

**Response of the Board of Airline Representatives in the UK (BAR UK) Ltd
to the Department for Transport's consultation -
'Developing a sustainable framework for UK aviation: Scoping Document'**

EXECUTIVE SUMMARY

Opening remarks

The current lack of a clear aviation policy does two things. It:

- imposes barriers about making firm and objective business decisions about investing in future air services to the UK, and
- indicates to the rest of the world that key trading infrastructure is going to remain full for several years ahead.

That is very damaging to the UK's reputation, and to its future economic growth and employment prospects.

The aviation sector and its value to the economy

The aviation sector provides benefits and contributes to the UK economy of over £50 billion pounds per annum.

The Government recognises the vital importance to economic growth in the UK of developing trade links with Emerging Markets. Britain, though, is currently missing out on potentially viable aviation links to those markets – and the gap is likely to grow.

This connectivity gap includes 45 long haul destinations that could be viably added to the airlines' route networks at Heathrow, including 15 in Emerging Markets, while the frequency of service on existing routes could be enhanced.

The importance of London

London remains, and will continue to remain, the key location for air transport.

Heathrow Airport is unique in the UK, as practically all flights operated there are by scheduled airlines only. Its prime role is a hub airport, performing a major pivotal function not only for airlines, but also for the UK economy.

The constraints at Heathrow, and lack of clear government policies, are affecting the businesses of airlines there, and raising issues of their future commitment to the UK.

Hub Airports

The core principle of hubbing that applies to rail and road also applies to air transport.

Hubbing brings is great additional connectivity, thereby enhancing the sheer range of origin and destination points for travellers to the benefit of the UK economy and employment.

Dubai has very successfully proved the enormous value to its economy of purposefully developing a hub airport, and recognising the importance of transfer passengers and cargo.

It is rare to successfully operate two hub airports within a country the size of the UK, let alone the same city.

It is not possible, in any meaningful way, to link any two London airports to enhance hub capacity.

Whilst major competing hub airports have Minimum Connecting Times (MCTs) between international flights ranging between 45-75 minutes, a transfer between Heathrow and Gatwick would be a minimum of 2.5-3.00 hours, a time that is utterly uncompetitive.

Night Flights Regime

The night flights regime at Heathrow (2300-0700) is a critical facility that benefits the UK economy.

The aircraft that operate them tend to be wide-bodied aircraft carrying significant amounts of cargo, plus business and leisure travellers into the UK, as well as those returning home or making an onward journey by air.

Transfer passengers – their value to the UK economy

The UK economy derives many benefits from transfer passengers because create a wide range of employment for pilots and cabin crew, as well as a wide range of services staff on, and off, the airport.

The worth of transfer passengers is massively under-estimated.

Aviation taxation

The high levels of taxation, levied in the form of Air Passenger Duty, continue to impede the business of airlines, and drive business elsewhere. APD is the highest passenger tax in the world.

Such discriminatory taxes (they are not levied against any other form of transport), will cause airlines to review the viability of operating into the UK, or whether their aircraft might be deployed more effectively elsewhere.

Regional connectivity and Regional airports

The appeal of regional airports is determined by market demands.

If customers' requirements are to travel to an airport in London and the South East, then the ability to fly to a UK regional airport instead is not going to satisfy them.

Making better use of existing capacity

The capacity constraints that BAR UK airlines face are, essentially, only at Heathrow Airport.

This is determined by the market needs of travellers and the exporters and importers who contribute so much to the UK's economy. It is pertinent that this important aspect is highlighted.

CONCLUSION

The current lack of a clear aviation policy is damaging to London and the UK in general.

The capacity constraints in London and South East England, not least at Heathrow, needs to addressed as a matter of priority.

Aviation is vital for the UK economy, and adds value to it, and needs to be embraced as a solution and not viewed as a problem.

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1. INTRODUCTION

The Board of Airline Representatives in the UK (BAR UK) represents the interests of 86 scheduled airlines operating to, and within, the United Kingdom. Within that number are three prominent UK airlines and 83 foreign airlines.

As an organisation, we are very pleased to have the opportunity to respond to this consultation. Aviation performs a vital role in the economic well-being of the UK and, because it is also a global industry, we can provide overseas perspectives to this consultation, as well as those from within the UK.

To that extent, the views that are expressed within this document are a reflection of our membership at large.

2. OPENING REMARKS

The current lack of a clear aviation policy does two things:

- it imposes barriers about making firm and objective business decisions about investing in future air services to the UK, and
- indicates to the rest of the world that key trading infrastructure is going to remain full for several years ahead.

That is very damaging to the UK's reputation, and to its future economic growth and employment prospects.

The Chancellor wishes for the economy to grow, and that he has declared that the country is open for business.

However, with key air capacity so constrained, this is a mis-match of aspirations.

Aviation has to be regarded as part of the solution to the UK's economic revival, and not as an obstacle.

When deciding which routes to operate, airlines need to consider a range of costs and regulatory challenges that may be encountered. Such costs and challenges include:

- a) airport costs (regulated and non-regulated)
- b) availability of airport slots
- c) commercial viability of allocated slot timings
- d) ability to vary timings and frequency of flights
- e) airport resilience
- f) ability to offer efficient and speedy transfer connections to/from their flights
- g) airport operating hours and curfews
- h) route viability i.e. revenues v total costs
- i) aviation taxation regime
- j) hidden border control costs e.g. e-Borders
- k) visa regimes, costs and processes that may apply to their clients
- l) immigration control policies that may affect their own staff
- m) viability of using an aircraft to the UK versus its productivity elsewhere.

The above list is not conclusive, or in any particular order, but provides an insight into some of the deliberations made when deciding whether or not to fly to the United Kingdom.

3. THE IMPORTANCE OF LONDON

The response to this consultation provides the opportunity to clarify that, of all the UK regions and airports to which BAR UK airlines could fly, London remains, and will continue to remain, the key destination. Of all visitor arrivals at UK airports in 2010, a total of 74% arrived at London airports (*source: ONS IPS 2010*).

London receives over 50% of overseas visitors, compared to Scotland (9%) and Wales (4%). (*Source: Visit Britain*)

A quick summary of the importance of Heathrow, Gatwick and Stansted to our 86 airline members is shown below.

3.1 Heathrow Airport

This airport is unique in the UK, as practically all flights operated there are by scheduled airlines only.

Its prime role is a hub airport, performing a major pivotal function not only for airlines, but also for the UK economy.

It is unlike hub airports elsewhere.

Instead of just being a traditional 'hub and spoke' operation for one dominant airline, providing connections between its own flights ('intra-lining'), its focus is on a widespread sharing of passenger and freight traffic between airlines ('inter-lining').

Numbering over 90, they transfer passengers and cargo between each other. Over 90% of these airlines are members of BAR UK.

The connectivity offered is vital for importers and exporters, as well as for passengers.

However, Heathrow is full.

As a result, its ability to assist the revival of the UK economy is now severely inhibited.

The number of unused slots is miniscule (only 2% in Winter 2010, and just 1% in Summer 2011 (*source: ACL*), and there is very little, if any, spare capacity in respect of taxiways and aircraft parking stands.

As air traffic movements have reached their maximum, greater passenger throughput can only be achieved by the substitution of larger aircraft to replace smaller ones.

Consequently, this will mean that the number of destinations served declines, thereby adversely impacting the role of Heathrow as a key hub airport.

3.2 Gatwick

This airport is used by a mix of 70 charter and scheduled airlines (including 20 BAR UK members). It's a remarkably busy single-runway airport with runway slot availability in Winter 2010 of 15%, reduced to 12% in Summer 2011 (Source: ACL)

Overall, the range of destinations served is approximately 200, but the number served by scheduled airlines reduces that amount to approximately 160.

The opportunity to connect with others is far more limited than at Heathrow, and tends to be used for point-to-point services.

3.3 Stansted

This airport has proved to be of little attraction to BAR UK member airlines, despite the spare capacity it has.

Of our three members that were there, two have recently transferred to other airports. Another has tried at least twice to operate profitable trans-Atlantic services, but did not succeed on either occasion and withdrew them.

Average slot usage in Winter 2010 was 45%, and in Summer 2011 is 54% (source: ACL).

3.4 Looking ahead

As matters stand, government policy is not to enhance air commerce to London and South East England.

This then begs the question *'If Heathrow Airport is full but is unable to add capacity, and other London airports are not considered practical alternatives or allowed to expand, then how is the UK economy likely to be affected?'*

Whilst the lack of certainty continues about future aviation policy, airlines will assess all the other options open to them; that may result in a more productive use of their aircraft and resources to other countries instead of the UK. Employment and the UK economy would suffer.

It was in respect of damage to the UK economy and employment that BAR UK undertook a survey of its members, to ascertain how the constraints at Heathrow, and government policies, are affecting their businesses (***refer Annex 1 for the full results***).

It is very evident that the:

- lack of slots is inhibiting expansion to business and commerce
- lack of slots is requiring many flights to be scheduled at less than optimum times
- the flights operated in the night flight period are vital
- aviation taxation policies are adversely impacting route profitability
- overall aviation and taxation regimes are making some airlines consider their future investment in the UK.

4. HUB AIRPORTS

This section examines:

- the concept of hubbing
- what hub airports do
- the case history of a recent hub airport strategy
- the importance of transfer passengers to the UK economy
- the failures of dual-hub airports
- the concept of linking London airports as a 'virtual' hub.

4.1 The concept of hubbing.

This is a basic philosophy in most transport modes – it's not unique to airports.

The value that hubbing brings is great additional connectivity, thereby enhancing the sheer range of origin and destination points for travellers. Some examples are:

- The DfT's own High Speed Rail consultation summary quotes (page 5) *'Investment in transport is a core element'*, and *'The UK's transport networks provide the crucial links that enable firms to operate efficiently'*. The same philosophy applies to aviation, its infrastructure, and the UK economy.

- Transport for London's Underground network is another key example of the huge value that connectivity brings. The 11 Underground lines are so well inter-connected that they provide a huge range of over 72000 single one-way options between any two points on the network, so providing immense mobility for the workforce of London and SE England. However, should each Underground line have been developed in isolation to any of the other lines, that number falls dramatically to less than 16000 one-way options i.e a loss of 80% connectivity.
- Within London, there has been a deliberate, and successful, policy of linking Kings Cross and St. Pancras mainline stations with the Underground (6 lines), thus providing integrated transfer facilities for rail users.

Exactly the same principle of hubbing applies to hub airports, to serve the needs of air travellers and freight customers.

4.2 Hub airports – what they do.

They provide:

- a great range of connectivity that would not otherwise exist
- greater employment than would otherwise exist – directly and indirectly
- the economic enhancement to a range of flights and destinations that would otherwise be economically compromised.

The role and values of hub airports can be demonstrated in three ways:

1. The past success that Heathrow generated for the UK with a great range of domestic and international connections
2. The current dribble erosion of hub connectivity at Heathrow due to constrained capacity and infrastructure
3. The success of competing cities, in Europe and the Middle East, that have employed a deliberate strategy of developing hub airports to compete with Heathrow.

The past success of Heathrow is such that the economies of London, and the entire Thames Valley 'corridor', right through to Bristol, Bath and beyond, thrived.

The attractiveness of Heathrow as a hub airport was also demonstrated when the EU-US Open Skies agreement was implemented in March 2008. US airlines, previously obliged to operate to Gatwick, moved en masse to Heathrow, because that is where the connectivity met market needs.

Why? Because Heathrow provides the connecting passengers and freight that make such significant contributions to route viability (as stated in Section 3.1 above – *Heathrow Airport*)

Now, however, its inability to operate more air transport movements has led to the substitution of regional flights, by larger aircraft on trunk routes, leading to fewer destinations served and less connectivity.

In 2000, the number of destinations served from Heathrow was 180, including 10 within the UK. By 2010, that number has shrunk to 177 and 7 respectively.

In comparison, hub airports have been strategically developed at various European cities including Amsterdam, Paris, Frankfurt and Madrid.

Further afield, airports in the Middle East have adopted hubbing and connectivity as key stratagems for their national airlines.

Table 1

Airport	Passengers (millions)		CAGR %	Freight tonnage (m)		CAGR %	Destinations served		Runways available	
	2000	2010		2000	2010		2000	2010	2000	2010
Heathrow	64.3	65.7	0.3%	1.3	1.5	1.3%	180 <i>(incl 10 UK)</i>	177 <i>(incl 7 UK)</i>	2	2
Amsterdam	39.3	45.1	1.6%	1.2	1.5	2.4%	234	276	6	6
Frankfurt	49.0	52.7	0.8%	1.6	2.2	3.8%	289	276	3	3
Madrid	32.7	49.8	4.8%	0.3	0.4	2.1%	132	190	2	4
Paris (CDG)	48.1	58.1	2.1%	1.4	2.2	4.9%	234	245	4	4
Abu Dhabi	2.9	10.5	15.4%	0.1	0.4	16.9%	61	84	1	2
Dubai	11.1	46.3	17.2%	0.6	2.2	16.3%	110	185	2	2

Note: CAGR% = Compound Annual Growth Rate Sources: ACI, OAG MAX and BAA BOSS

4.3 Case history – The outstanding success of Dubai as a hub airport

The more recent emergence of the Middle East airports, that have embraced strategies of developing hub airports as competitors to London and other European cities, is remarkable. They have proved the value to the economy in general of hub airports, and the transfer passengers and cargo that use them.

Whilst oil in the region had prompted economic development, Dubai took a strategic decision in the 1980s and early 1990s to emerge as a major international-quality tourism destination. That, and the development of its airports and airlines, to become major global cross-roads, has transformed its economy.

Of all the Middle Eastern hubs, Dubai is often seen as the pioneer, having established its national airline in 1985. Since then, the economy of the emirate, as well as its airline and airport, has prospered.

The tables on the next page provides headline data about the economic generation provided by the ongoing success of Dubai as a hub airport.

