



## **Unite response to the Department for Transport ‘Developing a sustainable framework for UK aviation: Scoping document’**

### **1 Introduction**

- 1.1 This response is submitted by Unite the Union, the UK’s largest trade union with 1.5 million members across the private and public sectors. The union’s members work in a range of industries including manufacturing, financial services, print, media, construction, transport, local government, education, health and not for profit sectors. The Civil Air Transport (CAT) membership of Unite is currently the largest representative group of workers employed within the aviation industry.
- 1.2 The union’s membership includes 60,000 members working within Civil Aviation and, in addition, Unite represents 52,000 members in the aerospace industry. Unite also represents 20,000 members in bulk freight transport who will be directly affected by these proposals and another 11,000 members who work as managers within Royal Mail and other organisations in the postal sector.

### **2 Executive Summary**

- 2.1 Unite believes that the premise that there should not be additional runway capacity makes the whole basis of the scoping document fundamentally flawed. The document makes the assumption that adding capacity automatically results in additional emissions and additional noise. Properly managed, adding capacity could reduce emissions not only at Heathrow but also throughout this global industry.
- 2.2 Additionally Unite believes that the Government’s focus on noise pollution is also damaging as it results in additional fuel burn and hence emissions. Whilst there will be understandable resistance from local residents, these protests should be weighed against the greater good for the UK economy and the global environment, not the other way around.
- 2.3 If the goal of the government is to improve the passenger experience then the simplest way of doing so is to add capacity and limit its use through legislation. Unite believes this could lead to significant capacity growth without a subsequent growth in emission levels.
- 2.4 Unite welcomes moves to speed up the processing of passengers through terminals, but security should not be compromised for the sake

of speed. The simplest method of reducing queues is to add more resources but such efforts can be compromised by too much interference from outside bodies and unwarranted checks when there is little or no potential for increased risk.

- 2.5 The aviation industry is vital to the UK economy. Adding financial burdens, only serves to increase costs for the consumer and British business. These burdens also affect the employment levels in the industry and any potential for growth in the regions.

### **3 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.***

- 3.1 Unite believes that the aviation sector provides connectivity between families and businesses, from across the globe enabling the swift interpersonal connection of people and the passage of freight over considerable distances within a days travel to every major economy in the world.
- 3.2 A new report by Frontier Economics<sup>1</sup> states that the UK has 20 times more trade with those countries with which we have a direct flight connection than those with which we do not. They estimate that the lack of direct flights to Emerging Markets may already be costing the economy £1.2bn a year as trade goes to better-connected competitors. The value of this missed opportunity to the UK economy over the next 10 years could total £14bn. When you consider that Paris and Frankfurt have almost twice as many flights to the three largest cities in China than are possible from London and you can see how current policy is stifling the potential growth of the British economy.

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

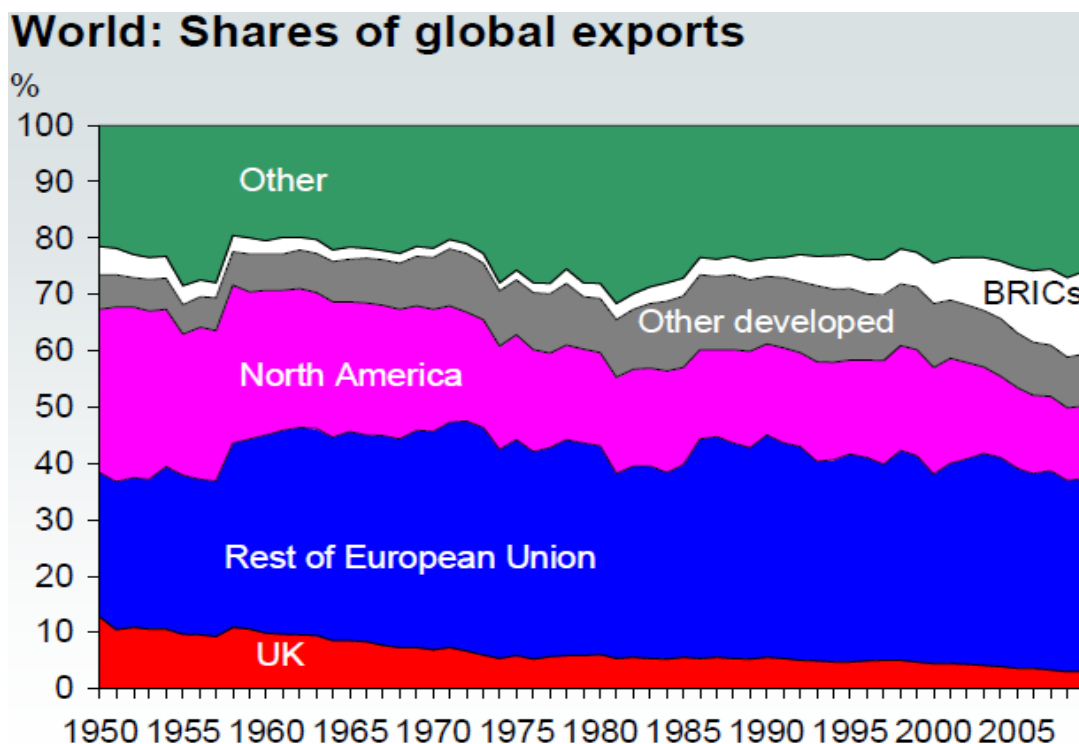
- 3.3 Unite believes that in today's modern era of high speed commerce and innovation that the ability to travel distances swiftly is critical to the economic and social well being of not just this country but of the world.
- 3.4 The growth of the BRIC<sup>2</sup> countries for example highlights the importance of connectivity to these growth nations. Just 5% of UK goods went to the BRIC countries in 2009, a share comparable to France, but less than half of that of Germany or the USA, and less than a quarter of the share of Japanese exports.

---

<sup>1</sup> <http://www.frontier-economics.com/europe/en/publications/>

<sup>2</sup> Brazil, Russia, India and China

- 3.5 The UK compares unfavourably in terms of exports of goods, however the provision of services to these developing nations was worth some \$12.3billion to the UK in 2008<sup>3</sup> and this is growing.
- 3.6 The BRIC counties and the other developing nations offer a considerable opportunity for UK business given their level of growth. The General Administration of Civil Aviation of China (CAAC) has announced the construction of a new Beijing airport, which is due to open in 2015. When it does, it will be the largest in the world, covering 21 square miles, with nine runways and the capacity to handle 370,000 passengers per day<sup>4</sup>.
- 3.7 China has also announced plans to construct a further 97 regional airports which should be completed by 2020. It is already on track to increase the number of airports from 175 to 230 in the next five years<sup>5</sup>. Such is the growth in aviation that Beijing saw a 32.1%<sup>6</sup> increase in passenger numbers between 2008 and 2010 at a time when the rest of the world is facing recession. This rate of growth has moved Beijing in to the slot of the world's second busiest airport in terms of passenger numbers, eclipsing Dubai. The creation of a new 9 runway hub for Beijing puts in perspective the UK position where we argue over obtaining just one additional runway for our hub.



<sup>3</sup> Source Oxford Economics - [http://www.oef.com/FREE/PDFS/UKMFEAT3\\_0411.PDF](http://www.oef.com/FREE/PDFS/UKMFEAT3_0411.PDF)

<sup>4</sup> [http://www.avweb.com/avwebflash/news/ChinaStartsWorkOnWorldsBiggestAirport\\_205360-1.html?CMP=OTC-RSS](http://www.avweb.com/avwebflash/news/ChinaStartsWorkOnWorldsBiggestAirport_205360-1.html?CMP=OTC-RSS)

<sup>5</sup> <http://www.dailymail.co.uk/news/article-2037385/Daxing-Airport-Beijings-3rd-airport-outstrip-Heathrow-worlds-busiest.html#ixzz1YUCnriui>

<sup>6</sup> See appendix 4 re the comparative relative growth of global hubs.

- 3.8 The UK's population is expanding at a rate of 9,000 people a year<sup>7</sup> and a significant proportion of this growth has been achieved as a result of a net migration into the country. Each member of this migrant workforce leaves behind them friends and family which they will not wish to lose touch with.
- 3.9 This growth will therefore lead to an ever increasing demand for more flights back home. This sector of the market is often overlooked and classified as leisure but it performs a very important social function. Estimates by BAA show that currently this sector of the market, accounts for around a third of all passengers using Heathrow.

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

- 3.10 Unite believes that each sector of the aviation industry has a role to perform, but that the various roles have different impacts on the economy.
- 3.11 The importance to industry in terms of access to the market, and to the general public in terms of connectivity, has already been set out above. Another aspect of high importance to the economy is the movement of high value and time sensitive freight, which not only expands the market for British industry but also supports the growth of developing and third world economies.
- 3.12 A key example of this is Kenya, where the movement by air of goods and passengers provides two of the country's principle exports<sup>8</sup>. Kenyan fair trade roses for example, release less greenhouse gasses than those grown in the Netherlands<sup>9</sup>, where artificial heating and lighting conditions are needed. With an annual growth rate of 20%, the cut flower industry is among the fastest growing sectors of the Kenyan economy and, with revenues of more than \$250m a year, it is Kenya's second largest agricultural foreign exchange earner after tea.
- 3.13 The 63.2% of air freight entering the UK does so via Heathrow, carried primarily in the cargo hold of passenger aircraft. Of the remainder, 29.9% of freight is split between East Midlands, Manchester, Stansted or Gatwick. Gatwick's role in the freight sector has declined in the last few years due to the growth at the other two airports. Air freight not only helps keep down the cost of passenger tickets it also makes it possible to have next day delivery of time critical items from all over the globe. According to a recent Oxford Economics study<sup>10</sup>, a 20 day shipping time is equivalent to slapping a 16% tariff on imports.
- 3.14 Compared to growth elsewhere, air freight volumes have stalled, to the extent that more freight travels by air to Paris Charles de Gaulle than to

---

<sup>7</sup> according to the Office of National statistics

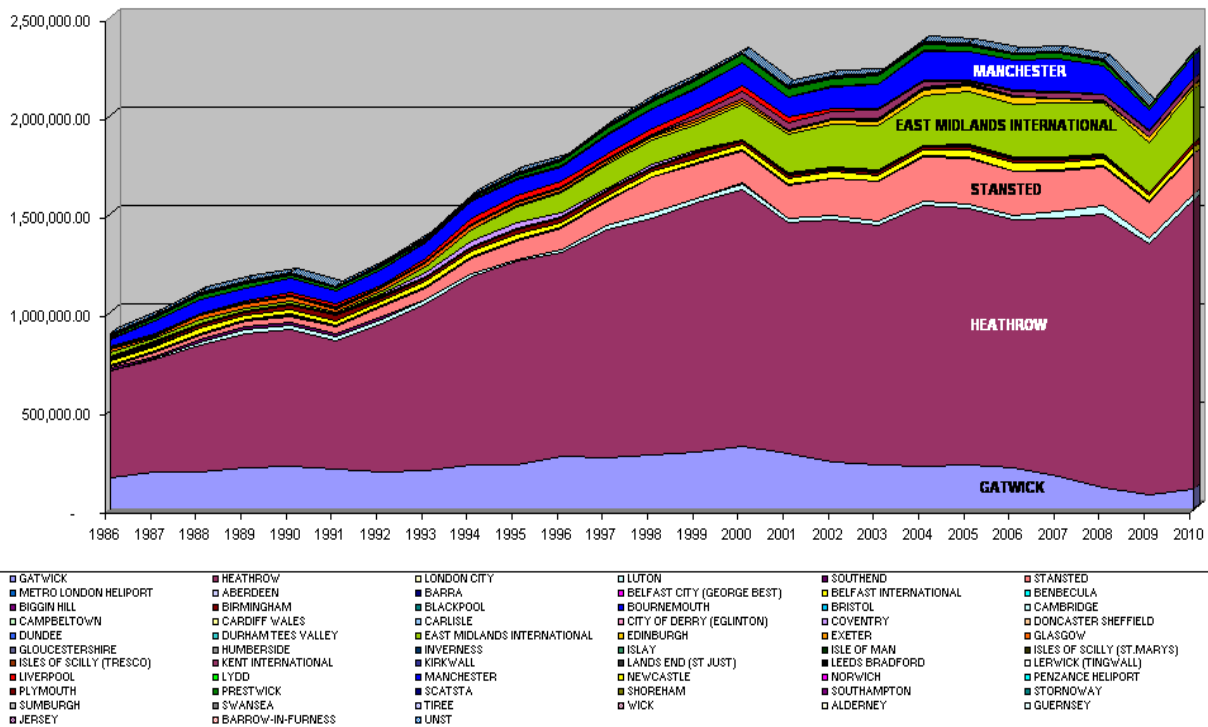
<sup>8</sup> Kenya's principle exports are flowers, tea and tourism.

