links, international businesses including financial and other services as well as investors from the developed world will lose direct access to London; those from rapidly developing parts of the world²⁴ will never gain direct access. UK businesses would be at a disadvantage when competing with the rest of the world. Continued lack of capacity at Heathrow will leave the UK increasingly marginalised as major carriers migrate to alternative hubs, forcing business travellers and tourists to go to an airport on mainland Europe or even the Middle East²⁵ to interline to reach or to leave their UK destination. The availability of easy direct air access plays a major part in business investment decisions; if UK loses the market for its hub airport it is difficult to see how, with the inevitable migration of business demand away from UK, a viable hub airport could ever be re-established in UK.

Provision of Additional Capacity at Heathrow

19. To support the UK economy, businesses and national growth, we must retain a major hub airport at Heathrow. That means doing whatever is possible now to increase resilience and capacity at Heathrow. Since planning permission already exists for a

²¹ CAPA: What's driving the world's leading international hubs? 30th December, 2010

EU Transport in Figures, Statistical Pocketbook 2012

²² Previously based in northwest England and starting from Manchester airport, the editor would avoid Heathrow at all costs, first because of missed connections whenever Heathrow operating rates were restricted and also because it was cheaper to fly via an overseas hub.

²³ Airports Commission Discussion Paper 01: Aviation Demand Forecasting

²⁴ In November 2012, Heathrow provided direct flights to only Beijing and Shanghai in China

²⁵ CAPA: What's driving the world's leading international hubs? 30th December, 2010

third runway at Heathrow to the north of the existing airport, this seems an attractive option. However, there are many options for increasing Heathrow's resilience without the construction of additional runways as follows:

- Air traffic procedural changes could circumvent the present reduced landing rate caused by high winds as explained in paragraph 9.
- Increased use of Microwave Landing System (MLS) approaches in place of the conventional Instrument Landing System (ILS) to remove some restrictions on aircraft taxi patterns in poor visibility and sustain arrival and departure rates.
- An extension of operating hours for use by the quietest of aircraft types.
- The introduction of off-stand de-icing facilities, as proposed by the Begg Report²⁶, would improve dispatch rates during periods of winter weather.
- Operation with mixed mode runway operations, using both existing runways for arrivals and takeoffs, even if only at periods of high demand, would increase available capacity.

20. There are also many options, *aside from the current 3rd runway plan*, for early development of additional capacity at Heathrow, including the following:

- Extension of the northerly runway (27R) to the west to almost double its current length, providing the following capabilities:
 - Simultaneous takeoffs and landings from the northerly runway, increasing Heathrow runway capacity by almost 50%.
 - Some arrivals flown to the western portion of the runway, releasing the 'displace threshold' benefits described in paragraph 27 below.
 - Some easterly departures flown from the western portion of the runway, allowing aircraft to pass the airfield boundary at greater heights with or without the use of increased power settings as described in paragraph 29.
- Construction of a parallel runway close to the existing north runway, sometimes referred to as a 'close parallel' pair of runways.
 - This would permit takeoffs from the northerly 'pair' of runways, without waiting for the landing aircraft to clear the runway, providing an increase in landing rates. The increase would not be as significant as that from an extended double-length northern runway.

21. It is important that any shorter-term palliative action to retain Heathrow's status as a major hub airport does not close off longer term options for increased utilization. Logical developments from the options described in paragraph 20 are follows:

- Extension of the southern runway (27L) to the west to almost double its current length, providing all the benefits described in paragraph 20 above and, with both

²⁶ Report of the Heathrow Winter Resilience Enquiry, Chaired by Prof David Begg, March 2011

runways at double-length, increasing Heathrow's capacity by a total of 100% providing in all a capacity increase of 100% at Heathrow.

- With small adjustments to the M25, this would provide all the future capacity needed for the UK's major hub airport.
- Equally, adopting the 'close parallel' concept for the existing southern runway as well as the northern runway is possible, though with major impact on some existing facilities and again not the same increase in overall capacity.
- More radically, there is space to construct 4 new runways to the immediate west of the current airport boundary at Heathrow which would also provide all the future capacity needed for the UK's major hub airport, though at a significantly increased cost.
- Combinations of all of the above.
 - Careful selection of a number of the above options for double-length, close parallel and new-build runway would be possible.