The report, in June 2011 by Oxford Economics, stated that aviation in Dubai:

- supports 125,000 jobs in Dubai, including direct, supply chain, and induced jobs
- directly employs 58,000 jobs and contributes US\$6.2 billion to Dubai's GDP
- indirectly supports 43,000 jobs and contributes US\$3.5 billion to Dubai's GDP
- the aviation sector supports a further 23,900 jobs that contribute US\$2.0 billion to Dubai's GDP
- supports a further 134,000 jobs in Dubai's tourism industry.

The report then states that Dubai's aviation sector benefits the global economy, by promoting tourism and creating connections between cities and countries.

*Source: http://www.emirates.com/english/about/public_affairs/Dubai_aviation_model.aspx.
for the full report as well as the summary.*

Future growth of Dubai Airport to 2020

Dubai Airport has released its growth forecasts to 2020.

In 2010, there were 47.2 million passengers per year, and 2.2 million tonnes of freight was handled.

By 2015, it expects Dubai International Airport to become the world's busiest international passenger airport, with passenger forecasts exceeding 75 million per annum and 3.1 million tonnes of freight.

By 2020, those numbers are forecast to be 98.5 million passengers per annum, and 4.1 million tonnes of freight. (*Source: Dubai Airports Corporate Communications 03 May 2011*)

In due course, Dubai International Airport will be superseded by the new Al Maktoum International Airport, which will be the world's largest passenger and cargo hub. It will have a design capacity of over 12 million tonnes of cargo a year and in excess of 120 million passengers annually and be capable of handling all new generation aircraft, including the A380 superjumbo.

4.4 The importance of transfer passengers to the UK economy

It is a fallacy to subscribe to the notion that transfer passengers are not worth more than a cup of coffee.

In the case of Heathrow, approximately 30% of all passengers are transferring from one flight to another, equating to approximately 20 million passengers per annum.

The contention that 20 million customers, travelling through any airport, have no economic value doesn't bear scrutiny.

In the context of the UK economy, they will have:

- flown on two flights, in and out of the UK, on aircraft that employ pilots and cabin crew. Many of them will be UK-based. Others will be employed by foreign airlines many of whom will stay overnight in a UK hotel, resulting in the employment of staff there. They will also be likely to spend money during that time.
- contributed significantly to the route viability of the inward and outward flights
- created direct employment for ground staff who manage them in transit
- created employment for additional staff in shops, catering areas and airport lounges
- created employment for security staff
- created employment for inter-terminal transfer transport staff
- for a proportion of them, stayed overnight in an hotel and created employment for a range of hotel staff

Additionally, that significant proportion that originates in the UK will have created employment for travel agents, taxi drivers, train staff, coach drivers and employees of other related activities.

The success of Dubai, with its strategy of developing its airport into a hub, is illustrated by the creation of over 12000 jobs for cabin crew, a number that is expected to increase to 16000 by the end of 2012.

(source: 'Flight International' Middle East careers section, April 2011)

4.5 'Virtual' hubs

The consultation asks whether a new 'virtual' hub could be provided in the UK, either by linking existing London Airports, or another UK airport taking on a limited hub role.

Paragraphs 4.5.1 and 4.5.2 below examine why only a hub airport is feasible, and why a 'virtual hub', linking two or more London airports together, is not viable or practical.

4.5.1 Only one hub airport

Practice has shown that it's rare to successfully operate two hub airports within a country the size of the UK, let alone the same city.

The core issue is that of balancing the costs providing services at two airports, rather than one, balanced against the additional revenues that may accrue. Location is also a vital factor.

Recent history demonstrates how plans that don't meet market needs can go awry.

- *Mirabel Airport in Montreal.* It was intended to replace the existing Dorval Airport as the eastern air gateway to Canada. From 1975 to 1997, all international flights to/from Montreal were required to use Mirabel. However, its distant location and lack of transport links, as well as Montréal's economic decline relative to Toronto, made it unpopular with airlines and travellers, so Dorval was not closed as originally planned. Eventually, Mirabel was relegated to the role of a cargo airport. Initially a source of pride, the airport eventually became an embarrassment widely regarded in Canada as being a white elephant.
- *Berlin.* Whereas previous political realities had required four different airports to operate within Berlin, that number will be reduced to one hub airport, Berlin Brandenburg (based on the previous Schönefeld Airport), by mid 2012.

- *Tokyo*. Two main airports, Narita and Haneda currently exist. International flights have been required to operate to Narita, and Haneda (which used to also handle international flights) has been designated for domestic flights. However, the proximity of Haneda to Tokyo, compared to the distant Narita, is seeing more pressure being applied to accommodate international flights there, so providing much need connectivity.
- *Paris*. This city has two large airports- Charles de Gaulle and Orly. Market forces have defined the role of Charles de Gaulle as the single hub airport, whilst Orly offers a range of point-to-point services.
- *London*. Gatwick Airport, despite various attempts in the past, has not materialised as a second hub airport for London. Like Paris Orly, its scheduled services provide a good range of point to point services which do not rely on hubbing. .

Past experience at Stansted highlights the folly of attempting to establish a further hub. It's very much worth remembering (a) the significant investment that airlines have made in Heathrow and (b) the three alliances have made Heathrow their focus which allows for vigorous inter-alliance competition that is good for consumers.

4.5.2 Could London airports link together for connectivity?

London's airports cannot be connected not in any meaningful way.

Theoretically, airlines and airports have been able to do this for years, but do not because it's uncompetitive and highly impractical.

Competitiveness:

The key measures by which fast and reliable transfers between flights are deemed competitive relate to ease, efficiency and speed.

Major competing hub airports, such as Amsterdam, Frankfurt, Paris and Dubai have Minimum Connecting Times (MCTs) between international flights ranging between 45-75 minutes.

Currently, even within just Heathrow, MCTs range from 45-90 minutes, dependent on which terminal(s) are involved.

A transfer between Heathrow and Gatwick would be a minimum of 2.5-3.00 hours, a time that is utterly uncompetitive.

Furthermore, it is highly unlikely that such a long connection would even be readily identified as an option in today's electronic flight booking media, as determined by EC Regulation 2298/89 Code of Conduct for use of CRS.

The table on the next page contains key extracts:

EC Regulation 2298/89 Code of Conduct for use of computerised reservation systems (and as amended by EC 3089/93 and EC323/1999) sets out the criteria for displaying scheduled flights, viz:

'(i) all non-stop direct flights between the city-pairs concerned;

(ii) other direct flights, not involving a change of aircraft, between the city-pairs concerned;

'(iii) connecting flights.

'A consumer shall at least be afforded the possibility of requesting the principal display ranked by departure or arrival time and/or elapsed journey time. Unless a consumer preference is expressed, a principal display shall be ranked by departure time for group (i) and elapsed journey time for groups (ii) and (iii).

'2. Scheduled flights involving stops en route, change of aircraft, change of airport and/or code-sharing shall be clearly identified. Code-sharing flights shall be treated as connecting flights.'

It is immediately apparent that a connection, for example, involving the transfer of passengers and baggage between Heathrow and Gatwick will be a matter of hours, compared to a mere 45-75 minutes at competing hub airports. They would feature so low down on the displayed options, possibly several pages away from page 1, as to be rendered impractical and non-commercial.

Ease and Practicality

Many transfer passengers are making international to international connections, so currently remain 'airside', i.e. they do not officially enter the country by proceeding through the primary line of the UK Border Agency.

On the other hand, transfer connections between any of the London airports would require all such passengers, and their baggage, to be treated as arriving in the UK and cleared through Immigration and Customs.

Furthermore, a visa may be required by overseas residents, at the penalty of cost as well as time, to allow entry into the UK for such a transfer.

Collectively, the time and processes involved in the concept of a linked-airport hub system are largely unworkable and present hurdles that are easily by-passed by the UK's competitors.

The same adverse issues apply to any perceived connectivity between London and UK regional airports.

5. THE AVIATION SECTOR AND ITS VALUE TO THE UK ECONOMY

This lack of airport capacity is damaging to the country, as illustrated by these extracts below

‘1.2 Routes will be lost from the network at Heathrow over time

‘In recent years, short haul routes have been squeezed out of Heathrow. That puts pressure on the number of transfer passengers, potentially endangering long haul routes.

‘Our analysis suggests that around three quarters of the long haul routes operating from Heathrow carry a sufficient number of transfer passengers to imply that those services might not be viable without them. A small number of routes at Heathrow carry very high proportions (up to 80%) of transfer passengers. The routes most vulnerable to a decline in transfer passenger numbers are shown in Table 2. This provides examples of the first routes that might be lost at Heathrow if transfer passengers are squeezed. UK passengers who use these routes would then be forced to transfer through another hub airport, or not make the trip.

‘Table 2.

Long haul routes most at risk if short haul at Heathrow is further eroded

	<i>Transfer passengers</i>	<i>Heathrow’s share of passengers transferring through a major European hub airport</i>
<i>Hyderabad</i>	<i>80%</i>	<i>39%</i>
<i>Edmonton</i>	<i>73%</i>	<i>100%</i>
<i>Chennai</i>	<i>72%</i>	<i>30%</i>
<i>Mexico City</i>	<i>61%</i>	<i>8%</i>
<i>Montreal</i>	<i>56%</i>	<i>16%</i>
<i>Calgary</i>	<i>56%</i>	<i>37%</i>
<i>Vancouver</i>	<i>52%</i>	<i>46%</i>
<i>Ottawa</i>	<i>52%</i>	<i>41%</i>
<i>Luanda</i>	<i>52%</i>	<i>15%</i>
<i>Buenos Aires</i>	<i>50%</i>	<i>6%</i>

‘1.3 The UK is missing out on international connections

‘The Government recognises the vital importance to economic growth in the UK of developing trade links with Emerging Markets. However, this report shows that Britain is currently missing out on potentially viable aviation links to those markets – and this gap is likely to grow.

*‘Our analysis shows that as a consequence of these constraints at Heathrow airlines are unable to expand their route networks to serve growing international demand. This is not the case at competing European hub airports. **We predict that as a result those airports will push Heathrow into third place in Europe within the next ten years.**(3)*

This tonnage represents 15% of tonnage of freight moved by air at Heathrow, of which over 90% was transported in the holds of passenger-carrying aircraft.

(Source: Oxford Economics – the economic value of night flights at Heathrow)

The schedules of NFR services are influenced by time they need to leave their airports of departure, taking into account the significant time zone changes between there and the UK.

The aircraft that operate them tend to be wide-bodied aircraft carrying significant amounts of cargo, plus business and leisure travellers into the UK, as well as those returning home or making an onward journey by air.

The fact that they operate at either end of the day provides an important amount of much-needed capacity, inwards to and outwards from, the UK.

The point is also made that there is chance of re-timing them to operate outside of the NFR. There is simply no capacity in runway slots, and aircraft stand parking capacity, to enable them to do so.

Within the NFR, the Night Quota Period (NQP = 2330-0600) is subject to an average of just 16 flights, and also to strict criteria relating to noise by aircraft type (the QC count).

They tend to be long-distance flights that operate between the UK and the USA/Asia/Australasia, using some of the quietest aircraft in operation.

Such flights can have an elapsed flight time of 14 hours, so are subject to a mix of natural factors that can see them either arrive earlier, or later, than their planned scheduled time.

Influencing factors include:

- wind velocity (that can either make a flight early or late)
- bad en route weather, causing delays due to longer tracks to circumvent it
- good or bad availability of en route flight level, which can also cause early or delayed arrival.

These factors constantly vary on a daily basis, so cannot be factored into a twice-yearly timetable that covers 5 months or 7 months.

It's for these reasons that arrival times can vary plus/minus 1.5 hours. Compared to road travel within the UK, and considering such flights are often travelling over 7000 miles non-stop, such variances should be assessed as both rational and highly creditable.

7. AVIATION TAXATION

The high levels of taxation, levied in the form of Air Passenger Duty, continue to impede the business of airlines, and drive business elsewhere. APD is the highest passenger tax in the world.

Such uniquely high taxes are affecting travellers from abroad travelling into the UK, and the home markets of our airlines within the UK.

Additionally, the planned introduction of aviation into the EU ETS is another financial obstacle that reduces the ability of airlines to make the investments needed to reduce their environmental footprint..

Between 2007 and the end of budget year 2015/16, aviation taxation revenues will have multiplied almost six times, from GBP1bn to GBP5.8bn (source: UK budget documents).

Such discriminatory taxes (they are not levied against any other form of transport), will cause airlines to review the viability of operating into the UK, or whether their aircraft might be deployed more effectively elsewhere.

Visitors from overseas will do the same.

The UK economy and employment will suffer as a direct consequence of these taxes.

8. REGIONAL CONNECTIVITY AND REGIONAL AIRPORTS

BAR UK airlines are cognisant of the value of UK regional airports; collectively they operate to at least 13 of them.

Outside of London, Manchester would be the most popular, with 30 BAR UK airlines operating there.

However, the appeal of regional airports is determined by market demands.

As a rough guide, half the passengers carried on scheduled airlines are travelling into the UK, and have purchased their tickets abroad.

If their requirements are to travel to an airport in London and the South East, then the ability to fly to a UK regional airport instead is not going to satisfy them.

Research amongst our BAR UK airlines shows that they operate to UK regional airports, not just for the point-to-point traffic, but also because they provide connecting traffic that is essential to the viability of services at their hubs.

9. MAKING BETTER USE OF EXISTING CAPACITY

It is recognised that this consultation is aimed at devising a UK-wide aviation policy, and not focussed on Heathrow alone.

However, the capacity constraints that BAR UK airlines face are, essentially, only at Heathrow Airport. This is determined by the market needs of travellers and the exporters and importers who contribute so much to the UK's economy. It is pertinent that this important aspect is highlighted.

The airport is always operating to capacity; this places enormous strains on the airport operator, NATS, airlines and all operational stakeholders.

Resilience will always be an issue, and operational constraints can arise for any number of reasons. Whenever they do, the airport inevitably suffers adverse impacts.