<sup>9</sup> even when the aviation emissions are taken into account.

<sup>10</sup> <http://www.oxfordeconomics.com/FREE/PDFS/OEAVIATION09.PDF>

the total shipped to the UK<sup>11</sup>. The principle reason behind this is the capacity restraints via Heathrow.

### Air Freight Tonnage by UK Airport



Source:-CAA

3.15 Due to the introduction of slow steaming to reduce CO<sub>2</sub> emissions and fuel burn from shipping, Unite believes there will be a consequential increase in freight movements through other methods. Maersk has invested \$1.9 billion in the newest generation of 18,000 twenty foot equivalent unit container ships, optimised for speeds of just 19 knots, so it would appear increasingly likely that such mitigation methods are here to stay. Additionally, European limits on sulphur content in shipping fuel is driving the price of sea shipment up by as much as 40%<sup>12</sup> making shipment by alternative modes more attractive.

3.16 Last year saw a 13.4% growth in total UK air freight volume, returning it to the 2.3 million tonne level, where it has been stuck since 2000 due to capacity issues at Heathrow.

3.17 The UK is home to some of the world's leading aircraft engineering companies who are leading the way in the innovation of more environmentally friendly engine design, wings and instrumentation. The amount of UK technical innovation in the sector and its skill base is a major national asset which requires continued government support to ensure its sustainability within the UK.

3.18 For the business passenger, the UK offers a base on the western most fringes of Europe making it possible to connect to the United States and

<sup>11</sup> See Appendix 5 re the top 30 countries by air freight volumes.

<sup>12</sup> Statement by the The European Shippers' Council to Lloyds List -15 July

Canada via business jet. As an island nation we cannot drive or catch a train to other countries in continental Europe as easily as our competitors in Europe. Consequently, the jet has become the mode of choice for fast moving businesses.

- 3.19 For mass transport to and from this country, very little can offer the speed and comfort of aviation. Whilst there is competition from the high speed train services on the short haul routes, to Brussels and Paris, the three hour rule still applies<sup>13</sup> to most journeys, resulting in the range by train being far smaller than that of aviation. Consequently Unite believes that it is unlikely that medium and long haul aviation will face any challenge from rail at any time in the future.
- 3.20 Running high speed trains at speeds to compete with aviation could result in additional emissions being released per passenger<sup>14 15</sup> rather than less, as evidenced by the recent comments from China's Minister of railways, Sheng Guangzu, who stated in February 2011, that high speed trains 'will run at 300 km/h starting from 1 July, instead of the previously announced 350 km/h. This move will increase journey time from three hours 16 minutes to four hours on the Wuhan-Guangzhou, service but significantly reduce energy consumption and overall cost.

***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?***

- 3.21 Unite believes that if the UK Government does not change its position on capacity it will result in the UK diminishing as a global economic power in favour of France, Germany, Spain and the Netherlands as they continue to explore new routes to developing countries. If the UK is confined to what can fit into its outdated infrastructure, such stagnation will lead to wide spread job losses and disruption as carriers treat the UK not as a global hub for business but more a back water which has had its day.
- 3.22 Aircraft speeds have not changed since the days of the first passenger jet flights. From an environmental perspective there is no reason to believe that this will change for the average passenger in the near future. What will change over time is the environmental footprint, as more composite and other lighter materials are utilised and cleaner quieter engines are developed.
- 3.23 Moves are currently on the drawing board to build a 50 to 100 passenger hypersonic aircraft with the capability of connecting Paris

---

<sup>13</sup> In a work day it would be possible for a member of staff to travel up to three hours out to a meeting then three hours back. Consequently three hours is seen as a comfortable measurement of the journey time a passenger would normally be willing to make in a mode of transport in a given day.

<sup>14</sup> Energy Efficiency of High Speed Rail: Will higher speed cause increased energy consumption. Lukaszewicz, Piotr. Amsterdam : s.n., 2008. 6th World Congress on High Speed Rail.

<sup>15</sup> The determining factor on the level of emissions is the mix of energy generation methods employed. In France for example the energy is principally supplied by nuclear generation, in the UK and Germany electrical generation relies on fossil fuels resulting in a larger carbon footprint.

and Tokyo in 2.5 hours<sup>16</sup>. It is unlikely that such an aircraft could come into service much before 2050. Should this become a reality then there is no reason to suppose that Europe would retain its current position in the aviation sector. Even now with the range of the current commercial aircraft fleet, it is possible to fly from Dubai to New York direct without the need to enter European airspace<sup>17</sup>.

- 3.24 Biofuel technology is moving on apace, away from using land which would otherwise be used for food production, toward sustainable generation utilising fast growing algae or even the possibility of CO<sub>2</sub> extracted directly from the air or from combustion as the feed stock<sup>18</sup> for fuel generation. This will be a significant factor in making aviation more sustainable, and extend the future of aviation beyond its reliance on fossil fuels.
- 3.25 Boeing and Airbus have already conducted a series of trials using both synthetic and biofuels derived from a number of material feedstocks. Such trials have discovered that the drop-in fuel replacements are more efficient than the conventional fuels<sup>19</sup> and can reduce the level of acid rain created due to the reduction in sulphur content from that found in fossil fuels such as Jet A1.
- 3.26 The Committee on Climate Change in their assessment of the development of aviation<sup>20</sup> technology felt that biofuels would only have a 10% penetration on the total amount used. It felt, however, that technologies that would not require agricultural land for growth of feedstocks might develop but dismissed these as being speculative at that time. Despite this limitation, it believed that aviation could grow by 60%, due to technical innovations and not prevent the government achieving its target of reducing emissions from aviation to 2005 levels by 2050.
- 3.27 The European White paper<sup>21</sup> on transport till 2050 suggests that there needs to be considerable investment in low-carbon sustainable fuels for the aviation sector so that the percentage of alternative fuels can reach a 40% penetration by 2050. Unite believes that this is optimistic, but technically achievable if there is the financial backing to support this embryonic industry.

---

<sup>16</sup> EADS is now exploring how to address the gap left with the departure of Concorde a decade ago by investing in what they call the Zero Emission Hypersonic Transportation (Zehst) commercial aircraft project.

<sup>17</sup> A fact highlighted by Lufthansa when discussing the problems with European Emissions Trading Schemes inclusion of aviation

<sup>18</sup> According to work done by Dermot O'Hare at the University of Oxford

<http://onlinelibrary.wiley.com/doi/10.1002/anie.200905466/abstract.jsessionid=36845957A2ADD952122DCC35C3859EA.d02t02>

<sup>19</sup> <http://www.scientificamerican.com/article.cfm?id=jet-biofuel-ready-for-takeoff>

<sup>20</sup> Meeting the UK target – options for reducing aviation emissions to 2050 – published in 2009

<http://downloads.theccc.org.uk/Aviation%20Report%2009/21667B%20CCC%20Aviation%20AW%20COMP%20v8.pdf>

<sup>21</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0144:FIN:EN:PDF>

**5.5 How, and within what constraints, can aviation growth occur as technological developments and improved operating procedures reduce CO<sub>2</sub>, pollutant emissions and noise impacts?**

- 3.28 Unite believes, that without additional runway capacity and airport expansion, any chance the UK has of reducing emissions will be up an hill battle, which will adversely affect the UK economy. As an island nation operating in a global economic market, the UK relies on aviation to connect this nation to its customers.
- 3.29 The configuration of engines may move over time from being hung under the wing to a position between twin tail fins which would reduce noise pollution on the ground. These engines are already showing considerable improvement in terms of fuel burn and noise. Such is the speed of innovation that ACARE<sup>22</sup> has set what it believes are realistic targets to return aviation emissions to a level not seen since 2002 by 2050 despite a tripling of passenger numbers. It believes that by 2050 technologies and procedures available will allow a 75% reduction in CO<sub>2</sub> emissions per passenger kilometre.
- 3.30 Geography provided this nation with the ideal location for transatlantic aviation. Consequent innovation in aviation, to reduce fuel burn, enabled the range of aircraft to develop and expand, placing a greater range of airports within direct reach of one of the globes most powerful economies, the USA. With pressure on fuel consumption this short hop from the UK has provided the UK with an advantage in the aviation industry. Consequently, Heathrow, as the UK's principle hub airport, has a considerable waiting list of airlines willing to pay significant amounts for a pair of take-off and arrival slots.
- 3.31 With Heathrow's limited growth capacity, there is the need to stack approaching aircraft in one of four holding patterns over the airport. A study by NATS<sup>23</sup> showed that although the stacking time per flight at Heathrow in 2010 was just 4.4 minutes, this added more than 50 hours of unnecessary flight time per day. Over 60% of the aircraft approaching Heathrow are diverted from the straight in path currently. This is worrying given NATS report that underlying growth in the number of UK flights was 2.4% in May 2011 compared to the same month the previous year.
- 3.32 According to DfT published forecasts<sup>24</sup>, without new runways, the three largest London airports will be at capacity in less than twenty years and all growth beyond 2040 will need to occur at regional airports. Given the issues Heathrow currently faces with delays and cancellations whenever there is even the slightest issue, Unite believes that the aviation industry will not wait for this to occur before they start looking elsewhere for hub facilities. BA has already indicated that they will be looking to concentrate their business model on expansion via Madrid following its merger with Iberia to form the IAG Group.

---

<sup>22</sup> Advisory Council for Aeronautics Research in Europe

<sup>23</sup> <http://www.nats.co.uk/wp-content/uploads/2011/07/Richard-Deakin-CEO-NATS-Aviation-Club-7-July-2011.pdf>

<sup>24</sup> <http://assets.dft.gov.uk/publications/uk-aviation-forecasts-2011/uk-aviation-forecasts.pdf>

- 3.33 Unite feels that the DfT has, to a large degree, ignored aviation growth history and believes that it will eventually return to a growth rate of between 3.7 and 5.0% on average per annum and the assumption that growth will be reduced to just 2.0% is not logical in the long term without considerable detrimental effects being felt by the economy.
- 3.34 The reason for growth is a combination of global economic prosperity and population expansion. As we have seen following the global recession, there has been a sizable decrease in the number of passengers flying. From its peak in May 2008, the number of passengers flying to and from UK airports dropped from 244 million to 210 million by December 2010<sup>25</sup>. At Heathrow despite a slight drop, demand for connections has maintained the hub at over 98% of capacity. With the global population growing exponentially, it is difficult to imagine any other scenario other than one where demand returns to at least a 5% growth rate.
- 3.35 NATS has made it clear that there is simply not enough airspace over the South East of England to accommodate any new airports. Consequently if capacity improvements do occur, they either have to happen at existing locations or at least one airport has to close in order for a new airport to open.
- 3.36 Unite does not support the proposal outlined by Boris Johnson for a new airport in the Thames as there are too many practical hurdles to that location. Unite does agree, however, that the basic premise of that new capacity will be needed by 2050 to cope with demand. This may well mean a new hub airport with at least four parallel runways to provide the capacity to manage sustainable growth.
- 3.37 NATS has also highlighted that up to 10% of emissions from aviation could be saved if flight paths were straightened and aircraft utilised a continuous climb throughout the flight and a continuous descent approach on landing. An aircraft operates at its least efficient when it is queued up on a taxiway awaiting departure, rather than during its initial climb to altitude when it is carrying the maximum amount of fuel. If there could be a more joined up single European sky and even a global air traffic control this 10% goal might be more achievable.
- 3.38 The existence of the national airspace control zones and the variances between the charging structures can make it cheaper to fly further and burn more fuel<sup>26</sup>. Calculations by Lufthansa have also shown that the introduction of the European Emissions Trading Scheme from January 2012 will have a similar effect to these control zone charge differences, pushing more traffic towards Dubai or Atatürk International Airport<sup>27</sup> for onward connectivity, as these hubs are outside the EU<sup>28</sup>.

---

<sup>25</sup> Source CAA 12 months to that point figures.

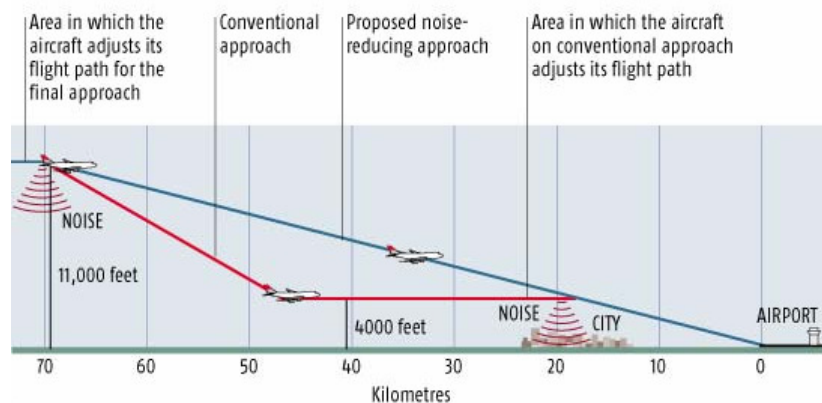
<sup>26</sup> Source:- Omega study from Loughborough University produced by Dr Lucy Budd. Figures are based on 2004 prices.

