

# Developing a sustainable framework for UK aviation: Scoping document

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# Foreword

When this Coalition set out its programme for government last May, we promised great change and real progress. In aviation, we began straight away by cancelling the third runway at Heathrow and making clear our opposition to additional runways at Gatwick and Stansted. The DfT Business Plan makes promoting sustainable aviation one of our five structural reform priorities, with a specific objective to adopt a sustainable framework for aviation in the UK by 2013.

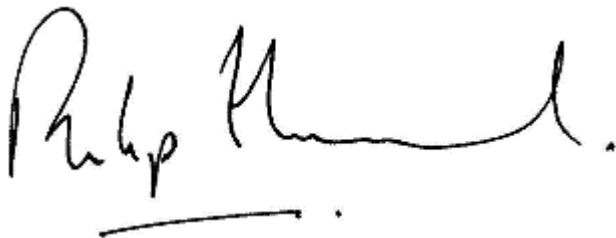
There is an urgent need for a genuinely sustainable framework to guide the aviation industry in planning its investment and technological development in the short, medium and long term. The previous government's 2003 White Paper, *The Future of Air Transport*, is fundamentally out of date, because it fails to give sufficient weight to the challenge of climate change. In maintaining its support for new runways – in particular at Heathrow – in the face of the local environmental impacts and mounting evidence of aviation's growing contribution towards climate change, the previous government got the balance wrong. It failed to adapt its policies to the fact that climate change has become one of the gravest threats we face.

The Coalition believes that a modern transport infrastructure – which emphatically includes aviation - is essential for a dynamic economy as well as to improve our well-being and quality of life. But we also believe that transport needs to be greener and more sustainable, with tougher emissions standards and more sustainable technologies. To do that, we must succeed, where the previous government failed, in striking that balance in our framework for aviation. We are not anti-aviation – we are anti-carbon. As we tackle one of the largest budget deficits facing any of the G20 countries, we are firmly focused on the benefits aviation can bring, particularly in terms of economic growth. But we are not prepared to support growth at any price.

Aviation is a global industry and carbon is a global challenge. The biggest single contribution to tackling emissions is therefore through effective international action. This is why we are committed to including aviation in the EU Emissions Trading System. But the aviation industry needs to do more, not just on emissions but also in terms of its other environmental impacts, particularly noise. The current pace of technological change is not fast enough to reconcile growth on the scale of recent years with meeting our climate change targets or, in relation to some airports, our aspirations on local environmental impacts.

In launching this exercise I want to make a broad proposition: aviation should be able to grow, but to do so, it must be able to play its part in delivering our environmental goals and protecting the quality of life of local communities. If aviation can do better than currently anticipated in tackling its emissions and other impacts, then that will create greater scope to grow. I want to move beyond the sterile debate of recent years, where the arguments for and against aviation became increasingly polarised, towards a broader consensus which honestly recognises both the value of air transport and its negative impacts and is prepared to agree the framework within which aviation can develop.

I hope you will respond with ideas which will help us shape a realistic, positive and lasting policy framework that will allow the UK to enjoy the benefits of a vibrant aviation sector without paying an unacceptable environmental price.

A handwritten signature in black ink that reads "Philip Hammond". The signature is written in a cursive style and is underlined with a single horizontal line.

**The Rt Hon Philip Hammond MP**  
Secretary of State for Transport

# 1. Introduction

## Context

- 1.1** Returning the UK economy to sustainable growth is the overriding priority of the Coalition Government, and we must ensure that aviation can play its part in achieving this. Aviation is an important element in the UK's transport system, and it should be seen in the context of the government's vision for a greener transport system which acts as an engine for economic growth.
- 1.2** Air transport provides the international connectivity the country needs to succeed in a competitive global economy. It makes possible long-distance travel that connects the remoter regions of the UK and connects the UK to other countries. It enables people to travel for business, for employment, for leisure, and to visit friends and family, and it enables businesses to transport goods rapidly to and from markets overseas. However, the right balance must be struck between the economic, social and environmental costs and benefits of aviation: unconstrained growth of aviation is not an option.
- 1.3** Public views on aviation are complex. About half of all adults in Great Britain fly abroad at least once a year<sup>1</sup>. The importance of air travel for UK residents visiting friends and relatives abroad has been growing, reflecting the increasingly international nature of work and social lives. For example, 47 per cent of Stansted airport's passengers were visiting friends and relatives in 2009<sup>2</sup>.
- 1.4** Surveys on attitudes to flying show that people value the freedom to fly and the opportunities it brings, but they are concerned about aviation's environmental impacts. The British Social Attitudes Survey showed that 42 per cent of respondents agreed that the price of a plane ticket should

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<sup>1</sup> National Travel Survey, DfT, 2009. <http://www.dft.gov.uk/pgr/statistics/datatablespublications/nts/how-distance/nts0316.xls>

<sup>2</sup> CAA passenger surveys <http://www.caa.co.uk/default.aspx?catid=81>

reflect the environmental damage that flying causes, even if this made air travel much more expensive<sup>3</sup>. However, an Office for National Statistics (ONS) Omnibus Survey found that only 26 per cent supported increasing taxes or other charges to encourage people to travel less by plane<sup>4</sup>.