Therefore, the recent deliberations of the South East Airports Taskforce (SEATF) are to be welcomed. BAR UK fully supports the additional resilience proposals that now require testing and will be pleased to learn of their success.

However, whilst the resilience issues have been assessed in a very productive and objective manner, they cannot address the core issue of a lack of capacity at Heathrow. These can be summarised as shortages of capacity in respect of:

- runway slots
- aircraft stands
- taxiway capacity.

It is hoped that these concerns will be considered in the course of developing the UK's future aviation policy.

10. OTHER CONCERNS

There are other areas about which the government is asked to recognise the expense and constraints placed on airlines, especially those from outside of the country.

- The e-Borders APIS and PNR data provision programme has created great expense without any commensurate benefits to airlines and their customers. This programme has a long history of changing its requirements, creating ever more costs to airlines. For a non-UK airline, these costs and requirements are almost unique to the UK, and a genuine one-off additional cost for flying to the UK.
- The UK has every right to police its borders, but is asked to recognise that its policies can affect marketplaces. This can be in the form of visa costs and processing times, not least when compared to visiting countries where the immigration policies are much more pragmatic.
- Linked to the above, the UK's immigration policy can even restrict the deployment of our airlines' own staff from Head Offices for postings to the UK.

11. CONSULTATION QUESTIONS AND ANSWERS

The aviation sector

5.1

How does the aviation sector as a whole benefit the UK? Please consider the whole range of aviation activities including, for example, air freight, General Aviation and aerospace.

A: *The aviation sector provides benefits and contributes to the UK economy in several important ways¹:*

- *Direct contribution through the output of the aviation sector (airlines, airports and ground services, aerospace) estimated at 21.3 billion pounds*
- *Indirect contribution through the aviation sector's supply chain estimated at 16.3 billion pounds*
- *Contribution through the spending by the employees of the aviation sector and its supply chain estimated at 12 billion pounds*
- *Aviation enables contributions through catalytic benefits which include benefits through tourism, estimated at 20.7 billion pounds*

There are a number of reports that provide the evidence of the great importance of aviation to the UK economy, and the employment that it generates.

They are listed in the box below:

Two have been just been published, and demonstrate the vital link between aviation and the UK economy. They are:

- September 2011 - 'Connecting for growth: the role of Britain's hub airport in economic recovery' by Frontier Economics for Heathrow (www.hub.heathrowairport.com), and*
- October 2011 - 'Flying in the face of jobs and growth: How aviation policy needs to change to support UK business' by British Chambers of Commerce*

Previous key research documents include:

- *The Social and Economic Impact of Airports in Europe, York Aviation for ACI Europe, 2004 (<http://www.yorkaviation.co.uk/uploads/Social-and-economic-impact-of-airports-in-Europe.pdf>)*
- *The Economic Contribution of the Aviation Industry in the UK, Oxford Economic Forecasting, 2006 (http://www.visitbritain.org/Images/Aviation2006Final_tcm29-15235.pdf)*
- *What is the contribution of aviation to the UK economy? Report for AOA by Oxera (<http://www.oxera.com/main.aspx?id=8660>)*
- *Aviation: The Real WorldWide Web – Oxford Economics 200 (<http://www.oxfordeconomics.com/Free/pdfs/oeaviation09.pdf>)*
- *Oxford Economics study (2011) commissioned by IATA.*

¹ Economic Benefits from Air Transport in the UK, Oxford Economics, 2011

5.2

What do you consider to be the aviation sector's most important contributions to economic growth and social well-being?

A: Reference is made to the response in Q5.1.

Furthermore, aviation drives growth and enables business through improved connectivity. Connectivity facilitates getting products to market, moving business people, reducing production costs, increasing productivity, and attracting foreign direct investment. The aviation sector serves the needs of UK business sectors in the following ways as highlighted in the report² of the British Chambers of Commerce, extracts from which are provided below:

- *Getting products to market: Air freight delivers goods, especially high value goods, quickly, across long distances. Some 45% (by value) of UK's exports go by air³. Some 30% of British imports, including the raw materials and part that UK manufacturers process and finish, arrive as air freight. A vital component of air freight includes express freight, which is essential for perishable products like medical supplies and pharmaceuticals. Moreover, the sectors that most rely on express freight are the key growth areas of the UK economy such as electronics, IT, pharmaceuticals and biotechnology.*
- *Moving business people: A recent report⁴ from the CAA cites international research and survey evidence of the importance of air travel in facilitating business. Findings include that air travel is used to close business deals, convert perspective customers into clients, retain existing customers, establish new contacts and build networks, maintain relations with customers, invest in their employees. Using data from the Office of National Statistics (ONS), the CAA found a very strong (0.87) coefficient of correlation between the countries UK business people travel to, or from, and the UK's success in trading with them. Another study by Oxford Economics⁵ gathered survey data on the overall importance of air transport and found that some 80% of the firms report that air services were important for the efficiency of their production. Another report⁶ by Oxford economics gathered survey data on the importance of passenger services in the management of their operation in the UK and found that some 70% of firms indicated that passenger services were vital or very important. The primary reasons for this were to meet clients and potential clients (about 65% vital or very important) and to network with partners in other countries (around 55%). The businesses saw good connectivity as vital or very important to oversee foreign subsidiaries and for managers based abroad to oversee UK operations (about 45%).*

² Flying in the Face of Jobs and Growth: How Aviation Policy Needs to Change to Support UK Business, British Chambers of Commerce, 2011

³ What is the contribution of aviation to the UK economy?, Oxera, 2009

⁴ Flying on Business, CAA, 2010

⁵ Airline Network Benefits, Oxford Economics, 2006

⁶ The Economic Contribution of the Aviation Industry in the UK, Oxford Economic Forecasting, 2006

- Reducing Production Costs: As manufacturing becomes an increasingly global activity, UK businesses have geared-up, re-structuring their operations and logistics towards rapid (often 'Just in Time') delivery and minimal stock-holding.⁷ UK aviation meets this need through its major express freight hubs like East Midlands and Stansted airports. Businesses view this type of air transport as vital to their success and competitiveness. A survey by CBI members⁸ found that 64% of companies believed next day delivery was important for their clients, with 40% saying that a lack of availability of next day delivery would require them to hold more stocks. This, in turn, would increase space requirements and costs, making them less competitive and 16% of businesses surveyed would consider relocating, if next day delivery were not possible. The Eddington Transport Study⁹ looked at the efficiencies business had gained by embracing JIT techniques and found that UK businesses' "inventory to output" ratio had been reduced by some 20% over the last 20 years. According to this report, this delivers over 6 billion pounds a year in efficiency to UK companies, allowing them to stay competitive, invest in new equipment and deliver profits.
- Increasing Productivity and innovation: Agglomeration at airports can lead to accelerated productivity and growth, over and above the gains from better connectivity, or decisions on where to operate. Airport agglomerations particularly attract high value international services in sectors like law, finance, real estate and creative industries.
- Attracting foreign direct investment: FDI has many drivers and the quality of air links is an important one. According to a report¹⁰ by Napier University (i) air links are the most influential transport factor in the location decisions of most overseas based business investing in the UK (ii) Links to all regions are important in attracting and maintaining business investment (iii) aside from logistics, air transport is important to the perceived quality of a location particularly when a business is unfamiliar with the area. Other studies^{11, 12, 13} have also demonstrated that good air links are an important factor when businesses decide where to locate. Evidence also points to the potential to lose FDI if airlinks worsen. Findings from a report by Oxford Economics that included a survey of businesses found that 8% of companies reported that the quality of air transport links had affected their decision to invest in the UK and around 10% of firms would relocate from the East Midlands areas (and potential the UK) if international next day delivery services were no longer available.

⁷ The Social and Economic Impact of Airports in Europe, York Aviation for ACI Europe, 2004

⁸ Ibid

⁹ The Eddington Transport Study, Main Report by Sir Rod Eddington, 2006

¹⁰ The Importance of Transport in Business' Location Decisions, The Transport Research Institute and Employment Research Institute at Napier University, Edinburgh, 2003

¹¹ European Cities Monitor, Cushman and Wakefield, 2010

¹² Aviation: The Real World Wide Web, Oxford Economics, 2009

¹³ The Business Case for Airport Expansion, London Chamber of Commerce, 2006

5.3

Are some sub-sectors of aviation more important than others? If so, which and why?

A: *Within aviation, commercial aviation contributes most significantly to the UK economy through its contributions to GDP and improved connectivity. Within commercial aviation business travel and express air freight operations have been identified by businesses as being particularly important. The importance of these services in enabling business and growth has already been discussed under question 5.2. The ability for these services to meet the needs of the UK businesses and consumers depends on the availability for commercial aviation to have access to international hubs. For example, Heathrow serves 82 long haul destinations around the world, and these are only financial viable because of Heathrow's success as a hub airport, which allows airlines to supplement domestic demand by also serving transfer passengers. There are eight million passengers transferring through Heathrow every year. By choosing Heathrow, they sustain the long haul route network and keep Britain connected. This is explained further in answers to questions 5.13-5.15.*

It's also important to state that, though the leisure market seems to be regarded as somewhat less important than business travel, that contention is not agreed.

Scheduled airlines are the ones that bring in visitors to the UK, and they rely on a mix of traffic. No one segment is able, generally, to provide surety of load factors and yields.

Leisure travellers, who visit the UK in their millions, are a vital part of the country's economy and are a great contributor to GDP.

5.4

How do you think the global aviation sector will evolve in the medium and long term (twenty to fifty years)? What do you expect to be the most significant changes?

A: *The first and most important point to highlight is the Government's acknowledgement that aviation is a global industry and must be considered on that basis. Globally the sector is expected to grow by 40% over this period. The sector is already evolving to take advantage of developments made possible by aircraft design and cockpit functionality facilitated by SESAR and the FAA NextGen programmes. The whole sector acknowledges it can only progress if account is taken of the environmental impact of commercial aviation and that this is fully incorporated in design and operation.*

It is likely that the rate of growth in mature markets will be considerably lower in western based economies where more value is placed on the trade offs between growth and the environment, than in emerging markets keen to capitalise on global market opportunities.

Mega-hubs are more likely to develop in emerging markets to service this commercial need and without a sensible growth-enabling policy in western markets, growth is more likely to be stifled. It is important, therefore, that to safeguard the UK's current international status the Government ensures its aviation policy is positioned to support its clearly stated policy to support economic growth.

Regional growth will require strong links to an international hub. It is possible that some (though not all) domestic flights in the UK may be increasingly substituted by rail (depending on the speed of railway investment/development).

However, that is likely to be too late. The most pressing UK need is within the next ten years; and without more runway capacity in the UK, regional demand for domestic flights into London will be satisfied instead by connectivity with European hubs and inward international demand will also be satisfied elsewhere in Europe.

This could in turn lead to fewer airline operators in the UK, and certainly to fewer longhaul destinations which are only economically sustainable through a strong hub.

The UK must in particular support its hub capability in the face of strong competition from neighbouring hubs such as Schiphol, Frankfurt, Munich, Madrid and Charles de Gaulle which have all recently added additional runways and present perfectly acceptable connection opportunities which take business out of the UK. In addition APD provides a further disincentive to route through the UK.

Make no mistake, if there is no further investment in new runways in the UK, it will not be possible to meet growth and environmental targets with the existing infrastructure and will be detrimental to UK economic growth and competitive position. Our European competitors have recognised the importance of aviation to their economy and have invested in promoting growth and it is imperative that the UK Government follow suit.

By 2020, the capability of ATM systems on board aircraft will have been recognised and used to best effect to improve accuracy and predictability. On-board navigational capability will be supported by air traffic management rather than control, with functions traditionally operated by ANSPs focused more towards oversight than intervention.

Flight plans become business trajectories requiring support by all of the sector's members whether they are ANSPs, Airports, Ground Handlers or Industry. This business trajectory concept will emerge from SESAR and NextGen developments, specifically SWIM (System Wide Information Management), which will ensure complete connectivity and interoperability amongst the ANSPs and their internal systems. In this way the end to end processes associated with a flight could be most efficiently managed.

The results help realisation of less environmental impact, greater capacity and least cost but not to the extent that new runways will not still be required to deliver sustainable growth.

We believe there will be an increase in demand for members of the public to fly from airports local to where they live but this will need to be balanced against the economic benefit of expanding Longhaul hubs.

There will also be a demand for significant reductions in check-in times, which in itself will conflict with the probable requirement for enhanced security checking. This will require much better integrated decision-making across all airfield disciplines which is already possible through Airport Collaborative Decision Making (A-CDM) technology which will become more sophisticated and internationally applicable over the next ten to 20 years.

5.5 How, and within what constraints, can aviation growth occur as technological developments and improved operating procedures reduce CO₂, pollutant emissions and noise impacts?

A: *Aviation is the only industry acting according to a global approach relative to gas emissions.*

In June 2007 IATA laid out its environmental vision to mitigate greenhouse gas emissions from aviation:

- *Build a zero-emissions commercial aircraft within 50 years*
- *Adopt a four-pillar strategy to achieve this vision:*
 1. *Improved technology*
 2. *Effective operations*
 3. *Efficient infrastructure*
 4. *Positive economic measures*

In June 2009, IATA airlines took a landmark decision to adopt a set of ambitious targets:

- *A cap on aviation CO₂ emissions from 2020 (carbon-neutral growth)*
- *An average improvement in fuel efficiency of 1.5% per year from 2009 to 2020*
- *A reduction in CO₂ emissions of 50% by 2050, relative to 2005 levels*

These collective goals were endorsed by the aviation industry in the joint industry submission to ICAO in September 2009. This approach provides a sustainable framework in which aviation can grow while contributing to climate change mitigation efforts.