22. In contrast, the current 3rd runway plans do not lead to longer term growth options. This paper concentrates on operational and additional runway options that would facilitate increased *runway* capacity at any airport. Runway capacity is only one of a chain of factors and it must be matched by similar capacity increases in aircraft taxi patterns, immigration and security processes, passenger, baggage and freight handling and integration with onward ground transport systems.

23. Additional capacity would allow development of further domestic and international routes. However, a capacity increase does not necessarily create a pro-rate increase in aircraft movements. Retaining a proportion of the additional capacity in reserve would improve Heathrow's resilience and absorb operating delays when necessary. **Extra runway capacity can also be used to manage the airport's environmental impact more effectively than at present**, by imposing 'quiet' unutilized slots or planned periods of reduced movement rates; these could be managed in consultation with local resident groups. Alternatively, a shorter flying day would be possible with increased operating rates.

Environmental Issues

24. The industry's remarkable achievements in reducing aviation's environmental effects help to alleviate the impact of additional flights at Heathrow. Aviation's environmental footprint falls broadly into three areas, carbon dioxide (CO₂), oxides of nitrogen (NO_x) and noise. Many of the advances in aircraft and engine design address these synergistically but NO_x and noise are particularly relevant to airports so each is considered individually as follows:

Carbon Dioxide

25. The increased fuel efficiency of new aircraft and engine designs and the introductions of biofuels all reduce the production of CO₂. Figure 2 shows the benefits of modern aviation design improvements while the future benefits available from more widespread use of biofuels are shown in Figure 3.

Figure 2 – Aviation Fuel Efficiency Improvements²⁷

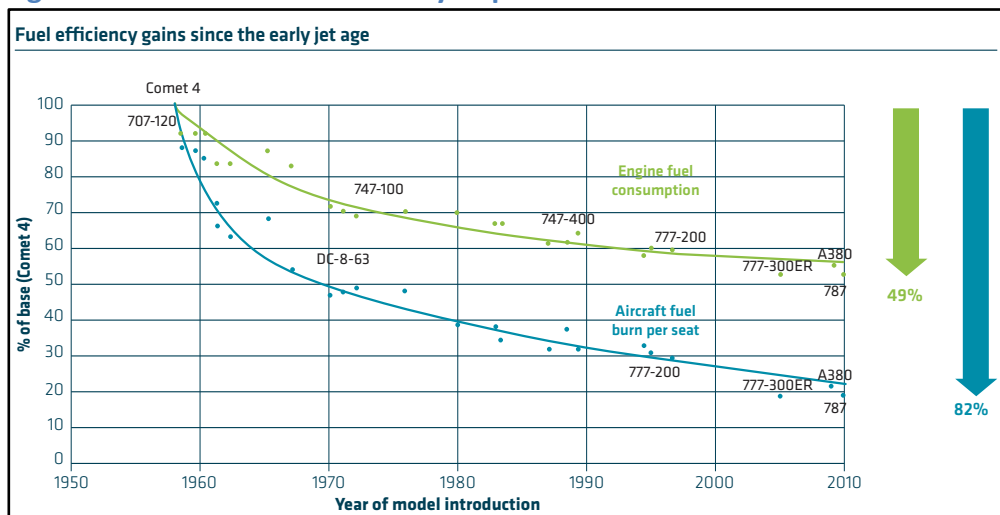
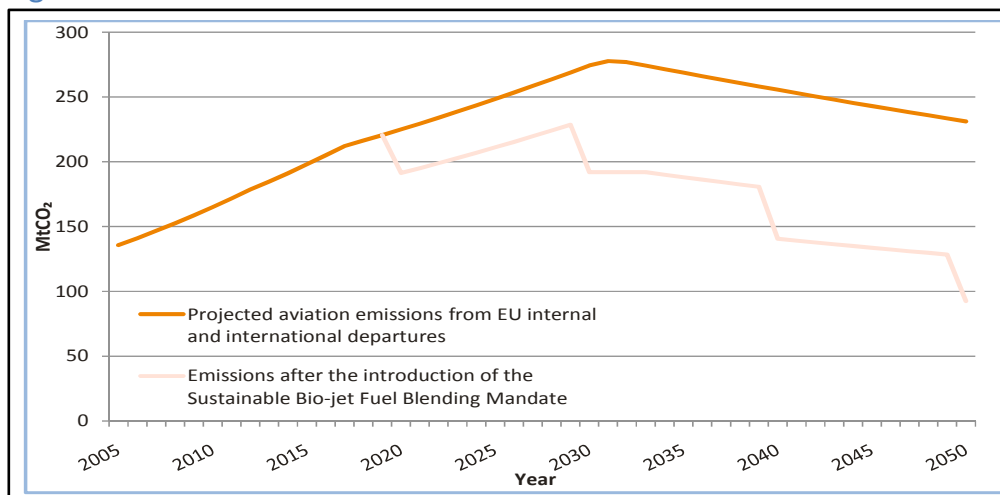