## Coalition priorities for aviation

- 1.5** Since May 2010, the Coalition Government has set out its plans to place the aviation sector on a sustainable, long-term path. The Department for Transport (DfT) Business Plan<sup>5</sup> sets out our priorities for aviation. Our overall goal is to create a sustainable framework for aviation in the UK, improve the passenger experience at airports, and maintain high standards of safety and security for passengers and freight.
- 1.6** One of our first actions was to cancel plans for a third runway at Heathrow airport and confirm that we would refuse permission for additional runways at Gatwick and Stansted airports<sup>6</sup>. We also ruled out mixed mode operations<sup>7</sup> at Heathrow airport to ensure that local residents can continue to benefit from the regular respite from noise provided by runway alternation. We will shortly make an announcement on our plans for consulting on a new night flying regime for Heathrow, Gatwick and Stansted, as set out later in this document.
- 1.7** Improving the passenger experience is at the heart of this Government's vision for UK aviation. Our immediate priority is to make our airports better not bigger. We have established the South East Airports Taskforce<sup>8</sup> which brings together key players from across the industry to consider how to make the most of existing airport infrastructure and

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<sup>3</sup> 2010 British Social Attitudes Survey: Attitudes to Transport, DfT, March 2011  
<http://www.dft.gov.uk/pgr/statistics/datatablespublications/trsnstatsatt/>

<sup>4</sup> ONS Omnibus Survey: Public attitudes towards climate change and the impact of transport: 2010, DfT, January 2011 <http://www.dft.gov.uk/adobe/pdf/162469/221412/221513/4387741/climatechange2011.pdf>

<sup>5</sup> Business Plan 2011-15, DfT, November 2010  
<http://www.dft.gov.uk/about/publications/business/plan2011-15/>

<sup>6</sup> The Coalition: our programme for government, May 2010  
<http://www.cabinetoffice.gov.uk/news/coalition-documents>

<sup>7</sup> Written Ministerial Statement on Heathrow Operations, DfT, 7 September 2010  
<http://www.dft.gov.uk/press/speechesstatements/statements/villiers20100907>

<sup>8</sup> Written Ministerial Statement on South East Airports Taskforce, DfT, 15 June 2010  
<http://www.dft.gov.uk/press/speechesstatements/statements/hammond100615>

improve conditions for all users. For example, we are working with the UK Border Agency on initiatives to maintain effective border security, while minimising inconvenience to passengers. We have asked the Civil Aviation Authority (CAA), the UK's independent aviation regulator, to lead a sub-group to identify measures that could help to provide greater resilience, increased punctuality and reduced delay. The Taskforce will report in July.

- 1.8** The Government has also announced that it will be introducing legislation in the next Parliamentary session to reform the framework for airport economic regulation<sup>9</sup>. These reforms will help improve the quality of service that passengers receive at designated airports and contribute positively to economic growth. They will also strip out unnecessary regulation and support passenger-focused investment in our existing airport infrastructure.
- 1.9** We intend to consult later in the spring on reform of the financial protection regime for passengers, the Air Travel Organisers' Licensing (ATOL) scheme. Our aim is to modernise the ATOL scheme to reflect how holidays are sold in the internet age, to improve transparency for consumers so that they have a clearer understanding of whether or not their holiday is protected, and to secure the sustainability of the Air Travel Trust Fund<sup>10</sup>.
- 1.10** Aviation has a vital role to play in delivering our carbon reduction goals. We intend to respond in July to the Committee on Climate Change (CCC) report<sup>11</sup> on options for reducing UK aviation carbon dioxide (CO<sub>2</sub>) emissions out to 2050. We are pressing ahead with the inclusion of aviation in the EU Emissions Trading System (ETS) from 2012, and we will continue to push for a global agreement on reducing aviation's CO<sub>2</sub> emissions. However, the aviation industry needs to do more, not just on CO<sub>2</sub> emissions but also in terms of other polluting emissions and environmental impacts, particularly noise. The current pace of technological change is not fast enough to reconcile growth on the scale of recent years with meeting our climate change targets or, in relation to some airports, our objectives on local environmental impacts.

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<sup>9</sup> Written Ministerial Statement on Airport Economic Regulation, DfT, 3 March 2011  
<http://www.dft.gov.uk/press/speechesstatements/statements/hammond20110303>

<sup>10</sup> Written Ministerial Statement on Reform of the ATOL Scheme, DfT, 3 February 2011  
<http://www.dft.gov.uk/press/speechesstatements/statements/villiers20110203>

<sup>11</sup> Meeting the UK aviation target – options for reducing emission to 2050, Committee on Climate Change, December 2009 <http://www.theccc.org.uk/reports/aviation-report>



- 1.11** Alongside our environmental goals, the Government has a key objective to deliver energy security. Addressing security of oil supply across the economy will require us both to encourage supply and reduce demand. Action taken by the aviation sector to reduce its own demand will help to limit the exposure of the industry to fluctuations in fuel prices, thereby helping to protect the industry itself and, by extension, the broader economy which relies on it.
- 1.12** Safety and security remain fundamental requirements for aviation. The CAA has recently consulted on its Strategic Plan<sup>12</sup>. In the area of safety, this sets out proposals to enhance aviation safety performance, including work with the DfT and industry to make the current UK State Safety Programme more outcome-focused<sup>13</sup>.
- 1.13** On aviation security, we are developing a new regulatory system where the Government concentrates on setting the security outcomes that need to be achieved, and frees up operators to devise the processes needed to deliver them in line with EU requirements. We will shortly be publishing a consultation on steps towards an outcome-focused, risk-based approach to aviation security regulation.

## A sustainable framework for UK aviation

- 1.14** Looking to the longer term, the Government has committed to producing a sustainable framework for UK aviation to replace the previous administration's *The Future of Air Transport* White Paper (2003). While some elements of this white paper might still be relevant, many of its provisions are no longer fit for purpose. They fail to recognise the importance of addressing climate change and give insufficient weight to the local environmental impacts of aviation.
- 1.15** Our objective is to develop a long-term, high-level framework for aviation which:
- sets out the Government's aims for aviation and the parameters within which they can be delivered;

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<sup>12</sup> CAA Strategic Plan 2011 – 2016  
<http://www.caa.co.uk/default.aspx?catid=2097&pagetype=90&pageid=11995>

<sup>13</sup> The International Civil Aviation Organization (ICAO) requires contracting States to develop a State Safety Programme (SSP) which is an integrated set of regulations and activities aimed at improving safety. The current UK SSP can be found in Civil Aviation Publication 784 at [www.caa.co.uk](http://www.caa.co.uk).