Looking ahead, the key points are these:

- *UK aviation can grow and meet its environmental obligations on carbon, noise and local air quality*
- *Introduction of new technology and biojet will significantly improve the environmental performance of aviation.*
- *Growth can occur within a carbon trading framework where net emissions reduce in line with global climate objectives*
- *Unilateral constraints will damage UK competitiveness and be environmentally ineffective*
- *A system to manage noise exists and can be extended to allow growth*
- *The regulatory framework on Local Air Quality emissions is already effective; growth should be possible without creating unacceptable impacts on local air quality.*
- *Improvements in environmental performance should be shared between the industry and the local population.*
- *Technology will play a key role in driving sustainable growth, so we strongly advocate effective and appropriate regulation that incentivises this technology (e.g. carbon trading not taxation).*

- *The UK needs long-term policy stability to give the aviation industry the platform it needs for long-term capital investment decisions.*

Aviation can grow

Sustainable growth of aviation can occur within a framework that ensures carbon costs are internalised, net emissions reductions are achieved and the population exposed to noise is minimised.

Carbon emissions

Known and future new aircraft technologies, together with increased adoption of sustainable biojet fuel will play a significant role in improving aviation's environmental performance. However, we recognise that these factors alone will not be sufficient to achieve the deep emissions cuts necessary, and appropriately designed carbon trading will be needed.

Inclusion of aviation in a well-designed EU ETS is a first step towards meeting carbon reduction targets. However, as the UK government recognises, since aviation is a global industry, the biggest single contribution to tackling emissions is through effective international action.

The UK government's commitment to carbon trading and to working towards a global agreement on international aviation emissions is welcomed, particularly in the context of avoiding competitive disadvantage to the UK.

From this position, it should be clear that unilateral measures intended to constrain demand, such as capacity limitation and taxation are damaging to UK competitiveness and ineffective in reducing carbon emissions. Unfortunately these are the current actions of the government. Such measures will have limited effect in reducing demand for air travel, but will simply displace demand to other hub airports outside the UK causing carbon leakage.

The aviation industry has a strong record in improving fuel efficiency and supporting appropriately designed carbon trading. Industry-wide support has been established for a global sectoral approach with targets for carbon neutral growth by 2020 and a 50% cut in net emissions by 2050.

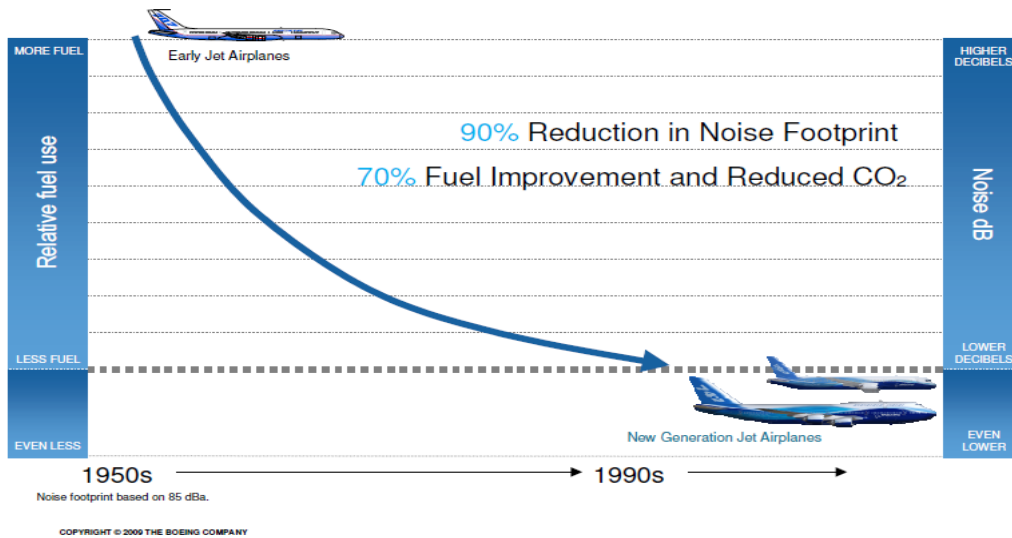
This is the appropriate framework to achieve sustainable growth whilst ensuring international aviation emissions reduce in line with global climate objectives.

Noise – Balanced Approach To Noise Management

The EU Noise Directive 2002/30/EC prescribes a process termed the Balanced Approach to manage noise at airports. This is based on wider international agreement through ICAO. Four elements form the basis of this approach; reduction of noise at source, effective land-use planning to prevent encroachment of population towards airports, noise abatement operating procedures and finally, if supported by evidence from a thorough Cost Benefit Analysis, operating restrictions.

Reduction of source noise

Aircraft manufacturers have an excellent record in delivering noise improvements. Since the beginning of the modern commercial jet age aircraft noise has reduced by 30db producing a 90% smaller noise footprint



Noise performance has and will continue to improve at a substantial rate, as evidenced by the noise performance of new aircraft such as the A380 and B787. The benefits of this improved performance should be shared between the industry and the local population. Technology will play a key role in driving sustainable growth, so we strongly advocate effective and appropriate regulation that incentivises this technology.

5.6

How should decision-makers address trade-offs or competing interests, where these occur both (a) between different aviation objectives, e.g. CO₂ emissions versus local noise reduction, and (b) between aviation and other sectors, e.g. airspace use versus renewable energy objectives, or the use of land for maintaining a viable network of smaller airfields versus housing development?

A: *Sustainable Aviation has compiled a technical study paper that explores the complexity of interdependencies between noise, air quality and CO₂ emissions¹⁴. Regular dialogue between regulators and industry stakeholders will be essential in ensuring that the complexities of the topic, and the delicate balances required, are adequately accounted for in the decision-making process.*

Noise levels, local air quality emissions and fuel-burn (CO₂) have all improved over the past years, though not necessarily at the same rate or over the same timescales due to

¹⁴coalition of UK airlines, airports, aerospace manufacturers and air navigation service providers
<http://www.sustainableaviation.co.uk/wp-content/uploads/sa-inter-dependencies-sep-2010.pdf>

the changing emphasis on the individual environmental impacts from regulators and stakeholder groups. The impact of an individual technique is not always beneficial with respect to all three of these often-competing drivers.

Airframe manufacturers stress that it is not possible to maximise reductions in fuel and noise at the same time. The industry would benefit from a clear articulation that one concern should be prioritised over another, at a global level, if a trade-off is required. An example is the A380. Its advanced design achieved c20% reduction in fuel burn per seat compared to older 'Very Large Aircraft'¹⁵ However, in order to meet the strict noise standards at Heathrow a final design change was made which increased the diameter of the engine "fan". This achieved the noise reduction but prevented even larger savings of fuel and CO₂ from being made in the design.

As a consequence of improving noise performance on 3 – 4 minutes of every flight, the worldwide fleet of A380s will burn more fuel over the entire flight for their 25+ years lifetime.

Noise is an important issue to tackle, but an over-emphasis on noise performance in design and operation of aircraft will result in lower performance on other environmental objectives. It is important to recognise that Heathrow already sets the highest standards for noise and that this has directly impacted global mitigation of climate change emissions. We believe climate change objectives should have priority in making future technology choices.

Land-use planning around airports

Land-use planning in relation to noise impacts around airports should be seen as a strategic national issue. The UK Government should formally commit to land-use planning targets (see response to question 43). These should take into account projected noise contours and the potential capacity that may be required to support the UK economy over the next 30 years. For its part, the aviation industry should also be tasked to reduce the noise burden around the airport, by setting achievable and appropriate targets relating to source noise, within the context of balancing trade-offs with other environmental objectives.

5.7

Should some aspects of UK aviation be considered to be of strategic national interest (e.g. certain airports, air traffic control)? If so, based on what criteria?

A: *Aviation as a whole needs to be considered to be of strategic national interest.*

In airline/airport terms, the key issue must be that of airport capacity in London/SE England, and how the constraints, already manifesting themselves, will affect the UK's, and especially London's, standing as a global location.

¹⁵ Source – BA-Airbus discussion. Aug 2011

The perception outside of the UK seems to be that the self-imposed airport capacity constraints indicate that aviation is not important to the UK's well-being, and that it does not matter if business goes elsewhere.

That is damaging to the UK's economy and reputation, and can be a catalyst for airlines to expand elsewhere. As a consequence, employment is also affected.

Airports in general but specifically those hub airports where high levels of transfer traffic operate are increasingly becoming 'nodes of the network'. It is generally recognised that the top 25 out of Europe's 2100 airports generate 44% of all flights; therefore these airports are definitely of strategic value. At a 'network airport' such as Heathrow, it is clear that unless flights are operated to a high level of predictability and efficiency, then minor perturbations at that airport are likely to lead to significant disruption at other points in the network.

The recent announcement of a 'Network Manager' within Europe demonstrates that the need for coordination of local airport schedules with the network is of paramount importance in the creation of a 'Network Plan' which can be used to develop daily tactical plans. In this sense, the presence of a capable and enabled ANSP is an essential part of the strategic national interest.

Airspace is a pillar of national infrastructure and should be treated with according priority, even when this requires difficult political decisions. Ultimately, the strategic national interest will be best served by an aviation ATM infrastructure that can facilitate the UK's connections with the rest of the world, particularly in the emerging powerful economies of the BRIC countries. The current infrastructure has developed incrementally as airports have expanded; the requirement now is to ensure that it can be systemised to respond to developing aircraft and navigational capabilities and the Government must enable the changes which can be delivered through the CAA's Future Airspace Strategy.

This will enable innovations such as continuous climb and descent, higher holding and precision navigation which will increase efficiency and deliver significantly improved environmental performance.

5.8

How might the cost of regulation to the aviation sector be reduced, while achieving the Government's objectives of promoting sustainable aviation, improving the passenger experience at airports, and maintaining high standards of safety and security for passengers and freight?

A: The key points are these:

The key points are these:

- It is the market that enforces airline delivery of the passenger experience. Aviation, compared to other national and international forms of transport, is burdened with regulation.*
- Economic regulation is essential for monopoly suppliers such as airports*

- *Appropriate cost-effective regulation is essential to further incentivize technology to mitigate our environmental impacts*

The industry, with support and coordination from IATA, has developed several initiatives and approaches through which to address these issues. There has also been a good track record of cooperation under ICAO that has delivered measurable results with regard to sustainability, security and safety. Given the global nature of the industry, a harmonized approach at the global level is the most effective and efficient way to address these issues. The UK government's objectives can be achieved within the frameworks of industry initiatives and cooperation under ICAO. Below is a sample of industry initiatives and ICAO measures that provide a framework through which the UK government can achieve its objectives while reducing cost of regulation.

- *Promoting sustainable aviation:*
 - *IATA airlines adopted a global sectoral approach to reducing aviation emissions (addressing climate change mitigation), which includes the following targets (i) A cap on aviation CO2 emissions from 2020 (carbon neutral growth) (ii) An average improvement in fuel efficiency of 1.5% per year from 2009 to 2020 (iii) A reduction in CO2 emissions of 50% by 2050, relative to 2005 levels*
 - *ICAO's Balanced Approach to Aircraft Noise Management provides a transparent process for identifying a specific noise problem at an airport and then evaluating four types of measures to reduce noise, to see how the maximum environmental benefit can be achieved, most cost effectively*
 - *IATA has launched a fuel action campaign and is working with industry partners to reduce fuel requirements and associated emissions.*
 - *In cooperation with industry experts IATA has developed the IATA Technology Roadmap which provides a summary and assessment of technological opportunities for future aircraft.*
 - *ICAO has increased the stringency limit for NOx several times - by 20% in 1993 and by around 16% in 1999, compared to 1981 levels. A new standard was endorsed in 2004, applicable to new engines from 2008. It is 12% lower than the previous standard and will provide a 40% reduction compared to the first standard.*
- *Safety:*
 - *The IATA six-point Safety Program is a comprehensive approach to enhance operational safety. A corner stone of IATA's approach to enhancing aviation safety is the IATA Operational Safety Audit, an internationally recognized program that is implemented consistently throughout the industry.*
 - *Another approach to enhancing safety is the newly implemented IATA Safety Audit for Ground Operations.*
 - *In the interest of establishing a single level of aviation safety worldwide the Global Aviation Safety Roadmap was produced a developed by the Industry Safety Group, members of which include IATA, Airbus, Boeing, Airport Council International, The Civil Air Navigation Services Organization, Flight Safety Foundation and the International Federation of Air Line Pilots Associations.*

- *Security:*
 - *Developing the Security Checkpoint of the Future is one of IATA's priorities for 2011. The Checkpoint of the Future is designed to enhance security while reducing queues and intrusive searches at airports, using intelligence-driven risk-based measures. Instead of working in isolation, states must proactively cooperate with each other and recognize each other's measures.*
 - *In order to save costs while enhancing security, IATA is leading the harmonization of technology standards and developing the Checkpoint of the Future.*
 - *E-freight aims to take the paper out of air cargo supply chain and replace it with cheaper, more accurate and more reliable electronic messaging. Facilitated by IATA, the project is an industry wide initiative involving carriers, freight forwarders, ground handlers, shippers and customs authorities.*

International connectivity and hub airports

5.9

How important are air transport connections – both international and domestic – to the UK at both national and regional levels?

A: The vital importance of hub airports has been discussed at length in Section 4 above, to which reference should be made.

Direct links, and linked connections at hub airports, are vital for trade and commerce.

The loss of links can be just as important as not providing new links to cities in emerging markets.

In this context, it's important to make clear that what may be additional time and trouble for a UK resident to make an en route connection to an overseas destination may be even more troublesome to an overseas business person wishing to increase his/her exports and trade.

If other countries, such as France and Germany, have more direct links than the UK does (and the lack of direct flights from the UK to cities in China is a case in point), then he/she may decide that they don't actually need to embrace trade with the UK at all.

5.10

As long as people and goods can easily reach their desired destination from the UK, does it matter if they use a foreign rather than a UK hub airport?

A: As stated in Q.5.9 above, direct links are important.

Any policy that appears to deliberately promote travel to/from the UK via another state strongly risks the perception that aviation and international trade are not an important consideration in the UK's economy.