Figure 3 – CO₂ Reduction from Biofuel²⁸



Nitrogen Oxide (NO) and Nitrogen Dioxide (NO₂)

26. Car and lorry internal combustion engines and aircraft jet engines create NO_x, which is the generic term for NO and NO₂ formed when the nitrogen and oxygen in the air combine at high temperatures. NO_x is a challenge for airports surrounded by motorways, as was apparent when Heathrow's NO_x levels remained unchanged when

²⁷ www.atag.org/our-publications/latest.html

²⁸ www.atag.org/our-publications/latest.html

all flying was halted by a volcanic eruption in Iceland. Paradoxically, increasing engine-operating temperatures to make them more fuel-efficient can increase NOx generation but many of the actions that reduce NOx generation also reduce engine noise. Several measures are effective in reducing NOx generation, not least of which is providing passengers with efficient, convenient and affordable alternatives to road (especially private cars) forms of travel to and from the airport; Unlike Heathrow with no mainline rail link, Frankfurt Main is served by 210 daily long distance trains²⁹. Other measures include powering airport vehicles electrically with fuel cells or batteries, fuel cell APUs³⁰ electric taxiing systems such as the Honeywell/Safran System being trialled by easyJet³¹, the Wheeltug system being trialled at Prague³² and for larger aircraft the Taxibot tug system³³ to take aircraft from and to the runway without the use of aircraft engines. All the above would also reduce the noise from aircraft and airport vehicles. Finally, installation of NOx scrubbers³⁴ in the road tunnels serving the airport also help to reduce local levels. In the case of Heathrow, the Mayor of London's plans to eliminate vehicle pollution from London by 2020 will also reduce NOx from the M4 & M25 road traffic adjacent to the airport.

Noise – aircraft landing & displaced thresholds

27. Minimum aircraft noise comes from a good design so it is in the interests of residents near busy airports that operators use the most modern and quietest aircraft available. The historical trend has been for overall aircraft noise levels to reduce year on year since 1960 by about 0.3dB³⁵ and today's Boeing 787 is designed to keep the 85 dB contour entirely within an airport boundary, as well as using 20% less fuel per passenger than earlier airliners.³⁶ Airports (and governments) can encourage the use of quieter aircraft through the levy of appropriate charges. Noise levels can also be reduced significantly by adopting airport and airspace operating procedures that are more sympathetic to people living underneath the flight paths of arriving and departing aircraft. These include moving runway touchdown points further from the airport boundary to increase the height that an aircraft passes over any particular point on the approach and thus reduce the noise of arriving aircraft. This relatively simple measure, referred to as a 'displaced threshold', has no significant impact on very long runways and on shorter runways supplemented by the introduction of Engineered Material Arresting System (EMAS)³⁷ at the end of the runway.

²⁹ CBI Report: Trading Places – Unlocking export opportunities through better air links to new markets

³⁰ www.renewableenergyfocus.com/view/4435/intelligent-energy-unveils-multi-functional-fuel-cell-system-for-airbus/

³¹ <http://corporate.easyjet.com/media/latest-news/news-year-2012/09-02-2012-en.aspx>

³² www.businessgreen.com/bg/news/2145272/green-light-easyjets-electric-taxi-ing

³³ http://www.iai.co.il/35095-39730en/Groups_Military_Aircraft_Lahav_Products_TaxiBot.aspx

³⁴ <http://know-nox.biz/blog/2013/01/28/nox-scrubbing-technology-breakthrough/>

³⁵ Noise Road-Map – A blueprint for managing noise from aviation sources to 2050.