- takes account of the positive and negative impacts of aviation, and achieves a sustainable balance between them;
- integrates aviation policy with wider Government objectives, including delivering sustainable economic growth, combating climate change and protecting the local environment;
- builds consensus among those who rely on and are affected by aviation; and
- provides industry with the clarity it needs to invest in the UK over the long term.

**1.16** Aviation policy in the UK is largely a reserved matter. Accordingly, the framework will set out aviation policy for the whole UK, including Northern Ireland, Scotland and Wales. We will work closely with the Devolved Administrations as we develop the policy framework to take into account any relevant devolved policies and initiatives.

**1.17** We want to ensure a wide range of stakeholders have an opportunity to contribute to the development of the policy framework. We have committed to doing this in three stages. The publication of this scoping document is the first step. Taking into account the responses we receive to this document, we will publish a draft policy framework for public consultation in March 2012, and formally adopt the framework by March 2013.

## Scoping document

**1.18** The aim of this scoping document is to define the debate as we develop our long-term policy for UK aviation. The document sets out strategic questions which we have compiled following a short period of informal engagement with a representative sample of stakeholders across the aviation sector, wider business groups, local government, and environmental organisations. We now want to broaden the debate.

**1.19** We have structured the questions around three themes: aviation and the economy, aviation and climate change, and aviation and the local environment. We expect people to have a range of views on these themes and, where possible, we would like them to support their answers to the questions with evidence. We also recognise that these themes are interlinked and cannot be viewed in isolation. We therefore welcome views on how action in one area can benefit another or where trade-offs between them might be necessary.

**1.20** The scoping document does not focus on aviation policies where work is already being taken forward elsewhere, for example, airport economic regulation, aviation safety, and aviation security regulation. This approach is intended to provide clarity for stakeholders and avoid the need for them to duplicate their responses to the Government on different aviation policy initiatives. However, if anyone has comments on any strategic issues not covered in this scoping document, which are relevant to the development of the aviation policy framework, we also welcome those contributions.

## How to respond

**1.21** The deadline for responding to this document is 30 September 2011. A list of questions, relating to the themes addressed in the following chapters, is set out on pages 37 to 42. We recognise that these questions cover a broad range of issues which will be of varying interest to different people. Please respond to those questions of most relevance and interest to you. It is not necessary to cover every question; your response will be considered, regardless of the number of questions you choose to answer.

**1.22** We are allowing a six-month period for responses because we want people to have sufficient time to give full consideration to the questions of strategic national importance posed in this document, and, where possible, to gather supporting evidence, existing or new.

**1.23** We also want to enable people's answers to take into account any relevant additional material produced over the next six months, for example the Government's response in July to the CCC report on UK aviation CO<sub>2</sub> emissions, and the DfT's updated forecasts for air passenger demand and aviation CO<sub>2</sub> emissions which will be published later this year.

**1.24** Please send responses by email to:  
[aviation.policyframework@dft.gov.uk](mailto:aviation.policyframework@dft.gov.uk)

or by post to:

Aviation Policy Framework  
Department for Transport, Great Minster House (1/24),  
76 Marsham Street, London.  
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## 2. Aviation and the economy

- 2.1** Aviation makes a significant contribution, both directly and indirectly, to the UK economy. We want to maximise this contribution in the future and explore how aviation growth can occur, while ensuring that it is genuinely sustainable. The key challenge for the aviation sector now is to reduce its global and local environmental impacts, so that it is able to grow sustainably and support the economy over the longer term. Since we do not expect to return to a world where aviation growth is unconstrained by environmental factors, and since it is as yet unclear at what rate technological change can deliver the environmental ‘headroom’ for aviation to expand, we must also address the question of how we prioritise available capacity where demand exceeds supply. We would welcome views on this issue.

### The UK aviation sector

- 2.2** The aviation sector covers a diverse range of primarily private sector businesses and activities from commercial passenger air transport to freight, aerospace, General and Business Aviation, aircraft maintenance, pilot training and many more. In addition to its direct economic impacts, aviation has a bigger role in our economy, for example by facilitating inward investment and exports, and in our society, for example by enabling UK residents to visit friends and family across the world. There is much debate about the full value of the aviation sector as a whole and its different sub-sectors. We would therefore find it helpful to receive evidence on aviation’s role in the UK economy.
- 2.3** In 2010, UK airports handled 211 million passengers<sup>14</sup> and served nearly 400 international destinations<sup>15</sup>. The air transport sector’s turnover in

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<sup>14</sup> UK Airport Statistics 2010, CAA  
<http://www.caa.co.uk/default.aspx?catid=80&pagetype=88&sglid=3&fld=2010Annual>

2009 was around £26 billion and the sector directly generated around £9 billion of economic output. It provides about 150,000 jobs in the UK and supports many more indirectly<sup>16</sup>. Goods worth £95 billion were shipped by air freight between the UK and non-EU countries, representing 38 per cent of the UK's extra-EU trade by value<sup>17</sup>.

**2.4** Although air freight carries a small proportion of UK trade by weight, it is particularly important for supporting export-led growth in sectors where the goods are of high-value or time critical. Air freight is a key element of the supply chain in the advanced manufacturing sector in which the UK is looking to build competitive strength.