<sup>27</sup> The Turkish hub

<sup>28</sup> [http://presse.lufthansa.com/fileadmin/downloads/en/policy-brief/09\\_2008/Emissions\\_Trading.pdf](http://presse.lufthansa.com/fileadmin/downloads/en/policy-brief/09_2008/Emissions_Trading.pdf)

**5.6 How should decision-makers address trade-offs or competing interests, where these occur both (a) between different aviation objectives, e.g. CO<sub>2</sub> 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?**

3.39 Unite believes that adopting a continuous descent approach on landing, would result in a reduction in both noise and emissions, but this comes at the expense of air traffic control airspace. On a traditional approach the aircraft descends rapidly to the approach altitude then powers up, in order to reach the airport. A continuous descent reduces this effect dramatically.



3.40 Designers at Airbus have compromised the fuel efficiency of the A380 super jumbo, in order to reduce noise. As a consequence the engines produce between one and two% more emissions throughout their whole journey, just so that the residents around the airport do not suffer from too much noise. Unite does not believe that this compromise is sustainable.

3.41 Air framing companies are looking at methods of reducing noise further by mounting baffles on the engines and even mounting the engines above the wing or body of the aircraft, as indicated earlier, so that the aircraft itself becomes a baffle, reducing the impact on the ground. Doing so, however, would reduce the maintenance access and hence increase maintenance cost. Unite believes that these efforts will continue the trend toward quieter and quieter aircraft removing the need for compromise.

**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?**

3.42 Unite believes that hub operations are of strategic national interest, as they ensure the financial viability of frequent flights to global destinations. This enables passengers to fly when they need to from the UK to destinations rather than having to wait for that one daily or even weekly service.

- 3.43 Air freight operations to the UK only carry about 0.5% of the volume of freight moved through the UK, but none-the-less account for over 25% of the value<sup>29</sup>. Given the modern desire for a next day global delivery of goods, the only method open is by air. If restrictions are placed on air freight movements to the UK, the freight only operations will cease, to be replaced with an increase in road transits from Continental Europe. This position was clearly illustrated by the air freight operators statements, when the proposal to have a per plane tax were being discussed.<sup>30</sup>
- 3.44 From a social inclusionary perspective, the provision of flights to the Scottish islands is also vital. These flights provide the residents of these islands with their only lifeline to the wider UK population.

***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?***

- 3.45 To a very large degree the rules and regulation of the aviation sector are required to ensure the safety not only of the passengers but also the general populous beneath that flight path. Unite would therefore oppose any broad brush reduction in the regulation of the sector. If anything, Unite would like to see the level of regulation increased in various areas in order to improve the passenger experience, improve workplace standards and reduce emissions.

## **4 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?***

- 4.1 Unite believes that the ability to transfer large number of people and goods from one flight and on to another is critical to industry. The financial viability of frequent flights to developing economies only becomes achievable if you can concentrate passengers from various locations on to a single flight to that destination. The provision of this capability, provide the location of the hub with a more attractive proposition as a European base for an international company than a site at the end of a branch line.
- 4.2 Onward high-speed connectivity to the regions spreads the wealth from the hub to the rest of the UK. This can clearly be illustrated by looking at the volume of passengers flying out of Durham Tees following the loss of connectivity to Heathrow, and the state of the economy in that region. In the 12 months till April 2008, 749,751 passengers had passed through Durham Tees airport. In the year till April 2011 this number had

---

<sup>29</sup> 2006 OEF Report on Economic Contribution of Aviation

<sup>30</sup> <http://www.aircargoworld.com/News3/March-2011/Freight-group-cheers-rejection-of-per-plane-tax>

dropped to 237,318 passengers. This has reduced the viability of the airport to such an extent that the Chief Executive of Peel Airports has warned the people of Teeside that they need to start using the facility or risk losing it.

- 4.3 One of the oldest passenger airports in the UK, Plymouth, has recently announced it is to close due to the loss of its connection to London. The operator highlighted that it is currently losing around £8 per passenger and can see no realistic prospect of the passenger numbers increasing.

**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?**

- 4.4 Unite believes that the importance of a national hub cannot be overstated. Heathrow only connects to seven British airports, while Amsterdam Schiphol connects to 22 regional airports and Paris Charles de Gaulle has connections to 19 regional airports. Even Munich has more UK regional connectivity.
- 4.5 Dublin boasts the best connectivity with 28 established routes to the regions and being around eighty miles from Belfast currently attracts a sizeable share in the market from Ireland. Continental airlines recently told a committee of MPs recently that it could not justify paying £3.2 million a year in departure tax to use Belfast when the levy in the Republic of Ireland is significantly lower.
- 4.6 The number of passengers flying to or through Dublin amounted to 93% of the volume going through Schiphol. Unite believes that due to the tax advantage<sup>31</sup> of having a non-connecting flight to their destination<sup>32</sup>, a considerable number of these passengers are using Dublin not as a final destination but as another hub.
- 4.7 Having the requirement to stop over on the journey from departure airport to destination adds time, hassle and flight distance to journeys. Such additional hassle reduces the saleability of flights and adds cost as well as emissions, especially if you need to fly in the wrong direction to catch a flight to your destination.
- 4.8 If freight cannot easily access the UK, as stated earlier, the provision of next day delivery will be hampered. This would place the nation's economy at a disadvantage in the global market which it could ill afford especially given its increasing reliance on just in time deliveries.

---

<sup>31</sup> The Republic of Ireland reduced taxation on International flights from €10 to just €3 while the UK governments tax regime is the highest in the world.

<sup>32</sup> In previous consultation responses, Unite has highlighted that savings of over £2000 can be made by a family of four flying to Dublin first before catching a long haul flight  
<http://www.unitetheunion.org/pdf/APD%20consultation%202011.pdf>

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

- 4.9 Unite believes that direct connectivity to the BRIC countries as well as the traditional industrial super powers are critical to the future development of the UK. Currently the volumes of passengers utilising these routes are limited and could not be sustained economically from a point to point regional airport at a reasonable frequency.
- 4.10 The BRIC countries are where there is real potential growth for the services that the UK is good at providing. In turn, this connectivity makes it possible for the businesses from these nations to establish a European base, bringing with it economic development capital.

**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)?**

- 4.11 Unite believes that given the development of international markets and the migration of labour across the globe, connectivity will become more critical. As supplies of resources decrease, the innovations and developments of the new and emerging economies will flourish. This will inevitably lead to a reassessment of the connectivity requirements to develop new routes.
- 4.12 China has already announced plans to build over 40 new airports in the next 20 years and shows no sign of slowing down. Parts of the African continent also signs of growth, in the longer timescales. If we as a nation wish to grab these opportunities, we need to ensure we can get in early to these markets and that requires connectivity capacity.
- 4.13 With this growth in migration there will also be a growth in demand for flights to keep migrant populations in contact with friends and family. This sector already accounts for almost a third of all flights out of Heathrow<sup>33</sup>.

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

- 4.14 Unite believes that a good way to explain the benefits, would be to imagine aviation as either a bus network or as a railroad. If a business is looking to set up a base of operations, does it place its office at the end of a branch line where it will have connectivity to the hub and then on to its destination, with perhaps some local connectivity, or does it build its base at the hub where it has direct access to the whole market.
- 4.15 If the UK lost its hub, then it would become an economic backwater. Geographically, the UK has an advantage, but this advantage is under threat as flights become able to bypass the UK. Dubai, has realised that eventually the oil will run out. They have therefore invested heavily in ensuring that the nation maximises the potential of their geographical position as the gateway to the Middle East, Asia, Africa and now with

---

<sup>33</sup> Source BAA passenger survey

the advent of longer range aircraft, northern, central and southern continental America.

- 4.16 The UK hub is under threat as it is losing ground to its European rivals and to those further afield. Frankfurt, for example, will not only have four runways by 2012 but it also hosts a high speed rail terminal providing access to the rest of the network. Frankfurt is also the home of the European Central Bank and has good state sponsored surface connectivity. Amsterdam is now looking at plans to develop nine runways! Charles de Gaulle already handles more air freight than the whole of the UK on its four runways<sup>34</sup>. Even Madrid with its four runways, has now become the principle base for the UK's flag carrier following the merger with Iberia.
- 4.17 Even if the third runway at Heathrow had been give the go-ahead, this would only have provided the UK with a temporary solution. None the less, this additional capacity could still provide around €6.1billion of benefits to the UK economy between 2020 and 2080<sup>35</sup>. A new hub to replace Heathrow would have even greater benefits to the UK economy and could feasibly provide employment for over 150,000 employees.

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

- 4.18 Unite believes that transfer passengers contribute significantly to making a route viable. In May 2010<sup>36</sup>, 36.4% of all passengers, changed planes at Heathrow. Their presence also increases the size of the potential market for airline services from the hub. BAA estimate that, on average, their net retail income per passenger in the first six months of this year was worth £5.59 a head<sup>37</sup>.
- 4.19 The number transiting the hub is also important but not as important as transfer. According to statistics from the CAA the number of passengers transiting via Heathrow has been on a steady decline since 2002 principally due to what has become known as Heathrow hassle. In June 2002, 29,000 passengers transited Heathrow. By June 2011 the total number transiting via Heathrow in that month had declined to just 4,000. In the same month 6,500 transited Schiphol<sup>38</sup>.
- 4.20 To reduce the amount of hassle, passengers tend to try and utilise their local airports for all flights. If a direct service is not available at the time when they want to fly, a passenger will then consider a connecting service with a short stop-over only after looking to see if there is a direct flight from an airport a few extra miles down the road.

---

<sup>34</sup> See Appendix 5

<sup>35</sup> [http://www.economist.com/node/18926285?story\\_id=18926285&fsrc=rss](http://www.economist.com/node/18926285?story_id=18926285&fsrc=rss)

<sup>36</sup> the last month for which data is available

<sup>37</sup> Source BAA

[http://www.baa.com/portal/page/BAA%20Airports%5EMedia%20centre%5ENews%20releases%5EResults/f9a477e777661310VgnVCM10000036821c0a\\_/a22889d8759a0010VgnVCM200000357e120a\\_/](http://www.baa.com/portal/page/BAA%20Airports%5EMedia%20centre%5ENews%20releases%5EResults/f9a477e777661310VgnVCM10000036821c0a_/a22889d8759a0010VgnVCM200000357e120a_/)

<sup>38</sup> <http://www.schiphol.nl/SchipholGroup/Company1/Statistics/TransportAndTrafficStatistics.htm>

- 4.21 The next major factor in determining which airport to use is the cost of the ticket. If there is only a marginal price difference between flights and only a limited amount of hassle involved with the cheaper option, it will be the cheaper option that wins.
- 4.22 Airlines use hub airports, so that they can access a wider market for customers. Frequent direct flights to each destination are not financially viable from a point to point airport due to the restricted size of their market. A hubs market place encompasses every airport in the world within the range of current aircraft designs. Consequently, without transit and transfer passengers, frequent services would not be possible at such a low cost.
- 4.23 The removal of frequent flights, would mean that business customers would need to wait until there was a service, which in the case of some services, could be on a once a week basis. If a business customer wants to trade with a customer, being stranded for a week would open the door to competitors from other nations.
- 4.24 Internet and teleconferencing does have its place in the business community, but it cannot replace the face to face meeting. This is especially true in the financial industry, due to the preference for face to face meetings in secure locations, when talking through financial matters. This is why, around the world, you find large financial communities near hub airports.
- 4.25 It is highly likely that, should Heathrow lose its position as a major global hub, along with it will go the European head offices of the financial industry. Our ability to speak English gives us an advantage, but not one which can replace connectivity.

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

- 4.26 By definition a hub is the centre from which the spokes radiate and a point to point airport provides access to the destination. Unite believes that you cannot have more than one true hub in a country unless there are several hundred kilometres between them.
- 4.27 A point-to-point airport can economically sustain a limited number of direct flights from a host city to a range of destinations on a one or two flights a day basis at best, due to the limited number of passengers wishing to utilise that route. In some cases the best it could provide is a once a week flight to a destination. They also provide feeder services to hubs from where passengers can get to the destination of their choice, when they want to get there. As outlined earlier, to make routes viable, an airline needs to attract a critical mass of passengers, to enable them to fill an aircraft with sufficient range to reach the destination without a stop off for fuel.
- 4.28 British Airways has managed to create a business-only daily service from London City to New York. The aircraft does not have the normal

compliment of seats to save weight and has to refuel in Ireland as it does not have the range to complete the journey direct on the fuel load it can utilise to get out of City airport, due to the length of the runway. Given the location of City airport, this service has proved to be popular in the business community despite the elevated price of a ticket on this route.