www.sustainableaviation.com

³⁶ ATAG Boeing & the 787 Dreamliner, www.enviro.aero/CaseStudyBoeing.aspx

³⁷ www.faa.gov/news/fact_sheets/news_story.cfm?newsId=12497

Noise – Aircraft landing vertical profiles

28. Steepening the standard 3° approach path angle also increases the height and reduces the noise of arriving aircraft; 3½° approaches are used already at a number of airports for obstacle clearance and London City successfully uses a 5½° approach angle, though that is too steep for some aircraft. The airline Emirates has proposed an initial approach of 5° or more at Heathrow³⁸ so that their fleet of A380 could operate outside the normal window. A continuous 5° approach almost doubles the height of the aircraft over any particular point on the approach, reducing noise on the ground to almost a third of current levels and offers a long term target for airline manufacturers. Some current aircraft may not be able to accept a 5° slope all the way to landing. However, an initial 5° descent slope to 1500 ft, reducing to 3° for final approach to land would be feasible. A further benefit is that the initial approach can be flown with speed brakes on (and generating noise from) the top of the wing, rather than with landing gear and flaps extended below the wing for much of the approach. Increasing in the height at which air traffic control marshal aircraft prior to commencing a final two-stage approach will also reduce noise in areas further away from the airport. Use of MLS allows aircraft to follow more complex lateral and vertical approach paths rather than a single straight-in approach required by ILS. Aircraft on MLS approaches could be routed over the lowest areas of population density or routings could be varied, to alleviate certain areas at certain times of day or to spread or 'share' aircraft noise over a wider area than at present. This might increase the number of people subject to noise but reduce the noise levels currently experienced by many people. The approval and use of GNSS³⁹ approaches at existing UK airports including Heathrow would provide similar benefits.

Noise – Aircraft Take Off

29. Just as steeper approaches reduce aircraft noise on the ground outside the airport, steeper departures or increasing the height of the aircraft as it passes over the airport boundary after take off can also reduce noise experienced on the ground. This is achieved by either extending the runway at the take off end or by requiring crews to set a higher power for take off than runway length would normally require (though this does increase NOx output).

Noise – Transport Mode Transition & Integration

30. When an airport is served by excellent rail connections matched with efficient and painless passenger and baggage handling, the number of domestic flights can be minimized, while quieter turboprop flights continue to link domestic locations such as particularly remote or island settlements. Turboprop flights to a nearby (ground-transport linked) satellite airport configured for very steep approach and climb out angles (as used at London City) will also alleviate noise at the major hub airport. As an example, Northolt would provide an effective satellite for Heathrow if good rail (or monorail) connections and passenger handling facilities link the two airports⁴⁰.

³⁸ www.airportwatch.org.uk/?p=1026

³⁹ www.caa.co.uk/default.aspx?catid=1340&pageid=13338

⁴⁰ www.guardian.co.uk/uk/2012/jan/25/raf-northolt-may-be-sold

UK Commercial Aviation Beyond 2025

31. In parallel with action to retain Heathrow as a viable hub airport in the short term, a long term commitment to provide capacity in the South-East of England is crucially important for UK tourism, business and economy. Long-term options include the following:

- Further increase in Heathrow capacity as described in paragraph 21 above.
- Expansion of Gatwick into a major hub with the addition of at least 3 more runways.
- Expansion of Stansted into a major hub with the addition of at least 3 more runways.
- Development of a new very large major hub airport at a completely new site such as within the Thames estuary.

Other than further increases in capacity at Heathrow, all other options would require Heathrow's closure to ensure the UK retains the scale of transit business necessary for a viable major international hub at a single location. Otherwise, an operational Heathrow would dilute and limit expansion at the new hub, increasing the risk diluting and then losing the traffic and connectivity to other locations in Europe, as airlines seek to consolidate their operations.

32. A Commons Select Committee Report suggests⁴¹ that a Thames development would cost £20-50 billion while construction cost per runway is broadly £5 billion. The report also acknowledges that 'cost overruns in the order of 50% in real terms are common for major infrastructure and overruns above 100% are not uncommon'. Unless UK national government committed to absorb much of the cost of a new airport development, excessive charges could divert airline activity to other hubs in Europe, rather than attract them to the new facility. *"Airports now chase airlines for their business and mega-hubs compete to become gateways to entire continents."*⁴²

33. The UK's long-term hub airport, be it an expanded Heathrow or an alternative option, will require detailed and intricate planning of air traffic control, airlines and ground transport and more comprehensive rail and road connections than exist at any UK airport today. Its location must allow surface access by the largest possible proportion of the UK population and longer distance domestic surface and air connectivity. It must have the full suite of facilities to handle domestic, connecting and international transit passengers, baggage and freight with the runway, taxiway, ramp and aircraft ground support facilities to match. Long-term planning must begin immediately to facilitate integrated development now and to ensure unconstrained or inappropriate growth in the surrounding areas does not threaten longer-term options.