**2.5** The UK aerospace industry is another important part of our advanced manufacturing sector, contributing towards our goal of rebalancing the economy. The UK has the second biggest aerospace industry in the world in terms of turnover, and it is one of only a few countries involved in the design, development, manufacture and maintenance of the full range of aircraft products. The sector has an annual turnover of over £20 billion<sup>18</sup>, of which 70 per cent is exported, and provides access to growing markets such as China. It directly employs over 100,000 highly skilled workers and generates an estimated 130,000 jobs indirectly<sup>19</sup>. Over 40 per cent of employees are educated to degree level, with productivity levels (GVA per employee over £76,000) significantly higher

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<sup>15</sup> DfT analysis of CAA airport statistics on passenger air transport movements shows UK airports served 383 international destinations in 2010. These destinations had the equivalent of at least a weekly service from the UK i.e. at least 52 departures a year.

<sup>16</sup> 'Air transport' sector as defined by UK Standard Industrial Classification of Economic Activity (2007, SIC 51) <http://www.statistics.gov.uk/statbase/product.asp?vlnk=14012>.

Turnover, economic output (GVA) and employment figures are from ONS Annual Business Survey 2009, Section H: Transport and Storage, adding SIC 51 (air transport) and SIC 52.23 (service activities incidental to air transportation), found at <http://www.statistics.gov.uk/abi/downloads/abs-section-h.xls>. 'Air transport' covers a wide range of activities including passenger scheduled, charter, taxi, helicopter, pleasure and sightseeing flights and freight transport. 'Service activities incidental to air transportation' includes airport, airfield and ground services and air traffic control activities.

These estimates do not cover a variety of other sectors related to air transport including the manufacture, repair and maintenance of aircraft, the construction of airports and runways, cargo handling and warehousing. This is because data is not disaggregated to a level that is usable when referring to air transportation. Secondly, these estimates do not include the activity of firms that constitute the air transport supply-chain where those activities are captured in other SIC codes (i.e. the indirect contribution of the aviation industry).

<sup>17</sup> CHIEF Non-EU data, HMRC, 2009 <https://www.uktradeinfo.com/index.cfm?&hasFlashPlayer=true>

<sup>18</sup> *UK Aerospace Industry Survey*, Aerospace, Defence, Security Trade Association (ADS), 2010 <http://www.adsgroup.org.uk/pages/07003420.asp>

<sup>19</sup> Direct employment figure comes from ADS Industry Survey. The indirect employment figure is a more conservative estimate, made by the Department for Business (BIS), than that in the ADS Industry Survey.

than elsewhere in the economy, including within engineering industries<sup>20</sup>. The sector invests heavily in research and development - £1.7 billion in 2009<sup>21</sup> - and plays a key role in developing world-leading engine and wing technology used in the production of new aircraft with reduced emissions and noise. The manufacturers and engineers involved in aircraft assembly and maintenance also have an important role in fostering specialist skills and knowledge in the UK. Apprentices account for three per cent of the UK aerospace industry workforce<sup>22</sup>, something the Government is keen to develop further.

**2.6** On that basis the Department for Business has recently set up an Aerospace Growth Partnership<sup>23</sup>, an ad-hoc advisory body, to tackle issues affecting the competitiveness of the sector, to address barriers to growth, boost exports and grow the number of highly skilled jobs available in the UK. The Group, chaired jointly by the BIS Minister of State for Business and Enterprise and a senior industrialist, comprises senior business representation across the UK aerospace supply chain, including EADS, Airbus, Bombardier Aerospace (Shorts), Rolls-Royce, AgustaWestland, BAE Systems, GKN, Spirit, Goodrich, Messier-Dowty, GE Aviation, ADS (the national trade association), and regional aerospace trade associations. A key focus of its work will be to ensure that the UK aerospace supply chain is best positioned to meet the requirements for the next generation of aircraft and to unlock the potential to develop more environmentally friendly aircraft.

**2.7** General Aviation covers a wide range of activities from commercial operators of business jets and helicopters through to leisure users, such as micro-lights. It also provides training for pilots and technicians. As a result of this diversity, the economic value of this sector is difficult to calculate. The CAA Strategic Review of General Aviation quotes £1.4 billion per annum<sup>24</sup>. Business aviation allows companies and potential investors to connect quickly and conveniently between places not otherwise served by regular scheduled commercial air services.

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<sup>20</sup> Sector Skills Council for Science, Engineering and Manufacturing Technologies (SEMTEA)  
<http://www.semta.org.uk/>

<sup>21</sup> BIS Research & Development Scoreboard 2010, BIS, 2010  
[http://webarchive.nationalarchives.gov.uk/20101208170217/http://www.innovation.gov.uk/rd\\_scoreboard/default.asp](http://webarchive.nationalarchives.gov.uk/20101208170217/http://www.innovation.gov.uk/rd_scoreboard/default.asp)

<sup>22</sup> See note 19

<sup>23</sup> *The Aerospace Growth Partnership*, BIS press notice, 9 March 2011  
<http://nds.coi.gov.uk/content/Detail.aspx?ReleaseID=418499&NewsAreaID=2>

<sup>24</sup> Strategic Review of General Aviation in the UK, CAA, July 2006  
[www.caa.co.uk/docs/33/StrategicReviewGA.pdf](http://www.caa.co.uk/docs/33/StrategicReviewGA.pdf)