- 4.29 A hub, in contrast, acts as the focal point to bring together passengers from all over the world onto flights to a single destination. As such it provides the airline with a significantly greater market place for its services. As a result more marginally profitable frequent services can be accommodated.

**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?***

- 4.30 Unite does not believe that the idea of a 'virtual' hub is a workable solution. For such a plan to work there would need to be a seamless and fast transit of passengers from one flight to another so that it would attract the transfer and transit passenger, in addition to the transfer and transit freight.
- 4.31 Due to the need to ensure that there are significant distances between arriving and departing aircraft, there is a technical requirement to have a significant minimum distance between airports. Consequently, a virtual hub would add a significant amount of additional surface travel time to any journey for the transit or transfer passenger/freight.
- 4.32 An airside to airside connection would have significant security problems in ensuring that passengers would not have the opportunity to illegally enter the country, or indeed access a flight without passing through security. Passenger luggage would also need to be transferred seamlessly and over such distances the only realistic option would be a connecting flight. Providing such flights would, of course, eat into the airports capacity and not be environmentally friendly.
- 4.33 A rail connection between airports could only realistically operate from land side to land side. The logistical problems and costs associated in providing such a direct rail connection between the airports around London for example would be significant. In addition any passenger utilising such a service would need to transit through immigration, baggage reclaim, catch the train or bus and then go through check-in and security, all of which will add to the hassle factor. Transiting air freight would also need to be released from the secure area and checked again before it is allowed to enter airside at the other airport.
- 4.34 In addition, every passenger transferring would also need to have a visitor's visa to come into the UK. At £75 a head, this would be a significant barrier. Without such a visa there would be nothing stopping the passenger entering the country once land side.

- 4.35 When you compare the degree of hassle that would be involved in such a transfer through a virtual hub, when compared to the seamless transfer seen at a rival hub such as Charles de Gaulle or Schiphol, you realise that such an idea would drive away custom, reduce the size of the market for airline customers and therefore reduce the country to an economic back-water.

***Could another UK airport take on a limited hub role?***

- 4.36 Unite believes that Manchester is already providing a limited hub role as is Edinburgh. In terms of air freight, this is happening at East Midlands and Stansted. The problem with the provision of a global hub is that as the name suggests there can be only one in an area.
- 4.37 If the country's hub is located outside of the state capital it does so by distancing the industrial heart from the administrative centre. In Germany there are two hub airports. Frankfurt in central Germany, serves as the country's financial centre. Not only is this nexus the largest in Europe but it also plays host to the German Federal Bank, the Frankfurt Stock Exchange and the European Central Bank.
- 4.38 Munich to the south of the country is the third largest city but has the strongest economy and the lowest rate of unemployment. The Munich hub does not handle anything like as many passengers, however, primarily due to the level of surface connectivity and location. The popularity of Munich has been growing of late but this was principally due the capacity issues at Frankfurt. With the advent of the new runway, it is likely that the growth of Munich will be stalled as capacity is released in Frankfurt. This has not stopped Munich obtaining approval for a new runway.
- 4.39 In France the growth of the financial sector in Paris has been stifled to a degree by the level of taxation and the language barrier. None the less it still is a major financial hub.
- 4.40 Having two hub airports in the London area has been tried and was found to be unworkable, as airlines chose the airport with the greatest capacity and hence market. Gatwick still deals with transfer and transit passengers but due to the lack of frequency of onward flights, it does not attract anything like the volume.

***What would be the benefits and other impacts?***

- 4.41 Unite believes that the benefits of having a second hub can only be realised if there is the critical population, demand and distance between the main hub and the secondary to make it work. If a second hub airport could be sustained, it would provide the industrial economy of the area with a significant boost in terms of ease of access to the global market.

- 4.42 Unite believes that realistically, Manchester is the only airport currently capable of becoming a second hub, due to the existence of its second runway and large local populous. It is, however, unlikely to attract the volumes needed to attract the range of airlines and the necessary level of passengers to provide any relief from the congestion at Heathrow.

## **5 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?**

- 5.1 As a spokesman for Manchester airport put it recently<sup>39</sup> *"It is not realistic to assume that someone in Kent will come to Manchester to fly to Dubai. But it is realistic to say that someone in Sheffield could choose Manchester to fly to New York."*
- 5.2 Unite does not believe that regional airports can absorb excess demand pressures from constrained airports without constraining the potential growth of the UK economy significantly. The key factor in making air routes viable are, frequency, cost and demand.
- 5.3 To make a journey through one of these alternative cities financially viable, the price differential would need to be significant to overcome the hassle of the additional transfer time. Adding such a hassle factor would, however, significantly increase the potential of a business customer going elsewhere.
- 5.4 One only has to look to the Ryanair model of travelling from somewhere near one city to somewhere near another to see that such an option is only viable in the low cost market and does nothing to enhance the reputation of the country as a centre for business.

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

- 5.5 Unite believes that the only real way of encouraging a switch from domestic air to rail would be to make the journey as price and hassle free as possible. Current proposals for HS2 to go from Manchester to somewhere near the rail hub in Birmingham, or to somewhere near Heathrow, or to somewhere near the HS1 station in central London falls very short of this mark.
- 5.6 To recover the cost of HS2, Unite believes the cost of the service will need to be considerably more expensive rather than comparable to air travel or even the conventional rail service, unless it is operated and maintained as a publically owned body, operated on a not for profit basis or heavily subsidised.

---

<sup>39</sup> <http://www.telegraph.co.uk/finance/comment/kamal-ahmed/8770785/The-aviation-hole-in-George-Osbornes-growth-plan.html>

- 5.7 Conventional rail services simply do not have the capacity to handle the future demand for customers, let alone any additional load factor drawn from those that would currently fly between destinations. Such limitations would also compromise the growth in demand for rail freight. Consequently, Unite believes that the additional capacity released with the addition of HS2 capacity is vital. The devil is in the detail, however, and Unite has considerable concerns of the details of the proposals set out by HS2 Ltd.

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

- 5.8 Unite believes the maximum benefits from high speed rail would only be realised if the network connected the main airports and main transport hubs to each other. Ideally the line should connect directly to these transport hubs, and short stretches of conventional rail used to connect to city centres or other important locations.
- 5.9 Without a direct connection to the high speed line, at the airport, it is unlikely that a passenger will elect to utilise a high speed rail option. Equally if the journey by rail is longer than the equivalent journey by air, the passenger will tend to choose the flight if the cost is about the same. Environmental education may alter this position to some degree but the key factor will be cost.
- 5.10 Unite believes that by the time the high speed line is connected to Heathrow under current proposals, the capacity it could have released would be immediately filled. Even if the line was to open today, the capacity released would be consumed by the demand for slots at the airport. This can clearly be illustrated by examining how quickly the capacity released by ending the flights to Durham Tees was taken up.

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

- 5.11 Unite believes that the rebalancing of the economy would need significant incentives to encourage businesses to develop in the regions. The existence of a regional airport in that location can help if it has good connectivity to the capital and the hub.
- 5.12 There are two very clear example of this in recent times. Plymouth Airport, which has been around since 1925, is on the verge of closing as it has lost its connection to Gatwick. The airport highlighted that with less than 100 people now using the airport it has become a loss making operation.
- 5.13 As highlighted previously, Durham Tees airport saw a drop of 60% of its business when it lost the connection to Heathrow. Whilst there are flights from Durham which connect at alternative hubs in Europe these

services can also be obtained from other regional hubs. As a consequence, the critical mass of customers has been lost for further development. The airports management have warned us that unless passenger numbers increase the airport may close.

- 5.14 Unite believes the provision of a third runway at Heathrow would have increased the capacity at the London hub to enable more regional development and rebalancing. It is clear that this option has been blocked for political reasons, however.

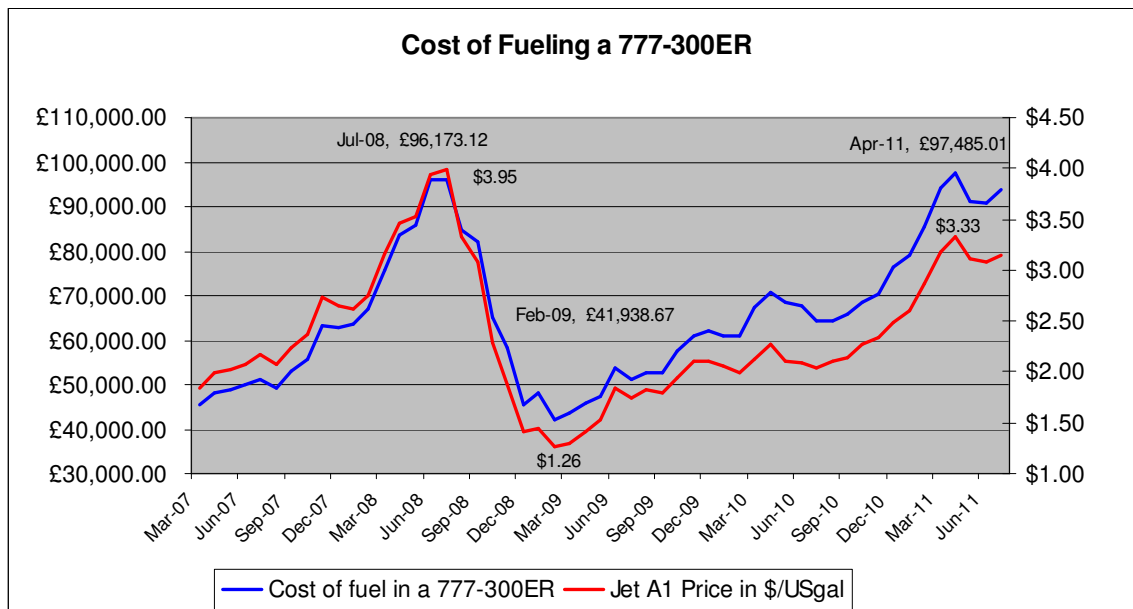
## **6 Making better use of existing capacity**

### ***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?***

- 6.1 Unite believes that the promotion of competition between airports is like trying to promote competition between bus stops or train station platforms. The basic economic drivers of supply and demand mean that airports need to charge significantly less than the hub to attract business. Additionally, due to the range of flight destinations provided, hubs have global market access which regional airports cannot even try to emulate unless there is the demand from enough of the populous.
- 6.2 Unite believes that regulation of the non hub service airports over their charges only serves to pile pressure upon the workers' terms and conditions. In the end this only reduces the level of service provided and the attractiveness of regional airports.
- 6.3 Unite believes that regulation on slot availability by type of operation could be a far more effective way of redistributing the benefits of a hub to the regions, but it would create even greater capacity problems. As things stand the slots at an airport are provided to an operator and it is up to the operator to determine the service they provide. If an airport had a series of slots which could only be utilised if they were used to connect to a UK regional airport, then the airlines would provide the services to fill those slots, but only if it made financial sense to do so. It is highly doubtful that there would be sufficient demand for a flight from Wick airport or St Just, for example, to Heathrow.
- 6.4 Regulation of slots could ensure that there is adequate capacity in the system to enable the airport to cope better with delays and other incidents as well as control or even reduce the level of emissions from aircraft using the airport. Regulation of slot utilisation would promote the use of regional airports, assisting in the economic development of these regions but it would also create a political and environment problem by promoting domestic aviation over surface transport options.

**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?**

- 6.5 Unite believes that additional flights should only be allowed, if they can be accommodated within the carbon footprint of the airport. Significant reductions in emission are being achieved due to a combination of technical innovation and changes in working practices.
- 6.6 The drive to reduce emissions has significant financial benefits for the airlines as it reduces the volume of fuel required to move passengers and air cargo from A to B. Due to the rising price of a barrel of oil, and the relative strength of the dollar and Sterling, the cost of Jet A1 fuel has rocketed. The chart below shows how much it costs to fill a Boeing 777-300 ER aircraft from empty. Given the need to carry an emergency supply to provide the capacity to divert, if the destination airport is closed, it is unlikely that such an aircraft would ever run dry.



Source: - Airline Business reports on the average monthly fuel costs and US exchange rates provided by as prices of Jet A1 are normally quoted in USD per barrel.

- 6.7 As can be seen from this graph, the fuel cost to UK aviation has grown significantly, given the variation in the exchange rate between the US Dollar and Sterling. The combination in exchange rate and the climb in fuel price has resulted in a situation where British aviation faces fuel costs around the level last seen at the high of the fuel crisis of 2008 when several airlines went bankrupt. It is only as a result of mergers and a greater level of code sharing that the industry has so far managed to weather this storm.
- 6.8 Unite believes that capacity at the majority of the UK's airports is not an issue in the short to medium term. The only area where capacity is at a premium is in the South-east, particularly at the Heathrow hub and potentially at Gatwick. It is unlikely, however, that passengers, especially from the business communities will, start travelling hundreds

of miles to get to an airport. As a result, Unite believes that international businesses will move either from the south-east or more likely from the UK.