Any policy that promotes the use of a foreign hub is a policy that directly promotes the export of UK jobs to another country.

5.11

Are direct connections from the UK to some international destinations more important than others? If so, which and why?

A. The marketplace dictates what linkages are important. The issue facing the UK economy right now is the apparent inability to serve new markets, rather than established ones, due to lack of airport infrastructure at the key hub airport.

5.12

How will the UK's connectivity needs change in the light of global developments in the medium and long term (twenty to fifty years)?

A: Despite the technological advances in communications and video-conferencing, the need for travel continues to grow.

The main alternative, in a small number of countries, has been the advent of high speed train services between some major cities.

High Speed Rail within the UK may have some impact in the future. However, while HSR may replace some air services, it could equally stimulate more overall demand at airports it connects.

Neither can it be assumed that the availability of High Speed Rail services would see an automatic transfer from air to rail. Factors that come into play include pricing, as well as time and logistics for those travelling onwards by air, for whom air/air connections may both be cheaper and easier.

Such conjecture is academic at this stage. The need for a positive aviation policy is right now, not 2030 when HS2 is due to connect to Manchester and Scotland.

5.13

What are the benefits of maintaining a hub airport in the UK?

A: *There are very significant benefits for the UK in maintaining Heathrow as an international and in developing it in order to serve better the UK economy and development.*

Only hub airports can sustain daily connection to long haul destination as it consolidate passengers onto denser routes and allows costs reduction per passenger carried. As a spoken flight is more cost-efficient, it generates lower fares and so higher number of passengers.¹⁶

The role and values of hub airports can be demonstrated in three ways:

- 1. The past success that Heathrow generated for the UK with a great range of domestic and international connections*
- 2. The current dribble erosion of hub connectivity at Heathrow due to constrained capacity and infrastructure*
- 3. The success of competing cities, in Europe and the Middle East, that have employed a deliberate strategy of developing hub airports to compete with Heathrow.*

Maintaining a hub airport is only part of the question; the other part relates to keeping it competitive.

For a long time, the UK had one of the world's premier hub airports, Heathrow, and thrived.

However, the lack of capacity, and resilience, at Heathrow means that its marketplace offering has stagnated whilst other nations have developed competing hub airports, at the expense of the UK.

¹⁶ Connecting for growth: the role of Britain's hub airport in economic recovery, A report prepared for Heathrow, Frontier Economics, 2011, p. 18

Table 1 in section 4.2 above provides the headline data to support this statement.

The effect of restrained capacity at Heathrow has been to increase the charges for each runway slot, thereby affecting route viability for smaller aircraft.

Consequently, the routes served by smaller aircraft have slowly diminished as larger aircraft replace them to destinations already served.

That results in a net loss of destinations served, thereby eroding the very connectivity on which a hub airport depends.

5.14

How important are transfer and transit passengers to the UK economy?

***A:** Transfer and transit passengers are part of the critical mix. Collectively, they provide a combined proportion of travellers who sustain a wide range of services to different destinations.*

Collectively, the number of transfer journeys through Heathrow is estimated at over 20 million per annum.

The benefit to the UK economy accrues in two ways:

- *Direct benefits for businesses and those employed in aviation*
- *Travellers' expenditure in the UK, estimated at £1.6bn per annum*

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

Section 4.14 above provides more details of the benefits that the UK economy derives from transfer passengers.

5.15

What are the relative merits of a hub versus a point-to-point airport?

***A:** Point-to-point airports exist in most regions of the UK, and serve local markets.*

Unless they offer a good range of services in all directions, the opportunity to also act as a hub airport is severely restricted.

Their airline customers tend to constitute a mix of schedule and charter airlines, again diluting the opportunity for hub development.

Point-to-point airports perform a valuable role for their local regions, but are restricted in their potential.

A hub airport provides the great role of connectivity for passenger and cargo markets, opening up the world for greater business and travel.

Flights feed into other flights, so enhancing their route profitability.

The implementation of the trans-Atlantic Open Skies agreement demonstrated the importance of Heathrow as a hub airport, when US carriers moved from Gatwick almost in their entirety.

5.16

Would it be possible to establish a new ‘virtual’ hub airport in the UK with better connectivity between existing London and / or major regional airports? Could another UK airport take on a limited hub role? What would be the benefits and other impacts?

A: *The short answer is ‘no’. For a very complete explanation as to why not, please refer to Section 4.5.2 above.*

Furthermore, the opportunity to link airports exists right now, especially Heathrow and Gatwick, but has not proved at all attractive in concept or cost.

Regional connectivity and regional airports

5.17

Can regional airports absorb some of the demand pressures from constrained airports in the south-east? What conditions would facilitate this?

A: *The opportunity to use regional airports, instead of constrained ones, exists right now. That such an option is not more widely used is most likely due to two factors:*

- a) The large ratio of inbound passengers that wishes to go to London/SE England simply does not wish to travel into a UK regional airport.*
- b) The costs of ground operations at an additional airport sufficiently dilute the revenues that might accrue from a regional service.*

5.18

What more can be done – and by whom – to encourage a switch from domestic air travel to rail?

A: *Rail provides an important link from airports for originating and destination passengers. Improving the reliability, quality and speed of rail services can help facilitate travel and promoting access to airports.*

However, further development of rail services at the expense of aviation should be treated with extreme caution.

While improved rail connections may facilitate travel on some routes they may lead to reduce demands on others if these connections are done at the expense of aviation connections. This could lead to reduced connectivity of some regions. To assess this adequately, further analysis is needed on the impacts on travel time on specific routes and willingness of passengers to switch modes of transport on travel routes. Passengers may be more averse to mode of transport switching, especially trips that cover longer distances.

Any switch from domestic air to rail will be determined by a number of factors, including:

- a) Actual origin/destination of full journey*
- b) Total journey times for air or rail*
- c) Proximity of traveller to airport v rail station at departure point*

- d) *Proximity of airport v rail station to final destination*
- e) *Cost of domestic air travel vs cost of rail*
- f) *Logistics of journey e.g. Checked-in air baggage v having to handle luggage on a train.*

In the case of London-Manchester, approximately 65% of passengers are connecting to an onward flight.

Those passengers can check-in at Manchester, all the way through to their final destination, including their baggage. The fare differential between Manchester and London to their destination tends to be very competitive.

It's therefore difficult to predict how many of those travellers would switch over to rail for the domestic sector, as they would incur penalties in respect of time, cost and logistics.

5.19

How could the benefits from any future high speed rail network be maximised for aviation?

A: *Rail, not just high speed rail, can play a very important part in the world of aviation.*

The value that rail brings is high-volume, low-carbon, transport to airports. But we should also consider the environmental impact of rail from a life cycle basis e.g. including the climate change impacts of railway construction

The success of rail is possibly best demonstrated at London Gatwick Airport.

Gatwick Express is already well-recognised as a prime method of transporting passengers frequently and speedily to London.

Additionally, Gatwick has a great range of other train services north, south, east and west that provide connectivity to a huge range of rail destinations, ultimately throughout the UK.

In the same way that connectivity is vital for airlines, rail connectivity is vital for airports.

However, through connections are the key, rather than terminating services. That's the aspect that should be considered for the future.

5.20

How can regional airports and the aviation sector as a whole support the rebalancing of the economy across the UK?

A: *This is a very broad question with lots of angles.*

From a specific BAR UK perspective, airlines will fly into regional airports if the demand is there, and if the revenues will provide a suitable return against the costs.

As stated elsewhere in this response, 30 BAR UK airlines already operate at Manchester. There are 15 operating at Birmingham, 10 at Glasgow and 7 at Edinburgh.

Other UK regional airports are also served by some BAR UK airlines.

Making better use of existing capacity

5.21

To what extent do UK airports meet the needs of their customers? How might those needs be more effectively met within existing capacity? What is the right balance between competition and regulation?

A: *Heathrow is the major point of operation for our members.*

As noted in question 5.4 and subsequently elaborated a critical constraint in UK relates to capacity availability at Heathrow. A report¹⁷ by Frontier Economics concluded that as a consequence of constraints at Heathrow, airlines are unable to expand their route networks to serve growing international demand. They estimated that Heathrow could serve far more destinations than it currently does. The connectivity gap includes 45 long haul destinations that could be viably added to airlines' route networks, including 15 in Emerging Markets, while the frequency of service on existing routes could be enhanced.

The customer needs of that airport are being managed through the established dialogue of the airport community and the CAA, under the auspices of impending regulation.

5.22

Can we extract more capacity out of the UK's existing airport infrastructure? Can we do this in a way which is environmentally acceptable? To what extent might demand management measures help achieve this?

A: *The UK is renowned for a free market economy.*

As a philosophy, it would be perverse to impose demand management measures on an industry that is so vital for the UK economy, especially as that industry is already well-taxed.

Instead, recognition must be given to the fact that aviation is a dynamic industry, and one which has proven itself in the delivery of solutions to issues e.g. noise, emissions and fuel efficiencies.

More capacity can be created out of the UK's existing airport infrastructure by a number of key steps:-

- flights can be managed in a more predictable way given improvements to navigational accuracy and resilience to minor perturbations.*
- more connectivity could be made between the runway capacity declaration process at coordinated airports and the en route sector capacity which is there to serve the airports.*

¹⁷ Connecting for growth: the role of Britain's hub airport in economic recovery, A report prepared for Heathrow, Frontier Economics, 2011

Clearly sector capacity has to be aligned to the demands placed upon it well in advance if delays are not to result.

- coordinated airports should be encouraged to implement A-CDM so that the En Route provider has as much situational awareness as possible and that the CFMU, soon to be the Network Manager, can act on and make better judged tactical decisions.

- airlines must encourage the setting of more accurate sector times between airports. This will come when airlines have greater confidence in the operation of airports and their turnaround processes and a substantial reduction in 'buffer' times within each sector will result in more efficient use of airframes and better punctuality.

More accurate flying could be enabled by setting 'Required Times of Arrival' whereby each arriving flight is set an RTA to operate to, achievement of which will lead to an efficient arrival process from both an airline and environmental perspective. This has a potential consequence in the reduction in reliance upon 'stacks' or airborne holding.

In contrast, demand management would be a very blunt instrument that could prove difficult to improve at a later date, no matter how compelling the circumstances.

5.23

How can we support Heathrow's hub status within the constraints of its existing capacity? Can we do this in a way which is environmentally acceptable?

A: Key points

Supporting Heathrow's hub status means adding more capacity for airlines operating the hub model at Heathrow.

Within the constraints of existing capacity it will be very difficult to deliver meaningful support:

- There are no easy options for Government*
- Continued development of a 2-runway Heathrow is essential*
- Heathrow should be integrated with the UK wider transport system*
- Setting clear targets can ensure growth is achieved in a sustainable fashion*
- Maximising and adding capacity to support the hub*

The three main airline alliances share the same business focus, which is to actively build upon hubbing at Heathrow

However, all are ultimately constrained by the lack of capacity to grow and serve new routes.

Adding hub capacity in an environmentally acceptable way

There is no contradiction with providing capacity for London and reducing carbon emissions. The EU ETS caps net emissions from 2012 and the aviation industry is committing to a global approach to capping and reducing carbon emissions by 50% by 2050.

However, unilateral national measures with the intention of limiting climate change, such as capacity constraints, will not succeed. Demand will be displaced to hubs in other

countries creating carbon leakage rather than reducing emissions. The UK economy, and employment, will suffer.

Introduction of new technology aircraft will continue to lower noise and air quality impacts.

New capacity is likely to lead to airspace re-organisations, less arrival stacking and departure holding, new take-off and arrival paths, and more efficient ground operations, which will all add to environmental performance improvements.

Environmental targets can be linked to further capacity improvements to ensure growth occurs in an environmentally acceptable way. See response to Question 5.5 and 5.6.

Continued development of a 2-runway Heathrow

Policy support should be given to allow Heathrow Airport Limited to re-develop existing airport facilities within the 480,000 movement cap and its 2-runway configuration.

This would include expanded passenger facilities to allow for the introduction of larger aircraft and expanded ancillary facilities (fuel engineering and cargo).

Development that replaces old, energy inefficient buildings and facilitates the introduction and use of new, quieter and cleaner aircraft will also bring environmental benefits. These measures offer a small degree of hub support.

Integrating Heathrow with the wider UK transport system

Ensuring Heathrow is integrated with a wider transport system is essential to enable the catchment that the airport serves to be maximised. This not only reinforces its role as the UK's hub airport but also extends and maximises the economic benefits to the largest number of people.

Crossrail is a good example of how a non-aviation project can support the hub, improving surface access to the airport. The opportunity should be taken to maximise the benefits that High Speed Two proposals could have for the hub. Integrating the airport with public transport systems will generate environmental benefits by encouraging passenger and staff use of sustainable surface access modes.

5.24

How important is increased resilience at the UK's major airports to reduce delays? How best could resilience be improved with existing capacity, e.g. how might trade-offs between existing capacity and resilience play a role in this?

A: *Resilience is a topic that requires planning, and it's not necessarily a given that it requires a trade-off with capacity.*

Any constrained airport will obviously be affected by any factor that significantly reduces capacity, so pre-planning for those situations greatly assists operations on those days.

However, if any party fails to effectively implement the plan, then additional issues manifest themselves, over and above expected capacity constraints. It's therefore vital that stakeholders know of the plan, and are trained to implement their roles within it.

The forthcoming operational freedoms trials at Heathrow, emanating from the Southeast Airports Taskforce, are a most welcome development.

5.25

Could resilience become an issue at regional airports? If so, how might this be avoided?

A: No comment offered

5.26

Could existing airport capacity be more efficiently used by changing the slot allocation process, for example, if the European Commission were to alter grandfather rights? If so, what process of slot allocation should replace it?

A: The grandfather rights process has worked well to date and no changes are warranted. If the EC proposes to alter these rights, then due consultation with all parties would be required

5.27

What provision, if any, should be made for regional access into congested airports?