## UK connectivity

- 2.8** Air transport plays a vital role in providing connectivity for the UK, both internationally and regionally. As an island trading nation, it is self-evident that the UK needs to be well connected. It is also clear that some parts of the country, such as Northern Ireland, will always be heavily dependent on air links. Regional connectivity throughout the UK is a very important issue for overall transport strategy to address.
- 2.9** The UK's connectivity needs will change over time in response to global economic and social trends. The Government wants to ensure that those connectivity needs can be met in an environmentally responsible way in order to maintain the UK's economic competitiveness for the long term. For example, we want to explore further how much and in what ways a UK hub meets the nation's connectivity needs and hear views on future hub models<sup>25</sup>.
- 2.10** Regional airports also have an important role in providing international and domestic connections across the UK, and contributing to local economies. We want to explore how to create the right conditions for regional airports to flourish. Although air transport will continue to provide essential links to more remote parts of the UK and areas not served by rail, the Government expects that, in the longer term, demand for domestic aviation and much of that for near-European short-haul aviation could be met by high-speed rail. We have recently published a consultation<sup>26</sup> on the Government's proposals for a national high speed rail network. The consultation sets out the Government's case for this network, the details of our strategy, and the proposed route for an initial phase from London to the West Midlands.
- 2.11** Removing barriers by liberalising international air service agreements can also help to improve the UK's connectivity. The Government will continue its programme of seeking to reform the bilateral air services treaties that govern international flights beyond the EU to enable airlines freely to provide international services on the basis of commercial

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<sup>25</sup> Broad definition of 'hub' and 'point-to-point': A hub airport is used by airlines as the main base for connecting traffic where a significant proportion of passengers transfer between flights. Where an airport offers point-to-point services, passengers are able to fly direct from their point of origin to their final destination.

<sup>26</sup> High Speed Rail: Investing in Britain's Future – Consultation, DfT, February 2011  
<http://highspeedrail.dft.gov.uk/>



considerations by removing unnecessary restrictions, while ensuring high standards of safety, security, competition and environmental protection. The Government will also work closely with the European Commission and other Member States in seeking to develop liberalised EU-level air transport agreements with other countries along similar lines, and to seek the relaxation of restrictions on investment.

## Making better use of existing capacity

**2.12** In the short and medium term, the Government will continue to work with the industry and other stakeholders to maximise the benefits from existing connections and capacity. The South East Airports Taskforce is already looking at operational measures to help improve resilience and the passenger experience at Heathrow, Gatwick and Stansted.

**2.13** Operating any transport system involves trade-offs between capacity and resilience. More intensive use of capacity can leave the system less able to recover when problems occur. Arguably, this has happened at Heathrow and, as other airports fill up, lessons may need to be learned. We would welcome views on how to balance resilience and capacity issues in the aviation sector.

**2.14** There may be potential to reform EU slot allocation legislation<sup>27</sup> to increase capacity and / or improve resilience at UK airports based on existing airport infrastructure. The objective of the legislation is to ensure that access to congested airports is organised through a system of fair, non-discriminatory and transparent rules for the allocation of landing and take-off slots to improve the utilisation of airport capacity and enhance competition. The European Commission is conducting a review<sup>28</sup> of slot regulation in order to evaluate its current operation and collect information to assess possible changes to it. The UK has engaged with the consultations and our initial response will be published alongside the Commission's findings in the summer. We are interested in views on the benefits and risks of the UK pushing for Member States to have the right to allocate slots in a more efficient manner should they wish to do so.

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<sup>27</sup> Slots are defined as a permission given by a coordinator to use the full range of airport infrastructure necessary to operate an air service at a coordinated airport on a specific date and time for the purpose of landing or take-off. The majority of slots at congested airports are awarded on the basis of historic use, so-called 'grandfather rights'.

<sup>28</sup>Public consultation on the impact assessment for a possible revision of Council Regulation (EEC) 95/93 on common rules for the allocation of slots at Community airports, European Commission, September 2010 [http://ec.europa.eu/transport/air/consultations/2010\\_10\\_25\\_regulation\\_95\\_93\\_ec\\_en.htm](http://ec.europa.eu/transport/air/consultations/2010_10_25_regulation_95_93_ec_en.htm)



**2.15** Airspace design and air traffic management are also important factors in making better use of existing capacity, for example through the application of new technologies and improved operational procedures. The Government supports the EU Single European Sky (SES) initiative, which aims to enhance air traffic safety, contribute to the sustainable development of the air transport system, and improve overall performance through the establishment of a Performance Scheme<sup>29</sup> for Air Traffic Management and Air Navigation Services and associated EU-wide targets<sup>30</sup>. We expect the SES programme to deliver significant benefits in terms of punctuality and resilience, as well as fuel efficiency and mitigation of local environmental impacts. We also support the development of the CAA's Future Airspace Strategy<sup>31</sup>. This strategy is considering strategic airspace issues for the UK over the medium and long term with the overall aim of modernising the UK's air traffic management system and contributing directly to SES objectives.

## Aviation's contribution to sustainable economic growth

**2.16** The aviation sector has an important role in helping to achieve the Government's objective of strong, sustainable and balanced economic growth, and needs to be seen in the context of the wider initiatives we are taking to put the UK on the path towards sustainable growth.