- 6.9 The EU transport white paper suggested that there should be a drive to increase the penetration of biofuels, till it accounts for 40% of the aviation fuel requirements in this time scale. If this is achievable, there will be a further possible increase in sustainable aviation capacity growth.
- 6.10 Predictions based on previous aviation growth rates, suggest that demand for flights will triple by 2050 leading to an increasing gap between what is possible to accommodate environmentally and demand. None the less even with a 55% growth in passengers, (if applied equally throughout the UK) it would result in enough demand to fill an additional three runway airport. If additional capacity was applied where it is needed most, this new airport would have to be even larger.
- 6.11 As highlighted earlier, NATS has made it clear that due to constraints on airspace availability in the South East, that it would be impossible to accommodate an additional airport. Consequently to help meet the sustainable demand, Unite believes that a new four or five runway hub airport will be required by 2050.
- 6.12 Unite believes that given the delays in planning and the almost guaranteed level of objections that will be raised, the planning for such a facility should already be in the long term plans of government. One has only to look at the planning delays faced by Terminal 5 and the ensuing chaos that occurred, to see what happens when you try and get more capacity out of a facility not designed for such numbers.
- 6.13 Unite believes that predicted demand can in no way be met in the South-east, under the current policy of zero runway growth. Consequently there will be a forced migration of customers further afield to obtain flights from either regional airports or potentially from airports in Europe. Paris, Charles de Gaulle is after all only a Eurostar train ride away.

***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?***

- 6.14 Unite believes that put simply it would be impossible to support Heathrow's status as a hub without more capacity.
- 6.15 Additional capacity could be realised to a limited degree by allowing Mixed Mode operations at Heathrow. Runway alternation provides a period relief for residents under the flight path from the noise of landing and departing aircraft directly over head. However, such rest will end if Mixed Mode is adopted, leading to a consequential increase in complaints from residents. Unite therefore believes that Mixed Mode

should only be used for a limited time, whilst the third runway or any replacement hub is built.

- 6.16 Unite believes that given aircraft are getting far quieter than they were in the days of the Cranford agreement, the removal of this requirement is not unreasonable, given the governments ban on a new runway and the environmental benefits that will be gained by permitting aircraft to land and depart more swiftly. To fully utilise departures to the east from the northern runway would require construction of a new holding area.
- 6.17 By reducing stacking and the queuing of departing aircraft, fuel burn amounts can be reduced significantly. This reduction in the volume of fuel burnt could accommodate a sizable increase in the number of flights into the airport without increasing the volume of carbon released. It has been estimated that an aircraft queuing on the tarmac for 40 minutes will burn enough fuel to fly at cruise altitude from above London to New York.

***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?***

- 6.18 Unite believes that delays and cancellations are the fastest way to push airline services and passengers to rival hub airports. Such a move will cause the cancellation of routes and eventually lead to the loss of the hub status. Any attempt to trade off resilience by reducing existing capacity is also a recipe for disaster, as it reduces the potential for frequent services which are the hallmark of a hub.

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

- 6.19 If capacity is restrained, the first thing to be lost is the internal connectivity. Unite does not believe it is realistic or sustainable to dictate to passengers that they need to travel hundreds of kilometres, by road or conventional rail to access an airport with the space to accommodate their needs.

***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?***

- 6.20 Unite believes that altering the slot allocation process will do little if anything to alter capacity issues. If anything a change to the process would only make the situation worse as it would force the majority of existing airlines to reduce the frequency of services. The existence of grandfather rights results builds in necessary spare capacity. This level

of spare capacity is vital to ensure that the airport does not grind to a halt for days if there is an issue.

- 6.21 Currently British Airways, who have the largest share of the allocation, cancel their internal services and those to more frequently served destinations first, in order to get the airport moving following an incident. If grandfather rights were not retained, then the right to utilise the slots could be lost and hence the airline might not be as co-operative.

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

- 6.22 Unite believes that regional access is key to maintaining the viability of the regional airports. If the issue is one left to the airlines choice over which airports to utilise, they will tend to utilise the route which is most profitable.
- 6.23 State sponsored flights should only be applied to the Scottish Highlands, where it provides a lifeline. It is difficult to see how a government could justify supporting an airline to persuade them to change their coverage in favour of a less profitable route, when capacity is at a premium. Lack of capacity and the need to utilise existing flights on the most profitable routes has been the traditional reasoning given by airlines for withdrawing services to regional airports.

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

- 6.24 Unite believes that there can be no justification in allowing general and business aviation to operate from congested airports. It is not reasonable to expect hundreds of passenger's flights to be delayed for a handful of passengers using a private aircraft.

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

- 6.25 Continuous descent (as described earlier) requires alterations to the available airspace around airports. Airspace management redesign can significantly reduce the level of emissions from aviation by an estimated 10%<sup>40</sup>.
- 6.26 The restriction on the use of military airspace also creates problems. At Heathrow, flights are required to climb steeply to altitude to avoid, entering RAF Northolt military airspace. Such a climb rate requires maximum thrust to be deployed which is far from the most efficient and environmentally friendly method of getting an aircraft to altitude. A better option allows aircraft to climb slowly to altitude, conserving fuel and reducing emissions.

---

<sup>40</sup> Source NATS

- 6.27 As highlighted earlier, the redesign of European airspace and removal of the price differences between the costs of utilising each member state's airspace can make further significant environmental savings. Such price differences create an environment where burning more fuel to use Tango routes over the sea, becomes potentially more cost effective than flying in a straight 'great circle' route<sup>41</sup>. Unite would therefore welcome the Single European Sky concept.
- 6.28 A high-level European Commission task force has recently concluded that delaying the implementation of the Single European Sky would increase its cost by €150 billion, add 150 million tonnes of avoidable carbon dioxide into the atmosphere and adversely affect GDP across the region. The Commission's task force estimate that the total cost at the moment of moving to a Single European Sky would cost around €30 billion, 64% of which will need to be spent on updating airborne equipment. Unite believes that any move to sell off NATS will only hamper this process.
- 6.29 In the South East, airspace utilisation is already at a premium. As highlighted earlier, it is highly unlikely that any new airport facilities would be possible without causing one of the existing airports to close.
- 6.30 Unite believes that one of the additional burdens on airspace management is the need to provide for aircraft stacking. There will always be a need to regulate the space between following aircraft, to ensure that there is a minimum level of turbulence from following aircraft. Efforts should be made, however, to reduce the level of stacking to a minimum.

## 7 Climate change impacts

### ***5.30 What do you consider to be the most significant impacts of aviation, including its non-CO<sub>2</sub> emissions, on climate change? How can these impacts best be addressed?***

- 7.1 Unite believes that the most significant non-CO<sub>2</sub> impact of aviation on climate change is caused by the creation of contrails followed closely by the indirect effects of releasing NO<sub>x</sub> at cruise altitude. This conclusion is based on the findings of several studies conducted by the Omega group.
- 7.2 As highlighted earlier, a reduction in cruise altitude would avoid the aircraft encounters with super saturated air leading to a reduction in the development of contrails. The lower altitude would cause the release of NO<sub>x</sub> to reduce more methane and not produce as much ozone, significantly reducing the total level of non-CO<sub>2</sub> impacts of aviation. However, practically the development of smaller wings is unlikely to occur soon given the lifespan of existing aircraft.

---

<sup>41</sup> The "great circle" is the shortest line between two points on the globe, following a circular path which if extended would return to its' point of origin.

**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?**

- 7.3 Unite believes that aviation can make reductions in its emissions and return the total level of emissions produced down to the levels seen in 2005 by 2050 despite a trebling in passenger numbers globally. To do so, however, would require significant investment. It is unlikely that, given the growth projections, it will be possible for aviation to reduce its sectors' total emissions before 2020 due, in part, to the longevity of the existing fleet and projected increasing demand.
- 7.4 The aviation sector becomes part of the European Emissions Trading Scheme from January next year. As such it will be required to purchase an increasing volume of certificates from the carbon market, making the price of carbon high enough to incentivise change, not just in the sector, but also elsewhere.
- 7.5 In the medium and long term, aviation will continue to drive the innovation into alternative fuels and operational alternatives. Given the level of change that has occurred so far, it is highly likely that the industry could cut emissions per passenger to a third of the current situation by 2050. This reduction is considerably higher than a large number of sectors projections.

**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?**

- 7.6 Unite believes that given aviation is a global industry whose base of operations is principally in international airspace, that the actions of one nation alone can do very little to effect the industry. It is only possible to directly control the aviation industrial emissions problem by working together. A concerted effort by all nations does not disrupt the market for aviation, nor does it create perverse outcomes.

**5.33 What is the best way to define and quantify the UK's share of the CO<sub>2</sub> emissions generated from international aviation?**

- 7.7 Unite believes that the best way to quantify the emissions generated from aviation is to look at the volume of Jet A1 and other aviation fuel burnt by commercial aviation and multiply that by the amount of CO<sub>2</sub> produced. i.e.

**Kerosene (Jet A –1)**

Density = 3066 grams/gallon

Percent of carbon by mass = 86.0%

Mass of CO<sub>2</sub> from one gallon of gas = 1 gallon × 3.066 kg/gallon × 86.0% × (44.0g CO<sub>2</sub> / 12.0g C) = 9.669kg

## Aviation Gasoline

Density = 2708 grams/gallon

Percent of carbon by mass = 86.0%

Mass of CO<sub>2</sub> from one gallon of gas = 1 gallon × 2.708kg/gallon × 86.0% ×  
(44.0g CO<sub>2</sub> / 12.0g C) = 8.539kg

- 7.8 The definition of what is the UK share of the CO<sub>2</sub> has to be one which shares this total between the country of arrival and departure. Using a definition which only counts the emissions in UK airspace or includes the whole journey only serves to distort the calculation in order to justify an argument.
- 7.9 Due to the provisions of the Chicago agreement, this calculation cannot be utilised to place any form of national taxation or levy on international flights.

### ***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?***

- 7.10 Unite believes that with the level of current technical knowledge, it will be possible to see production of biofuels exceed a 10% drop in replacement of Jet A1 fuel by 2030. If more investment is ploughed in to the industry, the technology is there to create more.
- 7.11 BA is already working with the Solena Group to obtain 5% of its fuel from an advanced Fischer Tropsch processing plant in east London. This facility will use 500,000 tonnes of London's waste destined for landfill to create 20MW of Electricity, heating for the local community, biodiesel and bio naphtha as well as the bio-Jet A1 and leave behind no ash residue.
- 7.12 There are significant volumes of waste biological material that is either dug out of canals and rivers during clearances or left to rot by farmers which could feed such a facility alongside the biological waste from other towns and cities. Such a scheme could remove a substantial burden on local authorities to find and pay for landfill. In addition such facilities could help improve the UK's energy profile whilst reducing the large volumes of methane released each year from farming.
- 7.13 If investment was put into the canals, this waste could be moved in the most environmentally fashion to these plants, without adding to the congestion on the roads. The barges needed to move the waste could also benefit from utilising the bio diesel produced to power the network. This proposal could hold the potential to significantly improve the environmental potential of British aviation whilst helping to preserve British industrial history and improving the security of energy for the future.

**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?**

- 7.14 Unite believes that due to the ever shrinking supply of oil, the price and the environmental impact, that there is little need for government intervention in promoting the use of sustainable biofuels. Airlines are already funding a considerable amount of effort developing alternatives.
- 7.15 It has been shown that aviation fuel derived from biological material produces around 1.1% more energy than conventional supplies derived from crude oil<sup>42</sup>. Whilst on the surface this may not appear to be very much, this is a significant when you consider the volume of fuel burnt on a single flight.
- 7.16 Whilst microalgae varieties are high in oil content they present many challenges with respect to harvesting and cultivation in a low cost manner. Macroalgae varieties present low-cost cultivation and harvesting possibilities, but most species are low in lipids<sup>43</sup>. It is possible, none the less, to derive biofuels from macroalgae using cellulosic fermentation methods, gasification or anaerobic digestion. Thus, both micro and macroalgae are potential feedstock for biofuels. In both cases, the growth rate is enhanced if grown in a CO<sub>2</sub> rich atmosphere.
- 7.17 Algae varieties are also well-known bioremediation agents, especially good at removing nutrients and toxins from waste and sewage water providing a potential purification method. Some varieties can be used to desalinate water sources, increasing useful water supplies rather than become a burden on crop production. Bioengineering can also design a variety of algae to produce hydrogen<sup>44</sup>.
- 7.18 Where the Government could assist is in the planning for new facilities, further funding into macroalgae farms, and the roll out of other methods that do not have a detrimental impact on food production or fresh water supplies. Once developed this industry could hold the potential to turn the UK from a major importer of energy into an exporter.
- 7.19 Plants and especially the various varieties of algae, tend to flourish in a CO<sub>2</sub> rich atmosphere, where they absorb the gas and release oxygen. Unite believes that it may be possible to develop a method of using algae or other plant growth as a method of scrubbing waste CO<sub>2</sub> from energy generation and industrial processes.
- 7.20 In a recent journal it has even been suggested that CO<sub>2</sub> from industrial plants could be utilised as the source material from which synthetic

---

<sup>42</sup> <http://greenaviation.org/news>

<sup>43</sup> A broad group of naturally occurring molecules which includes fats, waxes, sterols, fat-soluble vitamins

<sup>44</sup> <http://www.robaid.com/tech/researchers-desalinate-water-produce-hydrogen-and-treat-wastewater.htm>

fuels could be manufactured<sup>45</sup>. Such technology holds significant potential which would enable the UK to still utilise its vast reserve of coal for example.