A: Regional access into congested airports has always been available. However, due to the high prices now demanded as a result of such congestion, various airlines have decided not to retain their slots, and have disposed of them in one manner or another.

The longer congestion continues, the more price pressure will be placed on each slot.

5.28

What provision, if any, should be made for General and Business Aviation access into congested airports?

A: Providing for General and Business Aviation access into congested airports raises significant adverse effects on the airport as a whole.

These sectors of the aviation community require different handling and facilities, and often operate at slower handling and approach speeds in surrounding airspace.

Any such provision needs to be made on a case by case basis by airport operators, who would need to take into account the needs of their other customers.

5.29

What is the role of airspace design and air traffic management in making better use of existing capacity?

A: *The 'Future Airspace Strategy', gives the UK a foundation for future airspace design to support sustainable growth in the industry, with the opportunity for significant environment benefit from optimising aircraft performance . The FAS also describes very close links to the SESAR programme so that airspace design will have the SESAR ATM Masterplan to guide adequate development of controlled airspace. This link with SESAR will ensure that the high level objectives of SESAR in terms of capacity, safety, efficiency and performance will be at the heart of UK airspace design and functionality.*

Government must ensure that policy clarity enables best use of revised airspace design, which is inevitably a long-term process and therefore cannot be changed often. The UK is currently in early planning stage for major airspace change which requires clear guidance on whether specific airports, or specific types of air traffic should be prioritised; where noise should be prioritised over emissions; and whether traffic should be given direct routings even if this means over-flying centres of population. The Government has difficult decisions in this area, nonetheless they are decisions that have to be taken and cannot be deferred; Noise Preferential Routes (NPRs) were set almost half a century ago for aircraft which performed much less efficiently and quietly than today's.

Deployment of the essential components of the ATM Masterplan for Europe will ensure that the operation of the airspace is aligned to airspace design to optimise efficiencies.

Climate change impacts

5.30

What do you consider to be the most significant impacts of aviation, including its non-CO₂ emissions, on climate change? How can these impacts best be addressed?

A: *Aviation contributes to 2% of global CO₂ emissions. Aviation industry is highly aware of those negative impacts and has overtaken sustainable actions to reduce the emissions.*

IATA has developed a four pillar¹⁸, that stresses on four way to improve aviation impact on climate change.

1. an improved technology that could reduce gas emissions by 25-30% per aircraft. It consists in more efficient engines and technologies on the aircraft.

2. More efficient operations: that can save fuel and CO₂ emissions by advising carriers on savings measures and best practices.

3. Improved infrastructure like for example the full implementation of more efficient ATM (Air Traffic Management) and airport infrastructure could provide an additional 4% emissions reduction by 2020. Measures include implementation of the Single European Sky (SESAR) which would produce a 70% cut in route extension; the

¹⁸ "A global approach to reducing aviation emissions", IATA, 2009

Next Generation Air Traffic Management system in the USA which would lead to a 57% reduction in delays; reorganization of the Pearl River Delta ATM system in Hong Kong, RVSM (reduced vertical separation minima) over Russia, and flex tracks. These would require investments of \$58 billion.

4. Economic measures that will in an overall provide capital expenditure to the airlines for achieving carbon-neutral growth from 2020 at \$1.6 trillion. The industry is advocating a global sectoral approach to reducing emissions.

Most Significant Impact

The most significant impact of aviation on climate change is the release of carbon dioxide (CO₂) emissions from burning of fossil-based kerosene fuel.

Continued advances in aircraft technology and operations will contribute to CO₂ emissions reductions.

The long-term trend in fuel efficiency improvement is 1.5% per annum, and we expect this improvement rate to continue into the future. It is believed that the government has been overly conservative in its CO₂ forecast by assuming fuel efficiency gains of just 0.4% p.a. from 2010 to 2030.

Biofuels offer the potential to significantly reduce aviation CO₂ emissions. Government support will be critical in developing this technology and ensuring it is commercially viable.

Non-CO₂ emissions

The non-CO₂ effects of aircraft remain uncertain, precluding evidence-based policy development. For example, it remains unclear whether the overall impact of NO_x emissions is net climate warming or cooling. The effect of contrails and aviation induced cirrus cloud could potentially add significantly to the total climate forcing of aviation, but the level of scientific understanding is currently considered very low for these effects.

It is premature to consider policy measures for addressing the non-CO₂ effects of aviation.

Policy decisions in this field could lead to unintended trade-offs that could actually increase overall climate impacts. For example, introducing mandatory operational procedures to avoid air masses that are likely to cause contrail formation will take aircraft away from their optimum flight paths leading to an increase in fuel burn and therefore CO₂ emissions.

5.31

What role should aviation play relative to other sectors of the economy in reducing greenhouse gas emissions in the medium and long term?

A: *Airlines are committed to an average improvement in fuel efficiency of 1,5% per year from 2009 until 2020 and to a reduction in CO₂ emissions of 50% by 2050 relative to 2005 levels. Those aims are developed in IATA's four pillar strategy (see Q.5.30).*

IATA and the airlines believe strongly that the aviation must be treated as a global sector requiring global solutions.

Key points

- *Aviation should do its fair share to reduce GHGEs.*
- *International aviation should be treated at a global level and therefore not included in national inventories*
- *Inclusion of international aviation emissions in UK carbon budgets is inappropriate as it is contradictory to achieving a global approach and will lead to carbon leakage*

Global solution required

Aviation should do its fair share to reduce GHGEs. However, the sector must be addressed at a global level. It is not acceptable to treat international aviation at the national level. The UK government should accept that international aviation emissions should be excluded from national emissions inventories and be addressed at international level.

Global policy should be coordinated on a pathway towards a global target for aviation within a carbon trading framework. The appropriate target for international aviation is to reduce net emissions by 50% by 2050 relative to 2005 levels.

Industry groups such as the International Air Transport Association (IATA) and the Aviation Global Deal Group (AGD) are describing a pathway towards achievement of this objective.

High risk of carbon leakage

There is no case for including international aviation in the UK carbon budget, since aviation is globally competitive and at high risk of carbon leakage. If international aviation were included in the budget, this would lead to perverse policy decisions that would not reduce global emissions, but would give the illusion of a reduction in 'UK emissions'. For example, the UK Treasury claimed in its March 2011 consultation on Air Passenger Duty that the decision to rule out new runways at Heathrow, Gatwick and Stansted will reduce UK emissions by 20 million tonnes by 2030. This demonstrates the fallacy of considering UK international aviation emissions in isolation, since most of the displaced UK demand that cannot be met by the Heathrow hub would be met by connecting over hubs outside the UK such as Paris, Amsterdam, Frankfurt and Dubai. Emissions will not reduce significantly, they will simply be displaced or 'leak' to other countries. The only effect would be to reduce the connectivity and competitiveness of the UK.

In its response to the Climate Change Committee, government admits "some of this displaced traffic ... would switch to continental hubs ... that are not accounted for in our modelling.", therefore invalidating the cost-effectiveness and carbon saving conclusions reached on capacity limitations in the marginal abatement cost study.

5.32

How effective do you believe the EU ETS will be in addressing the climate impacts of aviation? Should the UK consider unilateral measures in addition to the EU ETS? If so, what?

A: As an opening statement, it is important to make the point that the EU-ETS is not answering the global question of emissions.

The introduction of aviation within it will incur additional levels of compliance and complexity that will significantly increase operational risk and ultimately credit risk exposures to airlines.

The EU ETS may also have an influence on an airline's route and fleet planning activities. In broader terms, the key points are these

- Carbon trading is an effective instrument to reduce net emissions from aviation*
- Current EU ETS scope is inappropriate, as publicly stated by IATA and other industry associations*
- UK should provide further positive support mechanisms such as incentives for biojet*
- Unilateral measures are ineffective and economically damaging.*

Carbon trading is an effective instrument

The effectiveness of the EU ETS as an instrument to reduce emissions is not in question. Carbon trading is by far the most effective economic instrument to reduce emissions in the aviation sector. Government has long recognised that some sectors of the economy will be able to reduce emissions more cost-effectively than others, hence the need for a cap and trade solution.

A well-designed EU ETS that does not distort air transport markets and avoids international dispute is a good first step towards a global carbon trading solution.

Current EU ETS scope is inappropriate

In its current form the EU ETS will only partially cover international air transport markets, leading to competitive distortion and carbon leakage, reducing the overall effectiveness of the system. In addition, as a result of international dispute over the current scope of the EU ETS, there is a high risk of retaliatory action and non-compliance that will further reduce the overall effectiveness of the instrument. To ensure the EU ETS will be effective, the EU and member states must propose a solution to these problems.

Additional policy support

There are sensible actions that the UK government can take to assist in reducing aviation emissions. Support for biojet demonstration projects is essential if the UK is to seize economic opportunities from development of new low-carbon technologies.

In parallel, incentives should be introduced to level the playing field for biojet with biodiesel. Renewable Transport Fuel Certificates (RTFCs) should be credited to producers of biojet, without the need to mandate a minimum supply percentage of biojet. Mandates would lead to higher costs of jet fuel in the UK leading to fuel tankering and market distorting cost imbalances.

The key area of focus for the UK government should be in international regulation and policy development. UK government should step up action to agree a global approach to reduce aviation emissions with harmonisation of carbon trading system design, a coordinated policy pathway and a target to reduce net CO₂ emissions by 50% by 2050. Government should also support reasonable international CO₂ standards for new aircraft through the ICAO process.

Unilateral measures are ineffective and economically damaging

In general, unilateral measures to address international aviation emissions, such as APD, are inappropriate, ineffective and disrupt trade. Unilateral measures will create market distortion for UK airlines and damage the UK's connectivity and competitiveness whilst doing little to reduce global emissions.

5.33

What is the best way to define and quantify the UK's share of the CO₂ emissions generated from international aviation?

A: Key points

- *International aviation emissions should be addressed at international level and not be included in national emissions inventories*
- *Targets should be set at regional or global level. Unilateral targets are ineffective and will lead to distortive policy decisions*
- *Inclusion of international aviation emissions in UK carbon budgets is inappropriate and would lead to carbon leakage*

Address international aviation emissions globally

The methodology for defining and quantifying international aviation emissions should be agreed at international level. The UK government should accept that international aviation emissions should remain carved out from national emissions inventories and be addressed at international level.

Quantification of the UK share implies that measures could be targeted unilaterally at this arbitrary sub-set of international aviation emissions.

It is not appropriate to include international aviation emissions in UK carbon budgets or to introduce targets or measures nationally, aimed at reducing international aviation emissions. The notion of identifying "UK international aviation emissions" is false and leads to irrational distortive and ineffective policy.

Unilateral measures to address international aviation emissions would be inappropriate and ineffective. Unilateral measures will create market distortion, damage the UK's connectivity and competitiveness, whilst doing nothing to reduce global emissions.

5.34

What is the potential for increased use of sustainable biofuels in aviation and over what timeframe? What are the barriers to bringing this about?

A: Key points

- *Biojet has significant potential to reduce aviation emissions*
- *Biojet will potentially reduce aviation's carbon footprint by 24% by 2050*
- *To meet this target, effective government policy on biojet will be necessary*
- *Current government policy acts as a barrier rather than an incentive for biojet production*
- *Aviation is dependant on liquid hydrocarbon fuels for the long-term and therefore use of aviation biojet fuels should be prioritised rather than being excluded.*

Biojet has significant potential

Sustainable aviation biojet could potentially play a vital role in reducing the carbon footprint of aviation and the industry has been working on a range of initiatives to develop this opportunity. However, support from the UK government, similar to that given by other countries, will be necessary to make this a reality.

It is believed that the government have been overly conservative in assigning just 2.5% biojet use in aviation by 2050 in its latest CO₂ forecast¹⁹. Instead, it is believed that biojet can potentially account for 40% of aviation fuel reported by airlines operating out of the UK, as stated in the EU white paper on the future of aviation.

With a 60% improvement in life-cycle emissions, CO₂ emissions will be reduced by 24% as a result of biojet.

Biojet will become a global commodity, and a system of accounting based on purchases of biojet will enable airlines to claim emissions reductions, regardless of where in the world the biojet enters the supply chain.

Biojet barriers

To become an acceptable solution, biojet must become economically viable and cost-competitive over the long-term compared to fossil kerosene plus carbon costs. However, in the short-term, many biojet pathways are not economic in their own right and carry with them significant first-of-a-kind technological risk for investors and lenders.

Government policy should be targeted at reducing the investment risks and early commercial diseconomies.

Biofuel producers are making capital investment decisions based on current Government policy, which prioritises heat, power and road transport fuels. As a consequence, capital

¹⁹ DfT UK Aviation Forecasts, August 2011, para 3.5.1

investment for renewable energy technologies is currently being spread across those sectors at the expense of aviation.

UK Government policy currently discriminates against sustainable aviation biojet fuel and is a significant barrier to increasing the use of biojet in future.

Appropriate mechanisms to support biojet are described in answer to question 5.35 below.

Aviation is dependant on liquid hydrocarbon fuels for the long-term and therefore, aviation biojet fuels should be prioritised rather than being excluded²⁰. The scarce amount of sustainable biomass (for biofuels) available worldwide should be designated for those sectors that do not have alternatives. Aviation is one such sector. For road transportation, other than heavy goods vehicles, an alternative exists and this should be further developed and stimulated.

It is hoped that this will be recognised, and acted upon, when the government report on a study into the best use of biomass.

5.35

What mechanisms could the Government use to increase the rate of uptake of sustainable biofuels in the aviation sector? In particular, how can we accelerate the successful development of second generation biofuels?

A: *IATA is dedicated to supporting its members and the entire air transport industry to reduce emissions of CO₂. Alternative fuels, particularly sustainable biofuels, have been identified as one of the key elements in helping achieve this goal. Biofuels derived from sustainable oil crops such as jatropha, camelina and algae or from wood and waste biomass can reduce the overall carbon footprint by around 80% over their full lifecycle.*

Commercial flights are already flying with biofuels. Today's challenge is the commercially economic production of them.