**2.17** At the heart of our strategy for growth is the Growth Review<sup>32</sup> which aims to create the right conditions for businesses to succeed, removing barriers that are preventing them from performing to their full potential. It is initially focusing on two elements: structural reform priorities that can benefit the whole economy in planning, competition, trade and

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<sup>29</sup> *Commission Regulation (EU) No 691/2010 of 29 July 2010* lays down a performance scheme for air navigation services and network functions <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:201:0001:0022:EN:PDF>

<sup>30</sup> Commission Decision of 21 February 2011 (2011/121/EU) <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:048:0016:0018:EN:PDF>

<sup>31</sup> Future Airspace Strategy Consultation Document, CAA, November 2010 <http://www.caa.co.uk/docs/2065/20101029%20FAS%20Consultation%20Document%20-%20Final.pdf>

Draft Future Airspace Strategy, CAA, October 2010 <http://www.caa.co.uk/docs/2065/20101026FutureAirspaceStrategyDraftv2%20-%20FINAL.pdf>

<sup>32</sup> *Growth Review*, Her Majesty's Treasury, November 2010 [http://www.hm-treasury.gov.uk/ukecon\\_growth\\_index.htm](http://www.hm-treasury.gov.uk/ukecon_growth_index.htm)

investment, regulation, access to finance and corporate governance; and removing barriers in sectors where there are clear opportunities for growth and where the Government can make a difference. The Government's *Plan for Growth*<sup>33</sup> set out the intention to radically reform the planning regime so that it supports economic growth. This will include measures to introduce a presumption in favour of sustainable development and produce an inherently pro-growth National Planning Policy Framework<sup>34</sup>, which will lead to a more sustainable, transparent and democratically accountable planning system. We intend to consult on the *National Planning Policy Framework* later this summer, and we welcome responses from aviation stakeholders with an interest in planning. The final aviation framework document will fulfil the role of a national planning policy for aviation.

- 2.18** Infrastructure investment, both public and private, provides a vital platform for growth. Last year we published the first ever *National Infrastructure Plan*<sup>35</sup>. The plan did not cover airport infrastructure development, reflecting our commitment to the development of a new policy framework for aviation, including airports. We recognise the strong view from some stakeholders, particularly within the business community, that additional airport capacity is required to meet the UK economy's needs. As this document makes clear, we want a successful and sustainable UK aviation sector, but we need to acknowledge the environmental constraints and explore how aviation can address these challenges in order to allow aviation growth to occur.
- 2.19** Reducing regulation is another core element of the Government's strategy for supporting economic growth. We are committed to reducing the cost and improving the quality of both EU and domestic regulation wherever possible. Through the better design of new regulation, and review of existing regulation, we will reduce the burden of unnecessary regulation upon businesses in the transport sector.
- 2.20** On trade and investment, the Government's *Trade and Investment for Growth White Paper*<sup>36</sup> sets out our commitment to addressing the barriers that hold businesses back from trading and investing, and to

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<sup>33</sup> *The Plan for Growth*, HMT & BIS, March 2011 [http://cdn.hm-treasury.gov.uk/2011budget\\_growth.pdf](http://cdn.hm-treasury.gov.uk/2011budget_growth.pdf)

<sup>34</sup> *National Planning Policy Framework*, Communities and Local Government <http://communities.gov.uk/planningandbuilding/planningsystem/planningpolicy/planningpolicyframework/>

<sup>35</sup> *National Infrastructure Plan*, Her Majesty's Treasury, October 2010 [http://www.hm-treasury.gov.uk/ppp\\_national\\_infrastructure\\_plan.htm](http://www.hm-treasury.gov.uk/ppp_national_infrastructure_plan.htm)

<sup>36</sup> *Trade and Investment for Growth*, Department for Business, Innovation & Skills, February 2011 <http://www.bis.gov.uk/assets/biscore/international-trade-investment-and-development/docs/t/11-717-trade-investment-for-growth>

ensuring that the UK is one of the most attractive places in the world to invest and do business. Transport is a crucial piece of the infrastructure jigsaw as far as facilitating trade is concerned. For inward investors, a modern and reliable transport system may mean the difference between choosing to invest in the UK or elsewhere. For example, over half of 500 senior executives across Europe said that transport was an essential factor in locating a business<sup>37</sup>. As well as being directly identified as the fourth highest factor, transport is also a key determinant of the top two factors: easy access to markets, customers and clients, and availability of qualified staff. Recognition of these factors underlies the commitment in the Comprehensive Spending Review to an extensive programme of transport infrastructure improvements.

**2.21** Aviation also plays an important part in inward tourism to the UK and is the preferred means of transport for overseas visitors to the UK. In 2009, 30 million visits were made to the UK by overseas residents, three quarters of whom arrived by air. Earnings from overseas visits were £16.6 billion, 83 per cent of which was spent by people who arrived by air<sup>38</sup>. One of the aims of the *Government Tourism Policy*<sup>39</sup> is to help the sector increase its international market - aiming to attract four million extra visitors to Britain over the next four years.

**2.22** At the Budget the Government launched a consultation on reform of air passenger duty<sup>40</sup>. The Government's objectives are a simple tax system for air transport services in the UK, which does not hamper growth, which ensures a fair contribution toward the public finances and which is consistent with the Government's determination to reduce global emissions. We encourage aviation stakeholders to respond to this consultation.

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<sup>37</sup> *European Cities Monitor Survey*, Cushman and Wakefield, 2010. The survey asked European senior executives which factors were "absolutely essential" for business location.  
<http://www.europeancitiesmonitor.eu/>

<sup>38</sup> *Travel Trends (International Passenger Survey)*, Office for National Statistics, 2009  
[http://www.statistics.gov.uk/downloads/theme\\_transport/travel-trends09.pdf](http://www.statistics.gov.uk/downloads/theme_transport/travel-trends09.pdf)

<sup>39</sup> *Government Tourism Policy*, DCMS, March 2011  
[http://www.culture.gov.uk/images/publications/Government2\\_Tourism\\_Policy\\_2011.pdf](http://www.culture.gov.uk/images/publications/Government2_Tourism_Policy_2011.pdf)

<sup>40</sup> *Reform of Air Passenger Duty: a consultation*, HMT, March 2011  
[http://cdn.hm-treasury.gov.uk/2011budget\\_airpassenger.pdf](http://cdn.hm-treasury.gov.uk/2011budget_airpassenger.pdf)

## Summary

**2.23** This chapter has provided an overview of aviation's key contributions to the economy and the importance of connectivity to the UK. Questions on these issues are set out on pages 37 to 39.