**5.36 Which technologies (e.g. for aircraft and air traffic management) have the most potential to help reduce aviation's CO<sub>2</sub> emissions (noting potential trade-offs with local environmental impacts)?**

- 7.21 Unite believes there are several innovations in aircraft technology which have potential. Winglets for example increase the effective lift efficiency of a wing without a subsequent increase in drag. As a result fuel burn can be reduced by as much as 9%<sup>46</sup>.
- 7.22 Every 1% reduction in the landing weight of an aircraft creates an equal 1% drop in the volume of fuel required to get that aircraft to the destination. Wireless entertainment systems are one solution which removes the need for miles of cabling throughout the passenger cabin. Operating at 60GHz such a system would not interfere with onboard systems<sup>47</sup>. The use of new composite materials instead of traditional metal throughout aircraft can also reduce the weight. This approach to aircraft design has already been adopted by air framing companies.
- 7.23 Another way to reduce fuel consumption and reduce injuries is to place a limit on the weight of luggage. Currently airports charge the airline by the bag not by weight. As a consequence there is a perverse incentive of asking customers to put their entire luggage into a single bag.
- 7.24 The Health and Safety Executive Aviation Industry Committee agreed some time ago to reduce the maximum weight of checked-in baggage from 32 to 23 kilograms per item. IATA, the airline industry, has backed this call. None the less some airlines allow bags weighing up to 40kgs to be carried.
- 7.25 An HSE Research Report, published on 5th January 2009, based on the findings of a collaborative project at East Midlands Airport, concluded that introducing an international single item baggage weight limit of between 23 kg to 25 kg is a step that would have a positive effect in reducing the risk of handling related injury or ill-health to baggage handling workers.
- 7.26 The Culvenor (2007) reported that on average a handler moves 9 tonnes of luggage (maximum 13 tonnes). That is about the weight of two fully grown elephants. This study was conducted at a relatively quiet airport, so it is highly likely that the weight of bags moved at one of the major airports is far higher.
- 7.27 If a passenger is only bringing a limited amount of luggage there is also the tendency to squeeze their luggage into a carry-on bag. With the

---

<sup>45</sup> <http://www.alternative-energy-news.info/synthetic-fuel-co2-solar-energy/>

<sup>46</sup> <http://www.nasa.gov/centers/dryden/about/Organizations/Technology/Facts/TF-2004-15-DFRC.html>

<sup>47</sup> <http://www.flightglobal.com/articles/2010/01/26/337588/a-60ghz-standard-will-enable-wireless-in-flight-entertainment-say.html>

limits on hand luggage removed, Unite has significant fears that the weight of passenger hand luggage could exceed the maximum safe shelf weight limits for the overhead luggage bins.

- 7.28 Unite would therefore suggest that maximum bag weight limits should be reintroduced through legislation. This would encourage passengers to pack less, keeping the weight down and hence reducing emissions.

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

- 7.29 Unite believes that with fuel prices reaching an all time high and the introduction of emissions trading, there is little need to add any additional incentives.

**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)?**

- 7.30 Figures from Boeing show that aircraft burn up to ten times more fuel per minute while taxiing and waiting to depart than they do at altitude. Consequently if this period could be reduced it could have a significant impact on lowering the total volume of emissions.

- 7.31 One method described earlier would be to increase runway capacity so that only the absolute minimum time is spent in a queue waiting for departure with all engines running. Another option is to ensure that any delays to departure are taken at the departure gate. Such a move would create other problems at busy airports, leaving aircraft to park on the apron as the gates are occupied by queuing aircraft.

- 7.32 Some airlines do not like to pay for electrical hook ups at airports to power on board systems during turn-around. As a result these airlines keep their engines running, which adds significantly to the pollution from the airport and creates a dangerous working environment for ground staff. Unite believes such practices should be banned.

- 7.33 A more radical option, which has been suggested by Virgin Atlantic, is to introduce a fleet of electrically powered tugs to tow aircraft out to the end of runways and collect them for the journey in to the stands. Such a proposal would require considerable investment and a redesign of taxiways to incorporate a holding area for aircraft engines to be started and for aircraft to be collected.

**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)?**

7.34 Unite believes that given the average seat occupancy is already well above 74% on the majority of flights, it is unlikely that there could be much room to improve the load factor levels without increasing the level of double booking of seats. In any event airlines only make money if the load factor is high, so there is little scope for increasing the number carried per plane without reduced frequency.

Airline	Load Factor	Airline	Load Factor
IAG Group <sup>48</sup> Oct-Dec 2010	78.0 %	Air France Oct-Dec 2010	81.4 %
Lufthansa Year 2010	79.3%	SAS Year 2010	74.2 %
Ryanair Oct-Dec 2010	85.0 %	easyJet Oct 10-Mar 11	87.0 %
American Year 2010	81.9 %	Continental Jul-Sep 10	85.9 %

Source: Company financial reports

7.35 Unite does not believe increasing taxation is an effective way of forcing a modal shift, particularly where it is carried out in isolation. Air Passenger Duty (APD) is already the highest level of taxation in the world and is becoming a barrier to trade and tourism. Plans to increase taxation further in the next budget by double the rate of inflation at a time when the industry is being hit with the price of carbon under the EU ETS, will only reduce the public's ability to afford to travel.

7.36 A recent Frontier Economics study estimated that the government's current APD proposals could have a total impact on the wider economy of up to £2.6bn of GDP lost per year<sup>49</sup> and cause a further reduction in the numbers visiting the UK.

7.37 Unite believes that modal shift will only occur if there is a realistic hassle free alternative which can allow the journey to be completed in a similar time frame.

## 8 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?***

8.1 Unite believes that the most obvious negative impact of aviation in an area around an airport is noise. This issue is being combated as highlighted earlier by a combination of technical innovations in aircraft design and improved sound insulation. Airports already have an obligation to deal with blighted properties and have a reasonable record in dealing with issues that arise. None the less this could always be improved.

<sup>48</sup> BA and Iberia

<sup>49</sup> <http://www.frontier-economics.com/library/publications/frontier%20report%20-%20the%20impacts%20of%20proposed%20changes%20in%20air%20passenger%20duty.pdf>

- 8.2 Air quality is another issue, but studies into the level of NO<sub>x</sub> in and around Heathrow for example found that the highest levels were being generated by traffic on the perimeter and neighbouring roads.
- 8.3 The most positive effect on the local populous is the provision of almost zero unemployment, and a booming economy with a reduced burden on local authority budgets regarding housing and other benefits. The outcome of these economic benefits results in a high level of dependence on this facility and its supply chain. At the smaller regional airports, the economic benefits are reduced, especially if there are only a limited number of connections.
- 8.4 The most important connection for a regional airport is one linking to a hub airport closely followed by a connection to London. This is clearly illustrated by the decline in passenger traffic at Durham Tees and Plymouth airports as highlighted earlier. These losses have considerably reduced the saleability of regions economically to international businesses as a base of operations.
- 8.5 This decline has been mirrored globally but not equally among airline sectors. As can be seen below, the leisure market has seen the smallest return per passenger kilometre and has lost the highest percentage of employees. In contrast there has been a 22.9% increase in the number of employees taken on by regional global airlines, but this has caused the average return to halve.

Airline type	Passengers (millions)	Change	Employees	Change	Nominal Yield US cents per Passenger Kilometre	Change	Number of Carriers which feature in the top 200 Passenger airlines
Leisure	54	2.7%	13,212	-22.2%	1.68	-0.5%	16
Low Cost	615	12.2%	139,298	0.6%	5.91	1.0%	49
Mainline	1,637	3.5%	1,018,640	-6.4%	5.75	-12.0%	109
Regional	216	5.7%	70,260	22.9%	4.09	-50.5%	26
<b>Total</b>	<b>2,522</b>	<b>5.7%</b>	<b>1,241,410</b>	<b>-4.5%</b>	<b>5.59</b>	<b>-11.6%</b>	<b>200</b>

Source: Airline Business – August 2011

**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?**

- 8.6 Unite believes that more can always be done to improve engagement on aviation issues, but there comes a point when the economic importance of the airport and the needs of the wider community have to be considered.

**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?**

- 8.7 Unite believes that the work of Airport Transport Forums and the existence of surface access strategies could be better promoted. Local authorities appear to be more interested in the needs of the motorist than the need to support what can often be one of the most important economic drivers in their area.
- 8.8 Promotion of existing connectivity could be better promoted, especially with regard to the existence of bus and coach services. Equally, investment is also needed into additional connectivity via rail and light rail services and, where it is economically viable, to high speed rail. Connectivity by public transport modes can significantly reduce the volume of road traffic around an airport by taking up to four road<sup>50</sup> journeys from the roads.

***If so, what and by whom?***

- 8.9 As the principle beneficiaries of the reduction in traffic, the enhanced connectivity and the reduction in carbon emissions, the funding for such promotion and investment, should come from a joint fund supported by central and local government and the airport owners.

**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?**

- 8.10 Unite believes that the idea of an envelope is a good one but focussing on noise would create an environment where the focus of aircraft design would move away from the reduction of carbon to the reduction of noise. Already the design of the airbus A380 has resulted in the aircraft emitting 2% more emissions throughout the entire journey so that it can keep its noise profile down when landing at airports.
- 8.11 If there is to be an envelope, the focus should be on emissions rather than noise. Focussing on emissions should then lead to reductions in emissions throughout the journey, not only at the airport. As air framing companies do not tailor-make aircraft for a particular route, the design of a future aircraft designed to make best use of an emissions envelope, will cause a subsequent reduction in emissions globally. Equally focusing on noise will see additional emissions released globally at a time when efforts should be focussed on fighting to reduce the carbon footprint of everyday activities.

---

<sup>50</sup> A relative or friend dropping a passenger off, driving home and then returning again to pick them up and take them home.

**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?***

8.12 Unite believes that ideally flights should be allowed to follow the most direct path possible to reduce emissions. Limiting flight paths due to noise will only add to the inefficient utilisation of the already congested airspace. Nothing can stir you from a sound sleep better than a sudden loud noise, however and consequently unite believes it is far better to have a constant low level hum than one that violently shakes you awake.

8.13 According to Professor's Stephen A Stansfeld and Mark P Matheson<sup>51</sup> exposure to transport noise disturbs sleep in the laboratory, but not generally in field studies where adaptation occurs. Studies of occupational and environmental noise exposure suggest an association with hypertension, whereas community studies show only weak relationships between noise and cardiovascular disease. Aircraft and road traffic noise exposure are associated with psychological symptoms but not with any clinically defined psychiatric disorder.

8.14 Their report concluded that objective sleep disturbance is likely to occur if there are more than 50 noise events per night with a maximum level of 50dBA indoors or more. In fact, there is a low association between outdoor noise levels and sleep disturbance. The evidence is mixed on the importance of both the duration and the frequency of components of sound and also the number of events involved in determining annoyance<sup>52</sup>. High frequency noise has been found to be more annoying than low frequency noise<sup>53</sup>. However, they report that few field studies have examined the effects of multiple environmental stressors.

8.15 Consequently Unite believes that provided there are adequate mitigation measures in place to reduce the noise levels in properties, and a continuous descent approach and continuous climb path is followed to reduce the noise foot print further, then there is only a limited need to place more restrictions on operational durations.