Key points

- *To level the playing field with other sectors aviation should be included in the incentive regime provided by RTFCs, without the need for a biojet blending mandate*
- *Exclusion of aviation prevents a level playing field with road transport and contradicts the UK's stated policy to develop a low carbon economy*
- *Further supporting policy including loan guarantees will be needed.*
- *Lack of clear government support in this area means that investment in sustainable biojet development in the UK is at risk, e.g. the planned BA-Solena facility (BA is a BAR UK member)*
- *UK risks losing the economic opportunity from development of new low-carbon biojet fuels*

²⁰ WWF study ref

- *Further support should include options such as loan guarantees*
- *A biojet blending mandate will create competitive distortion and should not be applied*
- *EU ETS to be amended with a purchase-based accounting system and revenues must be directed to biojet support initiatives.*

Government support is vital for development of biojet

Policy makers can play a unique role in helping to overcome the barriers to increased biojet use. There is a case for a clear and defined policy on aviation biojet fuel that will help to create conditions that are commercially attractive for producers to invest in biojet production and to accelerate the anticipated economies of scale and learning. Support should not, and will not, give aviation an advantage over other sectors of the economy, but is required in order to level the playing field.

Lack of clear government support in this area means that investment in sustainable biojet development in the UK is at risk e.g. the planned BA-Solena facility.

By 2014, strategic investment decisions for biojet in Europe will need to be made and feedstock and technology pathways will be decided to meet the 2020 RES target scenarios. The decision to leave UK aviation out of the RED transposition means that biojet production is much more likely to go to other EU member states.

For example the Dutch Government has decided to allow biojet to qualify for RTFCs, without falling within a specific supply mandate, thus leaving the UK at a disadvantage.

Biojet should qualify for RTFCs

In order to have a level playing field with other sectors, aviation biojet suppliers should qualify for RTFCs without the need to extend obligations to biojet suppliers.

The UK Government should include this provision in its transposition of the EU RED.

In transposing the EU RED, the UK has indicated that aviation fuels will not be eligible for RTFCs. This places aviation at a clear disadvantage compared to road transport.

Given that many technology developers have a choice to produce either diesel or biojet, this policy mechanism makes it unlikely that biojet production will be economically attractive in the UK.

Exclusion of aviation from these incentives prevents a level playing field with road transport and contradicts the UK's stated policy to develop a low carbon economy. This policy locks the UK into irreversible investment decisions so that the UK's future capability to produce biojet aviation fuels will be damaged.

Other European Member states and governments around the world are actively supporting the development of aviation biojet, in particular the Netherlands and USA, both of which are crediting biojet in incentive mechanisms without blending mandates.

Consequences of failure to facilitate biofuel development

Failure to allow RTFCs for aviation further weakens the investor proposition to invest in the development of biojet capacity in the UK, which has far wider societal benefits than just aviation.

Investment in biomass to liquids technologies (BTL), such as British Airways' planned biofuels project with Solena in the South East mentioned earlier, will develop new skill bases that benefit other renewable energy sectors.

The UK will be further disadvantaged if the uptake of advanced conversion processes is not accelerated through the development of 2nd generation leading-edge technology to produce sustainable, indigenous aviation fuels. These have a far greater potential to reduce the UK's increasing dependency on imported petroleum fuels. There is a strong possibility that no biojet facilities would be developed in the UK whilst such a legislative dislocation exists.

Further support will be needed

The provision of support via RTFCs alone is insufficient to stimulate commercial scale UK biojet production. A range of other government support mechanisms will be required to help provide a financial foothold for biojet's first-of-a-kind technology. There is clearly a need in these cases for greater support to address technology and market risks, for example in the form of loan guarantees. In addition, waste and energy policies need better alignment both in Europe and the UK to provide a more level playing field across energy sectors.

A biojet blending mandate is unacceptable

Policies need to take into account the long-term dependence of aviation on liquid hydrocarbon fuels. However, whilst aviation should be eligible for support through RTFCs, it would not be acceptable to include aviation in a blending mandate. The introduction of a UK or European mandate for aviation would lead to significant market pricing distortion for aviation fuel uplifted in the UK or Europe by increasing the cost of jet fuel relative to other parts of the world.

EU ETS must appropriately account for biojet

The EU ETS should be amended to ensure the greenhouse gas emission (GHGE) reduction benefits of sustainable aviation fuels are accounted for. The EU ETS legislation currently describes an accounting methodology for biofuels that is unworkable for the aviation industry. This will hinder the commercialisation of sustainable aviation biofuels, restrict airlines' access to sustainable fuels and delay the achievement of emissions reductions.

One way forward is a biojet accounting methodology that aims to resolve this based on purchases rather than physical tracking of fuels.

Members of the industry group called Sustainable Aviation Fuel Users Group (SAFUG), propose the following principles for treating biojet in the EU ETS:

- *Aircraft operators must be able to account for the GHGE reductions associated with the use of biofuels.*
- *Aviation biofuel, or “biojet”, should be recognised as biomass as defined in the ETS Decision 2007/589/EC and any other relevant EU legislation.*
- *The EU ETS should account for the fact that aviation fuel supply chains are not segregated at airports and biofuels will be co-mingled with kerosene.*
- *The EU ETS requirements should be amended to allow aviation to use a purchase based (or “book and claim”) accounting methodology instead of consumption based methodology.*
- *Current aviation fuel traceability requirements should form the basis for improvement of the EU ETS accounting methodology.*
- *To ensure equitable treatment of operators, policy should be designed to avoid carbon leakage and competitive distortion.*
- *Operators should be able to account for their biofuel purchases regardless of where in the world the fuel is produced or consumed.*
- *The ETS should include stringent sustainability criteria (in line with other EU policies) and should encourage the use of biofuels with the lowest GHGE footprint.*

5.36

Which technologies (e.g. for aircraft and air traffic management) have the most potential to help reduce aviation’s CO₂ emissions (noting potential trade-offs with local environmental impacts)?

A: *For air traffic management, the technologies that will make the most beneficial impact in terms of emissions will be the deployment and embedding of SESAR which will ensure that delay and efficient use of airspace are areas of focus. This will bring improvements in direct routeing by the flexible use of airspace particularly where civil/military opportunities exist. The outcomes will be measured by the improved predictability of the ATM trajectories and reduced waste/delay.*

Significant improvement in aviation emissions would be achieved by enabling aeroplanes to depart on time, without waiting for half an hour, engines running, prior to getting on the runway for departure and by preventing stacking. The engine manufacturers have already done much to help reduce aviation emissions.

5.37

What more could be done to encourage the aviation industry to adopt new technology to reduce its climate change impacts?

A: *Appropriately designed carbon trading will ensure carbon costs are reflected in operator costs and will provide additional incentive to operate the most efficient technology.*

Additional government support to aerospace R&D will help in meeting the European Commission’s High Level Group on Aviation Research vision for aviation in 2050, calling

for a reduction in CO₂ emissions per passenger kilometre of 75% compared to typical new aircraft in 2000.

UK government should support reasonable international CO₂ standards for new aircraft through the ICAO CAEP process.

One of the biggest areas of improvement that is still unrealised relates to a European Single Sky. That realisation lies largely with politicians rather than the industry.

The industry will continue to strive for improvements, as demonstrated by the establishment of Air Transport Action Group (<http://www.atag.org/>) and, in the UK, Sustainable Aviation (<http://www.sustainableaviation.co.uk/>)

5.38

What more can the UK aviation industry do to reduce the climate change impact of its ground operations and surface access to and from the airport (which can also help reduce local environmental impacts)?

***A:** The aviation community in the UK is supportive of the engagement by DfT to explore low carbon transport to/from airports.*

It fully backs all practical initiatives that influence airport users (staff, as well as passengers and others) to use mass transport systems.

Similarly, the concept of direct connectivity between rail and airports enjoys the support of the aviation community.

Surface access mode

Better surface-mode connectivity to move people to more friendly transport to and from the airport:

- *invest in new infrastructure (new rail and bus routes)*
- *better development of inter modal hubs.*

This is dependant on government support and backing for new inter-modal hubs and infrastructure. Projects such as Air Track, Cross Rail, High Speed Rail 2 are key to allowing the aviation industry to improve the sustainability of surface access at airports. The government needs to take every opportunity to integrate links between different modes of transport.

Surface access technology

Invest in new equipment encapsulating latest technology in ground transport:

- *latest EURO emissions standards,*
- *engine cut-off for idling,*
- *more fuel efficient engines.*
- *Performance monitoring equipment*

Many airlines have continuously invested in new more efficient and lower emission vehicles, and others are now following. Such vehicles include EURO 5 buses (latest standard) and a fleet of electric baggage tugs. Engine cut-off devices and similar application of technology can help to improve driving behaviours.

- *electrical charging points for equipment on aircraft stands,*
- *electric car charging points in car parks,*
- *biofuel dispensing network,*
- *hydrogen refuelling sites.*

The use of specialist stand based equipment for aircraft handling provides a good opportunity for the use of electrically powered equipment.

However, this requires considerable investment in additional infrastructure on the part of the airport company.

Under investigation by BA is the provision of electric car charging points in staff car parks.

There will be challenges due to lack of dedicated parking bays, but the network of charging points needs to increase in order to promote the use of electric vehicles.

Journey planning

Encourage and support customers and staff to reduce dependency on single car use:

- *incentivise public transport (season ticket loans, discount tickets etc),*
- *communications on best way to travel (website),*
- *car share schemes,*
- *cycling schemes (changing rooms and safe cycle paths).*

Free staff buses are provided on key routes around Heathrow Airport.

There are also car share schemes and BAA/airlines provide changing facilities and showers at main facilities for cyclists. Safe cycle routes for staff around airports are key to promoting the use of cycling.

Heathrow Airport has a consolidation centre for the handling of goods being delivered to the airport. This reduces the number of journeys to and from the airport and reduces congestion. Packaging is reduced before arriving to the terminal buildings and allows better segregation and recycling.

There is considerable scope for equipment sharing but there are difficulties due to equipment availability and liability. This may be overcome if an independent third party such as the airport company manages the equipment pool. An example would be the provision of Ground Power Units (GPUs) portable generators required when the stand electrical system does not work.

Regular maintenance and monitoring:

- *remote vehicle monitoring and GPS,*
- *measure fuel consumption,*
- *quantify emissions and trend.*

Automated fuel dispensing and data retrieval allows for fuel measurement and emissions modelling. This facilitates trend analysis and targeted management of the equipment with the highest fuel consumption and emissions.

In partnership, BAA and other airport companies through the Heathrow Sustainable Partnership are investigating the potential for training on environmental driving techniques.

5.39

What scope is there to influence people and industry to make choices aimed at reducing aviation's climate change impacts, e.g. modal shift, alternatives to travel, better information for passengers, fuller planes, airspace management (which can also help reduce local environmental impacts)?

A: Key points

- *Price signals resulting from cost-effective internalisation of environmental externalities are the most appropriate way to influence customer choice*
- *Communicating with customers on climate impacts of aviation*
- *Airlines already have a strong incentive to maximise load factors*

Customer modal choice

Possibly most important mechanism for influencing customer choice is by reflecting environmental externalities in prices. The most cost-effective way to achieve this is through carbon trading. To ensure a level playing field for the customer, other transport modes must also reflect their carbon costs.

Assuming there is a level playing field in reflecting carbon costs, customers should have a free choice among transport modes.

Provision of information

Many airlines have long-established methods of communicating with customers about the environmental impacts of aviation. Future initiatives will further strengthen such communications with them, although there is already more than enough information for travellers to make informed decisions.

BAR UK is not convinced that increasing the supply of information about aviation's climate impact will lead to significant reductions in demand for air travel as suggested in the government's response to the Climate Change Committee. Neither should aviation be picked out – all forms of transport create emissions, yet aviation is possibly the only one that continually sets out its way ahead to reduce them further.

Load factors

The notion that aircraft have excess capacity that could be filled is false. Airline profitability is directly related to load factors and yields and there is therefore significant incentive to fill aircraft.

Cutting-edge dedicated revenue management systems are used by all airlines to maximise aircraft loadings, within the constraints of a flexible premium service.

It is also clear that optimised hub operations are a key contributor to maximising load factor performance.

Furthermore, load factor is not solely related to passengers. It also includes freight, most of which is carried in the holds of passenger aircraft, and tends to be out of sight and out of mind.

Freight not only contributes to the high average load factors of airlines, but also to making the economy work by the carriage of exports and imports.

Local impacts

5.40

What do you consider to be the most significant impacts – positive and negative - of aviation for local communities? Can more be done to enhance and / or mitigate those impacts? If so, what and by whom?

A: Key points

- *Aviation boosts local economies directly with employment opportunities and indirectly with supporting service providers*
- *Local communities benefit from the improved public transport links that an airport attract*
- *The most significant negative impact is from noise. Mitigation comes from continuous improvement in technology and operating practice*
- *Heathrow air quality issues are primarily driven by non-aviation related road transport*

Noise & Air Quality impacts

Climate change is the most significant environmental impact from aviation; it affects the global community. For this reason, aviation policy should see the reduction of CO2 as its first priority.

However, when focusing on local impacts, possibly noise followed, by air quality are the next priorities. Air quality mitigation has already been covered in the response to Question 5.5; the following comments relate to noise mitigation.

Mitigations - land use planning

Land-use planning is a key part of the EU Noise Directive, 2002/30/EC, which seeks to prevent population encroachment towards airports.

However, the UK guidance in PPG24 is nearly 20 years old and we understand that when applied, has been overruled by UK Government due to the pressure to provide housing in the South East of the UK. PPG24 needs to be updated and a UK Government body needs to be given accountability and the resource to deliver the land-use planning elements of the EU Noise Directive.