## 3. Aviation and climate change

- 3.1** The aviation sector is responsible for approximately one to two per cent of global greenhouse gas (GHG) emissions<sup>41</sup>. In the UK, domestic and international aviation<sup>42</sup> accounted in 2009 for around six per cent of UK GHG emissions, or 21 per cent of the transport sector's GHG. This compares to 43 per cent emitted by cars, 13 per cent by heavy goods vehicles and seven per cent by domestic and international shipping<sup>43</sup>. As other sectors decarbonise over the coming decades, aviation emissions are likely to make up an increasingly large proportion of global emissions.
- 3.2** Aviation is, by its very nature, an international sector, and effective global action is therefore essential if we are to achieve meaningful progress on reducing its climate change emissions, while avoiding competitive disadvantage to the UK. We are pressing ahead with the inclusion of aviation in the EU Emissions Trading System (ETS) from 2012, and we will continue to push for a global agreement on reducing aviation's CO<sub>2</sub> emissions. By including the aviation sector in the EU ETS and exposing it to the carbon market, aircraft operators will be incentivised to deliver emissions reductions from their own operations, as well as investing in reductions in other ETS sectors where CO<sub>2</sub> abatement is easier and cheaper.
- 3.3** In addition to paying for emissions reductions in other sectors, there are a number of ways that emissions can be reduced from within the aviation

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<sup>41</sup> Reducing Transport Greenhouse Gas Emissions: Trends and Data, International Transport Forum, 2010 <http://www.internationaltransportforum.org/Pub/pdf/10GHGTrends.pdf>

Pew Center on Global Climate Change (2009) Aviation and Marine Transportation: GHG Mitigation Potential and Challenges <http://www.pewclimate.org/docUploads/aviation-and-marine-report-2009.pdf>

<sup>42</sup> There is currently no internationally agreed way of allocating international emissions to individual countries. The percentage shares are based on the percentage of bunker fuel sales to the aviation sector from the UK.

<sup>43</sup> *UK Greenhouse Gas Emissions*, Department for Energy & Climate Change, 2009 [www.decc.gov.uk/en/content/cms/statistics/climate\\_change/gg\\_emissions/uk\\_emissions/2009\\_final/2009\\_final.aspx](http://www.decc.gov.uk/en/content/cms/statistics/climate_change/gg_emissions/uk_emissions/2009_final/2009_final.aspx)

sector itself, such as through increased fuel efficiency, improved airspace management and the uptake of biofuels. We welcome views on the most effective ways of reducing aviation's CO<sub>2</sub> emissions.

## The Climate Change Act

- 3.4** Within the UK, the Climate Change Act (2008)<sup>44</sup> provides the framework to reduce emissions according to domestic and international commitments. The Act is intended to provide greater clarity and predictability for UK industry to plan and invest for a low carbon economy and to help maximise the benefits and minimise the costs of tackling climate change. The Act commits the UK to reducing its net GHG emissions by at least 80 per cent below the 1990 baseline by 2050, and requires the Government to set five-yearly carbon budgets to put the UK on a path to meet those targets. The emissions reductions will be achieved both through domestic measures and EU regulation, including the EU ETS.
- 3.5** The Act currently excludes emissions from international flights, but it requires the Government to set out the circumstances and the extent to which they should be included before the end of December 2012, or explain to Parliament why they have not been included. In deciding on the extent to which emissions from international aviation should be included in the Climate Change Act targets, the Government will take account of advice from the Committee on Climate Change (CCC) on the methodology for allocating an appropriate share of international emissions to the UK.
- 3.6** The Scottish Parliament has also passed legislation setting ambitious climate change targets. The Climate Change (Scotland) Act (2009)<sup>45</sup> requires GHG emissions to be cut by 42 per cent by 2020 and 80 per cent by 2050. It also requires that the Scottish share of emissions from international aviation and international shipping is included in the effort to meet the targets<sup>46</sup>.

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<sup>44</sup> Climate Change Act 2008  
<http://www.legislation.gov.uk/ukpga/2008/27/contents>

<sup>45</sup> Climate Change (Scotland) Act 2009  
<http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/climatechangeact>

<sup>46</sup> This share is calculated based on the disaggregated Greenhouse Gas Inventories for England, Scotland, Wales and Northern Ireland. In the case of international aviation, emissions are assigned to

## UK aviation CO<sub>2</sub> emissions

- 3.7** Carbon dioxide makes up about 99 per cent of the aviation sector's Kyoto GHG emissions<sup>47</sup>. A key strategic consideration is the role that aviation should play relative to other sectors in the economy in reducing CO<sub>2</sub> emissions in the medium and longer term. In order to inform our thinking, we are undertaking an assessment of the relative cost-effectiveness and abatement potential of different measures for reducing aviation CO<sub>2</sub> emissions out to 2050. Alongside this work we are also updating the 2009 UK aviation passenger demand and CO<sub>2</sub> forecasts<sup>48</sup> and expect to publish them later this year. The Government will respond in July to the CCC's report on options for reducing UK aviation CO<sub>2</sub> emissions out to 2050.