**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 NO<sub>x</sub>) through the implementation of new technology?***

---

<sup>51</sup> Writing in the British Medical Bulletin - <http://bmb.oxfordjournals.org/content/68/1/243.full>

<sup>52</sup> Fields JM. *The effect of numbers of noise events on people's reactions to noise. An analysis of existing survey data.* J Acoust Soc Am 1984; 75: 447–67

<sup>53</sup> Bjork EA. Laboratory annoyance and skin conductance responses to some natural sounds. J Sound Vib 1986; 109: 339–45

- 8.16 As highlighted earlier, Unite believes that there is enough encouragement and focus already on reducing emissions due to the rapidly increasing price of aviation fuel.
- 8.17 NO<sub>x</sub> emissions are potentially beneficial as they reduce the level of methane in the atmosphere. The problem with NO<sub>x</sub> is its tendency to create ozone particularly at altitude. If there is combustion at the sort of pressures and temperatures found inside an engine occurs, there will always be NO<sub>x</sub> emissions. The key is therefore to release the NO<sub>x</sub> in the right places (as indicated earlier).
- 8.18 The release of particulate matter tends to occur if there is not a complete combustion of the fuel, creating un-burnt hydrocarbons and carbon soot. The easiest method to deal with this is to ensure the engines are well maintained and cleaned regularly. The washing of jet engines can reduce fuel burn and hence emissions by as much as 5%.<sup>54</sup>

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

- 8.19 The global economy operates twenty four hours a day, 365 days a year and hence limiting flight operations from an economic perspective into the window of daylight in the UK is not beneficial as it reduces the accessibility of the UK market to the world and vice versa. However, Unite believes that a line has to be drawn to limit the impact on the sleeping patterns of the local communities somewhere.
- 8.20 Additionally, studies by the OMEGA group into the effects of condensation trails<sup>55</sup>, suggest that they are particularly damaging to the environment if they are created at night, as they can increase the blanket cloud cover and hence increase heat retention at night. The reverse is true, however, when it comes to condensation trails formed during the day. Consequently, it has been suggested that keeping flights to a minimum at night could help in combating the radiative forcing effects of aviation.
- 8.21 Unite is not suggesting that night flights should be banned but that a balance be drawn between the two which, in the light of the global recession and limits on capacity, should not place too big a restriction on access.

**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?***

---

<sup>54</sup> [http://www.v-c-s.org/sites/v-c-s.org/files/VM0013%20-%20Calculating%20Emission%20Reductions%20from%20Jet%20Engine%20Washing\\_26%20APR%202011.pdf](http://www.v-c-s.org/sites/v-c-s.org/files/VM0013%20-%20Calculating%20Emission%20Reductions%20from%20Jet%20Engine%20Washing_26%20APR%202011.pdf)

<sup>55</sup> <http://www.omega.mmu.ac.uk/understanding-the-climate-effects-of-contrails.htm>

- 8.22 Unite believes that by adopting a continuous descent approach path that the area effected by noise pollution will be minimised, as highlighted earlier. Combined with adequate noise insulation, this can protect residence from a significant proportion of this noise.
- 8.23 The major problem in combating noise is the residents themselves who compromise their insulation from aircraft noise pollution, especially during the busy summer period, by opening windows. The aforementioned report by Professors Stansfeld and Matheson, of University of London<sup>56</sup> concluded that most people exposed to chronic noise, seem to tolerate it, although they conceded that questionnaire studies suggest that high levels of annoyance do not decline over time.
- 8.24 Unite believes that a very significant proportion of the problem of noise pollution is one of individual perception as opposed to actual volume, the number of times residents are disturbed, or number of flights. It only takes one noisy aircraft flying low overhead to wake you in the middle of the night for a member of the public to become annoyed enough to indicate in a questionnaire that aircraft noise in general is intolerable.
- 8.25 Businesses often rely on night flights to provide the frequent flights and capacity needed to move time sensitive freight and passengers to their destinations. The growth of just in time, overnight deliveries of mail and the shipment of orders to improve customer satisfaction has lead to this demand. If there is a barrier put in the way of shipments arriving overnight by air, then it will simply be flown into an alternative airport and shipped by road. If this happens it could reduce the viability of some warehousing operations around airports and potentially the airport itself, whilst adding to congestion on the road network.

**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?***

- 8.26 Unite believes that given the restrictions on the physical capabilities of airports, particularly in the South East, reducing the availability of slots, can only lead to this policy becoming a barrier to trade. This barrier will become more acute as time passes given the predicted increases in demand levels.

---

<sup>56</sup> Writing in the British Medical Bulletin - <http://bmb.oxfordjournals.org/content/68/1/243.full>

## 9 Any other comments

- 9.1 Unite is a firm believer in the need to expand aviation capacity but only if this can be achieved in a sustainable fashion. Unite believes that the provision of new capacity will be needed to meet present demand and to secure the future of the UK as a trading nation. If the UK is to meet future demand decisive action is needed now.
- 9.2 A recent CBI report<sup>57</sup> called for greater investment in Britain's transport infrastructure to promote growth. The survey of businesses reports that:-
- 80% of firms report that the quality of energy and transport infrastructure has a significant impact on their future investment decisions;
  - 77% of firms see domestic transport networks as central to their business;
  - 50% of firms believe that the UK's transport networks have deteriorated;
  - 58% of firms rate the UK's infrastructure unfavourably compared to UK competitors.
- 9.3 In light of the above, Unite believes that the climate in the aviation industry is currently very grave and is in desperate need of supportive measures, rather than being treated as a cash cow and an environmental delinquent.

**Brendan Gold  
National Secretary  
Unite the Union  
Transport House  
128 Theobalds Road  
Holborn  
London WC1X 8TN**

For further information please contact Colin Potter, Research Officer in the Unite the Union, Research Department on 0207 611 2591, [colin.potter@unitetheunion.org](mailto:colin.potter@unitetheunion.org)

---

<sup>57</sup> <http://www.cbi.org.uk/ndbs/press.nsf/0363c1f07c6ca12a8025671c00381cc7/b16b857ef5070a6a8025790400318200?OpenDocument>

## Appendix 1 - Example prices of fares from Belfast and Dublin

Destination	Taipai	Manila	Kuala Lumpur	Ho Chi Minh City
Belfast	£3,374.80	£2,787.60	£2,818.12	£2,878.60
Dublin	£3,498.80	£2,880.88	£2,493.20	£3,170.60
	£124.00	£93.28	-£324.92	£292.00

Destination	Jakarta	Canberra	Wellington	Mexico City
Belfast	£2,697.56	£4,972.40	£5,183.37	£2,456.40
Dublin	£2,842.00	£3,961.60	£3,677.60	£2,258.80
	£144.44	-£1,010.80	-£1,505.77	-£197.60

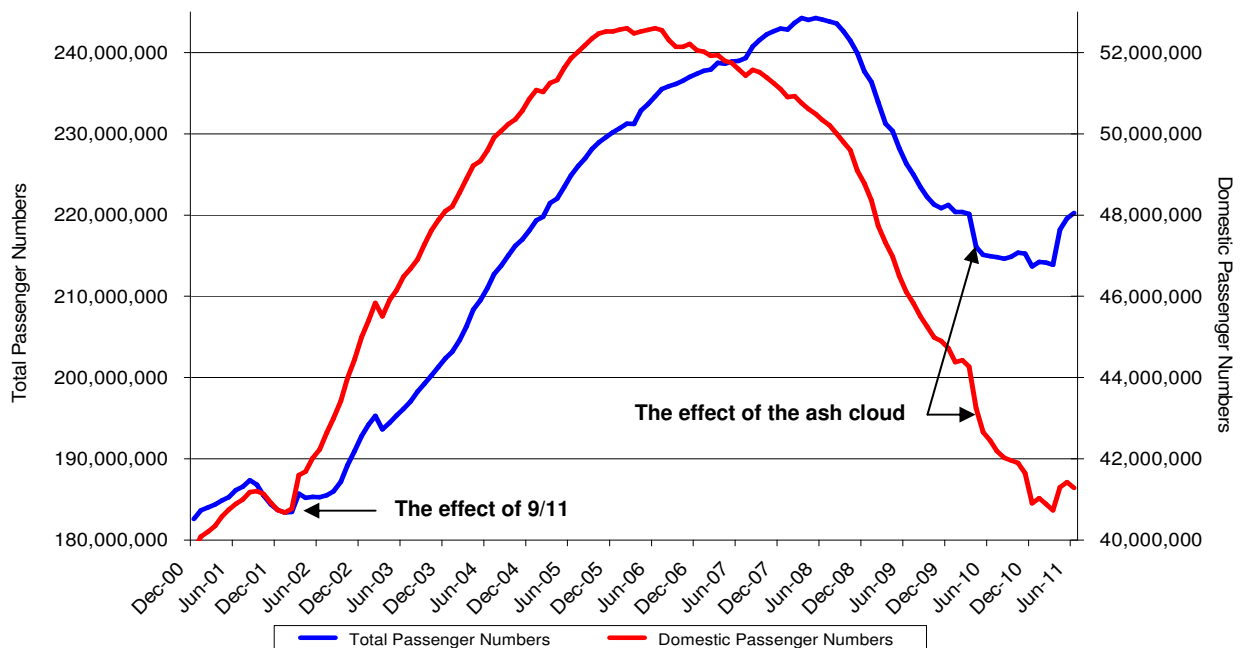
Destination	Kingston Jamaica	Nassau	Santo Domingo	Brasilia
Belfast	£3,112.80	£3,111.68	£3,255.48	£3,423.32
Dublin	£2,697.28	£2,810.24	£2,617.68	£2,949.16
	-£415.52	-£301.44	-£637.80	-£474.16

Destination	Buenos Aires	Cape Town	Abu Dhabi	Mumbai
Belfast	£4,283.64	£3,240.84	£2,127.20	£2,185.60
Dublin	£4,197.60	£2,634.80	£1,389.20	£2,043.60
	-£86.04	-£606.04	-£738.00	-£142.00

Destination	New Delhi	Guangzhou	Hong Kong	Beijing
Belfast	£2,108.40	£2,804.32	£2,839.40	£3,000.76
Dublin	£2,132.24	£2,996.80	£2,247.84	£2,241.20
	£23.84	£192.48	-£591.56	-£759.56

All fares are based on a family of four travelling on 1 October returning on 15 October 2011 booked via expedia.co.uk on 26 May 2011.

## Appendix 2 - Domestic and total aviation passenger numbers



Source :- CAA

### Appendix 3 - Percentage Decline in UK Aviation

Reporting Airport	2010	2009	% change 2010 to 2009	2008	% change 2010 to 2008
HEATHROW	65,881,660	66,036,957	-0.24%	67,054,745	-1.75%
GATWICK	31,375,290	32,392,520	-3.14%	34,205,887	-8.28%
STANSTED	18,573,592	19,957,077	-6.93%	22,360,364	-16.94%
LUTON	8,738,712	9,120,546	-4.19%	10,180,734	-14.16%
LONDON CITY	2,780,582	2,796,890	-0.58%	3,260,236	-14.71%
SOUTHEND <sup>58</sup>	3,583	3,948	-9.25%	44,075	-91.87%
<b>Total London Area</b>	<b>124,572,837</b>	<b>130,307,938</b>	<b>-2.27%</b>	<b>133,845,805</b>	<b>-6.93%</b>
MANCHESTER	17,759,173	18,724,889	-5.16%	21,218,995	-16.31%
EDINBURGH	8,596,715	9,049,355	-5.00%	9,006,702	-4.55%
BIRMINGHAM	8,572,398	9,102,899	-5.83%	9,627,589	-10.96%
GLASGOW	6,548,865	7,225,021	-9.36%	8,178,891	-19.93%
BRISTOL	5,747,604	5,642,921	1.86%	6,267,114	-8.29%
LIVERPOOL (JOHN LENNON)	5,013,940	4,884,494	2.65%	5,334,152	-6.00%
NEWCASTLE	4,356,130	4,587,883	-5.05%	5,039,993	-13.57%
EAST MIDLANDS INTERNATIONAL	4,113,501	4,658,151	-11.69%	5,620,673	-26.81%
BELFAST INTERNATIONAL	4,016,170	4,546,475	-11.66%	5,262,354	-23.68%
ABERDEEN	2,763,708	2,984,445	-7.40%	3,290,920	-16.02%
LEEDS BRADFORD	2,755,110	2,574,426	7.02%	2,873,321	-4.11%
BELFAST CITY (GEORGE BEST)	2,740,341	2,621,763	4.52%	2,570,742	6.60%
SOUTHAMPTON	1,733,690	1,789,901	-3.14%	1,945,993	-10.91%
PRESTWICK <sup>59</sup>	1,662,744	1,817,727	-8.53%	2,415,755	-31.17%
JERSEY	1,463,221	1,491,424	-1.89%	1,625,660	-9.99%
CARDIFF WALES	1,404,613	1,631,236	-13.89%	1,994,892	-29.59%
GUERNSEY	923,683	937,391	-1.46%	945,580	-2.32%
DONCASTER SHEFFIELD	876,153	835,768	4.83%	968,481	-9.53%
BOURNEMOUTH	751,331	870,754	-13.71%	1,083,446	-30.65%
EXETER	744,991	795,721	-6.38%	956,251	-22.09%
ISLE OF MAN	675,871	708,127	-4.56%	754,419	-10.41%
INVERNESS	530,213	591,397	-10.35%	678,776	-21.89%
NORWICH	425,821	430,594	-1.11%	583,056	-26.97%
CITY OF DERRY (EGLINTON)	339,432	345,857	-1.86%	439,033	-22.69%
NEWQUAY	320,194	386,870	-18.55%	466,448	-31.35%
HUMBERSIDE	283,191	336,649	-15.89%	427,669	-33.78%
SCATSTA	279,482	270,101	3.47%	243,087	14.97%
BLACKPOOL <sup>60</sup>	235,340	276,866	-15.00%	439,200	-46.42%
DURHAM TEES VALLEY <sup>61</sup>	226,209	289,464	-21.85%	656,620	-65.55%

<sup>58</sup> In 1967 London Southend Airport handled 692000 passengers and was one of the busiest airports in the London area.