Mitigations - airport & operational

The following options may provide further noise mitigation opportunities:

- Slightly steeper approach angles, in the order of 3.2 degrees vs the current 3.0 degree angle employed at Heathrow.*
- Use of displaced (inset) landing touchdown points*
- Creating tailored arrival and departure routings that fully utilise modern aircraft navigation capabilities.*
- Providing variations in airborne departure routings to allow predictable noise relief.*

Steeper approaches

Steeper approaches offer the potential to reduce noise on arrival. However, poorly designed steep approaches could actually lead to an increase in noise.

If faced with too steep a descent angle pilots will need to lower the landing gear, providing drag and thus stabilising airspeed.

Simulator trials (conducted by British Airways in January 2011) suggest the best compromise descent angle is in the order of 3.2 degrees (versus the current descent angle 3.0 degrees). Separately, a German study conducted for Frankfurt airport has come to a similar conclusion. Frankfurt will begin trials of 3.2 degree approaches to the new (fourth) runway (25R) in October 2012.

Displaced landing thresholds

At some airports it may be possible to pick a landing touchdown point further into the runway. In so doing aircraft will naturally fly slightly higher at any given point along the approach, leading to greater atmospheric absorption of noise.

Tailored arrival and departure routings

See response to Question 5.36 regarding use of aircraft technology

Variations in airborne departure routings

It may be possible to offset current departure routings within the Noise Preferential Routings, in a way that provides predictable respite from noise. E.g. Offset to the right of

track in the morning and left of track in the afternoon. Offsets of approximately 750metres appear to offer reductions in noise of approximately 7-8db at ground level.

Safety Assessment Of Operational Changes

Airline operational changes need to be supported by appropriate airport facilities and infrastructure and careful consideration of any unintended safety consequences must also be made.

Planning Policy and Airspace Change Process

Critically, efforts to mitigate noise need effective UK policy on both the airspace change process and land-use planning (see response to question 5.43).

Maintaining local benefits in the future

Local benefits are a product of a healthy and expanding aviation industry. When growth is constrained business places greater emphasis on efficiency and cost savings to maintain an acceptable financial return.

This is particularly the case for the aviation industry where UK based connectivity providing companies operate in a highly competitive global market place, with rivals that do not face the same policy constraints on growth.

Efficiency and cost savings result in lower employment opportunities, directly and indirectly. It would be wrong to assume that without growth an airport will always be able to provide stable local benefits.

5.41

Do you think that current arrangements for local engagement on aviation issues, e.g. through airport consultative committees and the development of airport master plans, are effective? Could more be done to improve community engagement on issues such as noise and air quality? If so, what and by whom?

A: *Engagement by airports with local communities is well-established through airport consultative committees.*

Airports also publish master plans, and devote much thought and effort into their effects on the environment, not least locally.

5.42

Do you think that current arrangements for ensuring sustainable surface access to and from airports, e.g. Airport Transport Forums and airport surface access strategies, are effective? Could more be done to improve surface access and reduce its environmental impacts? If so, what and by whom?

A: *Where a good range of public transport from all directions is widely available, e.g. Gatwick, public transport tends to be well patronised.*

At airports where that is not the case, e.g. Heathrow, there is a strong inclination, driven by need, to use other methods of travel.

Other factors that determine choice of transport are a) cost, b) reliability, c) frequency and d) time of day/night.

5.43

What are your views on the idea of setting a ‘noise envelope’ within which aviation growth would be possible, as technology and operations reduce noise impacts per plane? What do you consider to be the advantages and disadvantages of such an approach?

A: Key points

- *Policy makers should set land-use planning targets to avoid encroachment of population towards major airports*
- *Land-use planning targets should recognise projected noise contours and required capacity to support the UK economy over the long term.*
- *The aviation industry should play its full part in reducing the noise burden, meeting formal, achievable and appropriate noise targets.*
- *Any noise envelope must provide a mechanism for sharing the benefits of noise performance improvements between the industry and local community.*

Purpose and definition of a Noise Envelope

Ultimately, any noise envelope should represent noise exposure and the size of the noise-affected population. Noise contours have served this purpose in the past but could be supplemented. Improvements in noise performance should be shared between the local communities and, in the case of the industry, by providing growth opportunities.

Noise Envelope Options

We understand that the discussions on a new noise envelope are at an early stage. However, the existing noise contour and Noise Quota Count system could be used in tandem and modified to meet the objectives described above.

Noise Contour System

The most effective method for linking the size of the noise-affected population with the noise impacts of aviation is the noise contour system. Industry targets can be set limiting the area of any given noise contour.

Critically, targets can also be set for national and local government to avoid population encroachment into the nominated contour area; an essential part of the Balanced approach to noise management detailed in the EU Noise Directive 2002/30EC.

In practice this approach would benefit from the creation of planning zones around the airport with clear development limits. Indeed, such planning zones could be used to create commercial and industrial zones, reducing the size of the noise affected population around

airports, stimulating economic activity and benefiting from excellent transport connectivity. See also “Industry and Government Targets” below for further comments.

Industry and Government Targets

Irrespective of which approach is chosen, the failure to prevent population encroachment towards airports has exacerbated the situation.

This problem is felt most keenly at Heathrow. Improvements in noise performance have led to a reduction in the area contained within the 57 dB Laeq contour of 52%, from 234.9 km² to 112.5 km² between 1991 and 2009.

This is despite an increase in the total number of movements from 361,000 to 480,000 per year.

However, population encroachment towards Heathrow has been substantial. Figures obtained from BAA suggest that there are now over 13,000 more households within the 57 dB contour over this period, or an increase of approximately 15%.

No matter what steps are taken by aviation to reduce or mitigate noise, if more people are moved to live within the vicinity of an airport or noise contour, more people will be affected by noise.

In order for industry, national and local governments to play their full part in reducing the noise burden on the population the following steps would be required:

- The UK Government should formally commit to land-use planning targets. These should take into account projected noise contours and the potential capacity that may be required to support the UK economy over the next 30 years.*
- The aviation industry should be tasked to reduce the noise burden around the airport, by setting achievable and appropriate targets as defined by the current noise contour system or any agreed future noise envelope.*

The creation of planning zones around the airport with a clear remit to avoid encroachment of population.

Noise planning zones should be managed as a national strategic priority, without being subject to local planning pressures.

Over coming years Heathrow will benefit from the widespread use of much quieter aircraft such as the A380, B787 and the newly announced range of short haul replacement aircraft announced by Boeing and Airbus. It should be entirely possible to balance the strategic benefits of aviation against a background of ever improving noise performance.

If local authorities and national planning bodies continue to allow development under existing flight paths, this should be taken as clear evidence that aircraft noise levels are considered acceptable by local communities, notwithstanding that it would be desirable to reduce noise where possible.

5.44

Is it better to minimise the total number of people affected by aircraft noise (e.g. through noise preferential routes) or to share the burden more evenly (e.g. through wider flight path dispersion) so that a greater number of people are affected by noise less frequently?

A: It has been government policy for many years to concentrate the effects of aircraft noise over the least populated areas and airspace design and aircraft routing has been established to comply with this requirement. On the basis that government policy has been broadly understood, decisions made by residents have taken account of this policy and choices exercised about where to live and how close to the airport, a major factor in employment, people are happy to reside.

Over this period, noise impact has dramatically reduced with each new generation of aircraft taking advantage of engine and airframe design to mitigate noise effects. A good example of this is the new Airbus A380 compared to the earlier versions of the Boeing 747. This trend is likely to continue.

At the same time, improvements in aircraft equipment means that navigational performance has improved resulting in far more accurate track keeping which has possibly exacerbated areas where flights are most concentrated.

Nevertheless, a move to a more dispersed model will undoubtedly mean that residents, who may well have based their house buying choice on known aircraft tracks may progressively be subjected to 'new noise' and the airport inherits a far greater population of potential complainants.

In the congested south-east, a half-way house of "dispersed concentration" – i.e. a number of specified routes within a given swathe, or wider NPR used in alternation – would not be feasible due to the proximity of a number of major airports and route interactions to and from them. The design and operation of the TMA relies upon systemisation and repeatability and consistency to enhance safety, ATM efficiency and environmental performance.

Whilst it may be possible to have dispersion in some specific areas such as runway alternation, any attempt to try and apply random routes within the TMA as a whole will have a detrimental impact on its operation.

We believe this is a decision for Government. We do, however, believe some of the existing NPRs require change in order to realise optimum performance.

5.45

What is the best way to encourage aircraft manufacturers and airlines to continue to strive to achieve further reductions in noise and air pollutant emissions (notably particulate matter and NOx) through the implementation of new technology?

A: Key points

- *Effective Research and Development programmes are the primary means to achieve improvements in environmental performance.*
- *ICAO CAEP is the correct forum to agree international aviation environment standards on noise, NOx and in the future, on Particulate Matter.*
- *Airlines generally adopt aircraft with advanced technologies, as they not only offer environmental benefits but also offer reduced operating costs.*
- *See response to Question 5.5 for detailed background on particulate matter and NOx.*

Research and Development

Effective Research and Development programmes are the primary means to deliver new technology and might benefit from government support in the form of funding or tax incentives. It is also important to recognise the complex design trade-offs required between fuel, noise and Local Air Quality objectives.

ICAO CAEP

It is important to understand that research, development and deployment of aviation technology takes decades. Manufacturers need a stable regulatory framework with regard to local environment impacts if they are to be able to develop appropriate solutions. The international nature of the aviation business demands coordination of environment standards at an international level. The jurisdiction for such decisions is ICAO CAEP, which provides the stable long-term stable framework required.

Adoption of technology by airlines

Improvements in fuel efficiency offered by new aircraft types provide a natural incentive for airlines to incorporate the latest aircraft into their fleets. Reduced fuel burn will generally lead to reductions in other emissions while new aircraft types also offer improved noise performance e.g. A380 and B787.

5.46

What are the economic benefits of night flights? How should the economic benefits be assessed against social and environmental costs?

A: *Night flights are not operated as a direct matter of airline preference but because of international time-zone factors.*

Night flights tend to be exclusively longhaul, with flight sector times of up to 14 hours.

Local times at each end of the route, allied to any applicable curfews, have to be taken into account.

Wide-bodied aircraft, carrying hundreds of passengers, tend to be used, so the number of passengers per flight is high, making them valuable and efficient.

Like all other flights at Heathrow (the main point of interest for BAR UK airlines), a good proportion of passengers are transferring to, or from, other flights.

The night flights also carry considerable volumes of freight, so play an additional valuable role in the economic well-being of the UK.

5.47

How can the night flying regime be improved to deliver better outcomes for residents living close to airports and other stakeholders, including businesses that use night flights?

A: *The response to Q5.43 demonstrates how more and more residential building has encroached into areas around affected airports.*

Without dismissing the effects of noise, this may also demonstrate how much quieter aircraft have become, and that house buyers have been prepared to purchase knowing full well of the times of aircraft movements at such airports.

However, future noise mitigation will apply as the use of very modern aircraft, like the Airbus A380, Boeing 787 and others, increases.

Other measures might include slightly higher approach angles, or displaced landing thresholds, as discussed in Q. 5.40

5.48

Should extended periods of respite from night noise be considered, even if this resulted in increased frequency of flights before or after those respite periods?

A: *At a capacity-constrained airport like Heathrow, the opportunity to reduce night period operations, and operate them before/after those periods simply does not exist.*

Any decision to shrink the number of night period flights, or banish them completely, would result in a direct reduction in Heathrow's capacity, thereby impacting the UK economy even further.

The consequences would not just be local. They could have international ramifications, depending on which airlines lost slots, as bilateral arrangements would undoubtedly be affected.

END

Annex 1 Survey Questions and Responses

Q.	Response %	Response count
1	Is your airline concerned about the lack of additional capacity at Heathrow?	
	Yes	94.1%
	No	5.9%
		48
		3
2	Does your airline rely on Heathrow as a hub, to provide passengers and/or freight to/from your flights?	
	Yes	86.0%
	No	14.0%
		43
		7
3	Many flights from N. America, Asia and Australasia arrive very early in the morning and/or depart in the late evening. They carry both terminating and transfer pax/cargo. If it was decided that such flights should be discontinued, LHR would suffer a further loss of overall capacity. Would you consider such a loss as: a) critical b) serious c) important d) not important.	
	a) critical	58.8%
	b) serious	27.5%
	c) important	11.8%
	d) not important	3.9%
		30
		14
		6
		2
4	If additional slots were available at LHR, would your airline be seeking more frequencies?	
	Yes	86.3%
	No	13.7%
		44
		7
5	Like the question above, if additional slots were available at LHR, would your airline be seeking to change to different times?	
	Yes	67.3%
	No	32.7%
		33
		16
6	Does your airline feel that the capacity limitations at Heathrow restrict the opportunities allowed by your bilateral agreement?	
	Yes	85.7%
	No	14.3%
		42
		7
7	As a result of capacity restrictions at LHR, has your airline already increased its schedules in another country, or plans to do so, at the expense of the UK?	
	Yes	53.1%
	No	46.9%
		26
		23
8	How does the threat of increased Air Passenger Duty rates, and the additional costs of the EU Emissions Trading Scheme, affect your UK route profitability?	
	Critically	47.1%
	Significantly	41.2%
	Moderately	9.8%
	Not at all	2.0%
		24
		21
		5
		1

9 Looking at LHR runway capacity restrictions, and also high cost aviation taxation policies, would your airline consider either reducing or withdrawing its presence from the UK, and operate from another EU country instead?

Yes	31.3%	15
No	68.8%	33

10 Any new aviation policy by the UK government will not be announced until 2013 at the earliest, and any new runway capacity, if any, probably not built before 2019/2020. Does your airline consider such delays: a) damage the reputation of the UK b) harm the economy of the UK c) damage employment prospects

a) yes	80.4%	41
a) no	13.7%	7
b) yes	88.2%	45
b) no	5.9%	3
c) yes	78.4%	40
c) no	9.8%	5