⁴¹ Would a new hub airport be commercially viable? 25 January 2013 by Oxera for the Transport Committee

⁴² Extract from the 9th Annual Assad Kotaite lecture at the ICAO headquarters in Montreal on 29 November 2012 by Angela Gittens, Director General Airports Council

34. The Guild recognises that a balance of economic and political, rather than operational, factors will drive any final decision. The selected option must of course be financially viable and it is difficult to understand how some of the proposals would be commercially attractive to the airlines. The Guild is concerned that the issue is too difficult for government to select and enact a workable solution; this will leave the UK falling further behind in business and aviation terms.

Other Factors

35. Assuming the UK government does wish to sustain a major airport in UK, taxation policy must support that desire. UK Air Passenger Duty has made air travel through alternative non-UK hubs cheaper than using Heathrow⁴³. This might be appropriate when Heathrow is struggling for capacity but, since transit passengers sustain international routes, the unintended consequence is to damage the UK hub which damages UK's international connectivity and the UK's attractiveness to global business as well as the competitiveness of UK business. Airlines can adjust their route structures quite quickly so any change in passenger preference away from UK airports can quickly precipitate route changes.

Summary

36. The Guild believes it is essential that the UK has a hub airport with the connectivity necessary to support the needs of businesses and the UK economy. Heathrow is the de-facto UK hub airport but, operating at close to maximum capacity, it struggles to meet its customer commitments and is threatened by alternative hub airports elsewhere in Europe and as far away as the Middle East. If UK loses its hub airport, the present slow migration of UK domestic travellers, international transit travellers and global business away from the UK to alternative countries would escalate and it would then be extremely difficult, if not impossible, to re-establish and reverse that trend.

37. Action is required now to keep a hub airport in UK and the only viable option is to increase Heathrow capacity by one or more of the suggestions that have been made. The increase in Heathrow traffic must be viewed in light of on-going reductions in aviation's environmental footprint and further mitigations possible from improved or changed aircraft procedures and operations. It is important to understand that

⁴³ The Times 5 February 2013 -Seasoned international travellers are avoiding tax on airline tickets by changing flights on the Continent.

increased capacity does not automatically lead to a pro-rata increase in aircraft activity. Some of the additional capacity will be used for more flights but some can be retained and used to generate 'quite' periods or lulls within the existing operating period. Only Heathrow offers the potential for a capacity increase that is coherent with sustaining a major hub airport in the UK in the short term. Heathrow may also offer the best solution to meet the demands of air transport and international connectivity into the second half of the 21st Century and beyond, so infrastructure changes to support short term capacity improvement must also remain coherent with long term options.

38. Airports cannot exist in isolation and are critically dependant on rail and road ground connectivity as well as runway capacity. Therefore, the Guild believes it is essential that UK moves toward a fully integrated transport policy that recognises and supports the needs of all forms of transport as well as their complementary roles in containing the environmental impact of the transport of people and freight. Notwithstanding the need for comprehensive integrated plans, on-going migration of air activity away from the UK to competing hub airports in Europe and beyond requires the difficult decisions on how to sustain and then further develop UK air capacity to be taken urgently. Furthermore, given the national importance these decisions should be made in the national interest and agreed cross-party to provide industry and business with the surety that plans made now will not be overturned by future governments.

Safe and Efficient Operations

39. Safety, efficiency and environmental friendliness are major areas of activity for the Guild. The Guild of Air Pilots and Air Navigators will strive to ensure that, regardless of which decisions are taken on the short-, medium- and long-term expansion of air capacity, air operations will continue to meet the current or higher standards of safety. Additionally, any further opportunities to improve the cost effectiveness and efficiency of air transport activity will be pursued, as will any efforts to reduce their environmental impact, particularly noise. These factors should be considered before the Government comes to a final conclusion.