<sup>59</sup> Preswick suffered significantly as a result of the downturn compounded by a reduction of Ryanair services

<sup>60</sup> In 2008 Ryanair withdrew its twice daily service from Blackpool to Stansted

<sup>61</sup> Durham Tees Valley decline not helped by the loss of Heathrow connecting flights

Reporting Airport	2010	2009	% change 2010 to 2009	2008	% change 2010 to 2008
KIRKWALL	141,399	150,343	-5.95%	149,508	-5.42%
SUMBURGH	140,129	140,714	-0.42%	156,948	-10.72%
PLYMOUTH <sup>62</sup>	128,603	157,933	-18.57%	117,823	9.15%
ISLES OF SCILLY (ST.MARYS)	115,194	120,909	-4.73%	125,933	-8.53%
STORNOWAY	113,680	123,199	-7.73%	131,752	-13.72%
PENZANCE HELIPORT	89,469	85,911	4.14%	98,360	-9.04%
DUNDEE	70,398	72,495	-2.89%	60,939	15.52%
ALDERNEY	70,012	74,835	-6.44%	77,104	-9.20%
ISLES OF SCILLY (TRESKO)	34,310	34,485	-0.51%	40,260	-14.78%
BENBECULA	30,406	33,025	-7.93%	33,910	-10.33%
LANDS END (ST JUST)	30,214	35,044	-13.78%	27,096	11.51%
MANSTON (KENT INT)	25,813	26,325	-5.00%	11,657	121.44%
ISLAY	25,009	22,403	1.37%	29,146	-14.19%
WICK	22,710	20,531	-19.47%	23,806	-4.60%
GLOUCESTERSHIRE	16,533	5,574	179.51%	20,156	-17.97%
BARRA	10,192	10,186	0.06%	10,705	-4.79%
CAMPBELTOWN	8,682	9,536	-8.96%	9,143	-5.04%
TIREE	7,943	8,350	-4.87%	8,496	-6.51%
LERWICK (TINGWALL)	4,609	4,709	-2.12%	4,854	-5.05%
OXFORD (KIDLINGTON)	2,186	1,297	68.54%	-	-
CAMBRIDGE	916	1,307	-29.92%	1,854	-50.59%
SHOREHAM	886	1,213	-26.96%	5,090	-82.59%
LYDD	485	588	-17.52%	1,673	-71.01%
COVENTRY <sup>63</sup>	-	167	-100.00%	331,022	-100.00%
<b>Total Regional Airports</b>	<b>89,730,194</b>	<b>91,549,648</b>	<b>-5.04%</b>	<b>105,653,283</b>	<b>-15.07%</b>
<b>Total</b>	<b>214,303,031</b>	<b>221,857,586</b>	<b>-3.41%</b>	<b>239,499,088</b>	<b>-10.52%</b>

Source: CAA

<sup>62</sup> Plymouth airport has recently announced its closure due to the loss of services reducing the number travelling to around 100 a day following the loss of its link to Gatwick.

<sup>63</sup> Coventry airport closed in early 2009 following a winding up order. Thomsonfly stopped flights out of the airport in November 2008 following a year when the airport saw plans for a new terminal rejected.

## **Appendix 4 - Top 30 International Airports by Passenger Numbers 2010**

Due to the demand for landing and departure slot pairs at Heathrow, the UK hub weathered the recession better than most UK and European airports. In the 2010 list, Gatwick came in at number 33 in the world in terms of passenger numbers. The total UK passenger numbers have now returned to levels not seen since 2004 contributing the loss of two regional airports.

Rank	Airport	2010	2009	% change 2010-2009	2008	% change 2010-2008
1	ATLANTA GA, US (ATL)	89,331,622	88,032,086	1.48%	90,039,280	-0.79%
2	BEIJING, CN (PEK)	73,891,801	65,372,012	13.03%	55,937,289	32.10%
3	CHICAGO IL, US (ORD)	66,665,390	64,158,343	3.91%	69,353,876	-3.88%
<b>4</b>	<b>LONDON, GB (LHR)</b>	<b>65,884,143</b>	<b>66,036,957</b>	<b>-0.24%</b>	<b>67,054,745</b>	<b>-1.75%</b>
5	TOKYO, JP (HND)	64,069,098	61,903,656	3.50%	66,754,829	-4.02%
6	LOS ANGELES CA, US (LAX)	58,915,100	56,520,843	4.24%	59,497,539	-0.98%
<b>7</b>	<b>PARIS, FR (CDG)</b>	<b>58,167,062</b>	<b>57,906,866</b>	<b>0.45%</b>	<b>60,874,681</b>	<b>-4.45%</b>
8	DALLAS/FORT WORTH TX, US (DFW)	56,905,066	56,030,457	1.56%	57,093,187	-0.33%
<b>9</b>	<b>FRANKFURT, DE (FRA)</b>	<b>53,009,221</b>	<b>50,932,840</b>	<b>4.08%</b>	<b>53,467,450</b>	<b>-0.86%</b>
10	DENVER CO, US (DEN)	52,211,242	50,167,485	4.07%	51,245,334	1.88%
11	HONG KONG, HK (HKG)	50,410,819	45,558,807	10.65%	47,857,746	5.33%
<b>12</b>	<b>MADRID, ES (MAD)</b>	<b>49,786,202</b>	<b>48,250,784</b>	<b>3.18%</b>	<b>50,824,435</b>	<b>-2.04%</b>
13	DUBAI, AE (DXB)	47,180,628	40,901,752	15.35%	37,441,440	26.01%
14	NEW YORK NY, US (JFK)	46,495,876	45,915,069	1.26%	47,807,816	-2.74%
<b>15</b>	<b>AMSTERDAM, NL (AMS)</b>	<b>45,211,749</b>	<b>43,570,370</b>	<b>3.77%</b>	<b>47,430,019</b>	<b>-4.68%</b>
16	JAKARTA, ID (CGK)	43,981,022	37,143,719	18.41%	32,172,114	36.71%
17	BANGKOK, TH (BKK)	42,784,967	40,500,224	5.64%	38,603,490	10.83%
18	SINGAPORE, SG (SIN)	42,038,777	37,203,978	13.00%	37,694,824	11.52%
19	GUANGZHOU, CN (CAN)	40,975,253	37,048,712	10.60%	33,402,815	22.67%
20	SHANGHAI, CN (PVG)	40,582,356	32,102,549	26.41%	28,230,017	43.76%
21	HOUSTON TX, US (IAH)	40,475,058	40,007,354	1.17%	41,709,389	-2.96%
22	LAS VEGAS NV, US (LAS)	39,397,359	40,469,012	-2.65%	43,208,724	-8.82%
23	SAN FRANCISCO CA, US (SFO)	39,254,634	37,338,942	5.13%	37,234,592	5.43%
24	PHOENIX AZ, US (PHX)	38,552,409	37,824,982	1.92%	39,891,193	-3.36%
25	CHARLOTTE NC, US (CLT)	38,143,078	34,536,666	10.44%	34,739,020	9.80%
<b>26</b>	<b>ROME, IT (FCO)</b>	<b>36,228,490</b>	<b>33,723,213</b>	<b>7.43%</b>	<b>35,132,224</b>	<b>3.12%</b>
27	SYDNEY, AU (SYD)	35,992,164	33,451,383	7.60%	33,302,642	8.08%
28	MIAMI FL, US (MIA)	35,698,025	33,886,025	5.35%	34,063,531	4.80%
29	ORLANDO FL, US (MCO)	34,877,507	33,693,649	3.51%	35,660,742	-2.20%
<b>30</b>	<b>MUNICH, DE (MUC)</b>	<b>34,721,605</b>	<b>32,681,067</b>	<b>6.24%</b>	<b>34,530,593</b>	<b>0.55%</b>

Source : Airports participating in the ACI Monthly Traffic Statistics Collection.

## *Appendix 5 Top 30 International Airports by Cargo Volume 2010*

<b>Rank</b>	<b>City (Airport)</b>	<b>2010 Total Cargo</b>	<b>% Change</b>	<b>2009 Total Cargo</b>	<b>% Change</b>	<b>2008 Total Cargo</b>
1	HONG KONG, HK(HKG)	4,165,852	23.2%	3,385,313	-7.5%	3,660,901
2	MEMPHISTN, US(MEM)	3,916,811	5.9%	3,697,054	0.0%	3,695,438
3	SHANGHAI, CN(PVG)	3,228,081	26.9%	2,543,394	-2.3%	2,602,916
4	INCHEON, KR(ICN)	2,684,499	16.1%	2,313,001	-4.6%	2,423,717
5	ANCHORAGEAK, US*(ANC)	2,646,695	36.6%	1,994,629	-15.0%	2,339,831
6	<b>PARIS, FR(CDG) – Charles De Gaul</b>	<b>2,399,067</b>	<b>16.8%</b>	<b>2,054,515</b>	<b>-9.9%</b>	<b>2,280,050</b>
7	<b>FRANKFURT, DE(FRA) – Main</b>	<b>2,275,000</b>	<b>20.5%</b>	<b>1,887,686</b>	<b>-10.6%</b>	<b>2,111,031</b>
8	DUBAI, AE(DXB)	2,270,498	17.8%	1,927,520	5.6%	1,824,992
9	TOKYO, JP(NRT)	2,167,853	17.1%	1,851,972	-11.8%	2,100,448
10	LOUISVILLE KY, US(SDF)	2,166,656	11.2%	1,949,528	-1.3%	1,974,276
11	SINGAPORE, SG(SIN)	1,841,004	10.9%	1,660,724	-11.9%	1,883,894
12	MIAMI FL, US(MIA)	1,835,797	17.9%	1,557,401	-13.8%	1,806,770
13	TAIPEI, TW(TPE)	1,767,075	30.1%	1,358,304	-9.0%	1,493,120
14	LOS ANGELES CA, US(LAX)	1,747,629	15.8%	1,509,236	-7.4%	1,629,525
15	BEIJING, CN(PEK)	1,551,471	5.1%	1,475,649	8.1%	1,365,768
16	<b>LONDON, UK(LHR) - Heathrow</b>	<b>1,551,404</b>	<b>15.0%</b>	<b>1,349,571</b>	<b>-9.2%</b>	<b>1,486,260</b>
17	<b>AMSTERDAM, NL(AMS) - Schiphol</b>	<b>1,538,134</b>	<b>16.8%</b>	<b>1,317,120</b>	<b>-17.8%</b>	<b>1,602,585</b>
18	CHICAGO IL, US(ORD)	1,376,552	31.4%	1,047,917	-17.1%	1,332,123
19	NEW YORK NY,US(JFK)	1,344,126	17.5%	1,144,894	-21.2%	1,450,605
20	BANGKOK, TH(BKK)	1,310,146	25.4%	1,045,194	-10.9%	1,173,084
21	GUANGZHOU, CN(CAN)	1,144,456	19.8%	955,270	39.3%	685,868
22	INDIANAPOLIS IN, US(IND)	1,012,589	7.2%	944,805	-9.2%	1,039,993
23	NEWARKNJ, US(EWR)	855,594	9.8%	779,642	-12.1%	887,053
24	TOKYO, JP(HND)	818,806	3.7%	779,118	-8.3%	852,444
25	SHENZHEN, CN(SZX)	809,125	33.6%	605,469	1.2%	598,290
26	OSAKA, JP(KIX)	759,278	24.7%	608,876	-28.0%	845,497
27	DOHA, QA(DOH)	707,831	35.4%	522,921	27.75%	409,463
28	<b>LUXEMBOURG, LU(LUX)</b>	<b>705,371</b>	<b>12.2%</b>	<b>628,667</b>	<b>-20.2%</b>	<b>788,224</b>
29	KUALA LUMPUR, MY(KUL)	694,296	15.4%	601,620	-9.9%	667,495
30	MUMBAI, IN(BOM)	671,237	18.5%	566,368	1.3%	559,100
<b>UK Total Air Freight</b>		<b>2,332,611</b>	<b>13.4%</b>	<b>2,057,218</b>	<b>-10.3%</b>	<b>2,292,721</b>

Source : Airports participating in the ACI Monthly Traffic Statistics Collection.