## EU Emissions Trading System

- 3.8** The UK is well advanced in its preparations to include aviation in the EU ETS from 1 January 2012. In August 2010, the second tranche of legislation to transpose the Aviation EU ETS Directive came into force in the UK. In the short to medium term, and in the absence of an effective global measure, the inclusion of aviation's CO<sub>2</sub> emissions in the EU ETS is the most cost-effective means of ensuring that aviation contributes to our efforts to reduce GHG emissions. The inclusion of aviation in the EU ETS is estimated to reduce the net CO<sub>2</sub> emissions from flights departing from UK airports by 90 million tonnes of CO<sub>2</sub> (MtCO<sub>2</sub>) between 2012 and 2020, and by around 12.5 MtCO<sub>2</sub> per year by 2020<sup>49</sup>.
- 3.9** Under the EU ETS, flights arriving at and departing from EU airports will be subject to an emissions cap (limit) of 97 per cent of average annual

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Scotland for flights which depart Scottish airports and land at destinations outside the UK. Factors such as fuel type, plane type and engine type are also taken into account.

<sup>47</sup> See note 43

<sup>48</sup> UK Air Passenger Demand and CO<sub>2</sub> Forecasts, DfT, January 2009  
<http://www.dft.gov.uk/pgr/aviation/atf/co2forecasts09/>

<sup>49</sup> *Impact Assessment: Aviation Greenhouse Gas Emissions Trading Scheme Regulations*, Department of Energy & Climate Change, 2010  
[http://www.legislation.gov.uk/ukxi/2010/1996/pdfs/ukxiem\\_20101996\\_en.pdf](http://www.legislation.gov.uk/ukxi/2010/1996/pdfs/ukxiem_20101996_en.pdf)

emissions between 2004 and 2006 in 2012. In 2013 this cap will tighten to 95 per cent of average annual emissions levels between 2004 and 2006. This means that net emissions from flights arriving at and departing from EU airports cannot increase above this capped level. We estimate that the inclusion of aviation in the EU ETS will result in total emissions savings of around 480 MtCO<sub>2</sub> across the EU between 2012 and 2020<sup>50</sup>.

## International agreements

- 3.10** We believe that the most effective way of reducing the aviation sector's climate impacts is through concerted action at international level. Without it, global emissions from aviation are expected to increase. We continue to work through the International Civil Aviation Organization (ICAO) and the United Nations Framework Convention on Climate Change (UNFCCC) to push for more action to address climate change, including an ambitious international agreement to reduce emissions from aviation.
- 3.11** While progress has been slow in recent years, the UK, along with its European partners, has consistently encouraged ICAO to be more ambitious. In October 2010, ICAO took a small step forward by adopting a Resolution<sup>51</sup> which set an aspirational global goal for stabilising emissions from international civil aviation from 2020 onwards. This international goal is in addition to the ICAO goal set in 2009 to improve fuel efficiency by two per cent per year up to 2020. This compares to the CCC's assessment of potential improvements in fleet fuel efficiency between 2005 and 2050 of between 0.8% per annum in the "likely" scenario, to 1.5% per annum in the "speculative" scenario in its 2009 report on aviation.
- 3.12** The UK is also actively contributing to technical work to set an international aircraft CO<sub>2</sub> emissions standard through ICAO, and on the metrics for reporting CO<sub>2</sub> emissions. These are very complicated as they aim to combine simple, low-cost certification procedures with complex metrics to reward and encourage better technology that reduces future fuel burn in typical flight operations. ICAO's initial task is to agree the metrics and a certification requirement for new aircraft types, but without

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<sup>50</sup> See note 49

<sup>51</sup> Resolutions Adopted at the 37<sup>th</sup> of the Assembly, ICAO, October 2010  
[http://www.icao.int/icao/en/assembly/A37/Docs/a37\\_res\\_prov\\_en.pdf](http://www.icao.int/icao/en/assembly/A37/Docs/a37_res_prov_en.pdf)



a pass/fail threshold. By 2013, a regulatory standard for new aircraft types will be agreed, along with pass/fail criteria. In addition, a decision will be made about when or if current or modified aircraft types should also be brought into the scope of any agreed standard.

## Aircraft technology

- 3.13** Technological improvements are vital to improving fuel efficiency and reducing CO<sub>2</sub> emissions. There have already been significant changes over the last decades in the efficiency of aircraft, which are today 70 per cent more efficient than the first commercial jets.
- 3.14** The cost of aviation fuel has provided a strong incentive to operators and manufacturers to increase efficiency. This, together with a need to meet internationally agreed aircraft standards related to emissions and noise, has resulted in British aerospace companies investing a significant percentage of their annual research and development budgets on environmental technologies.
- 3.15** We believe that in order to continue this trend, it is important for the industry to commit to challenging yet feasible technology goals for research and development. The Advisory Council for Aeronautical Research in Europe (ACARE) has set targets for aircraft manufacturers to develop technologies to reduce fuel consumption and CO<sub>2</sub> emissions by 50 per cent for a new aircraft produced in 2020 compared to a similar one produced in 2000. This improvement is expected to result from a combination of improvements in engines, airframes and air traffic management.

## Airspace management

- 3.16** More efficient airspace management has an important role in reducing the environmental impact of aviation. The Government is working closely with our European partners to develop the Single European Sky, and with the CAA and NATS to support the Future Airspace Strategy. These initiatives are complementary and both have a common aim of reducing the environmental impact of aviation through the introduction of improved airspace design and new onboard and ground-based systems. These new technologies and procedures will allow pilots to fly more direct routes, reduce fuel burn, and arrive punctually, minimising the need to use holding stacks. The Single European Sky ATM Research (SESAR)

programme has a specific objective to reduce the environmental impact per flight by 10 per cent.

## Biofuels

- 3.17** The Government is clear that sustainable biofuels have a role to play in reducing CO<sub>2</sub> emissions from transport, particularly in sectors where there are limited alternatives to fossil fuel. The Government will continue to work with European partners, the wider international community and industry to explore how to bring about a significant increase in the use of biofuels in aviation.
- 3.18** The UK is committed under the Renewable Energy Directive<sup>52</sup> to sourcing 15 per cent of its energy as a whole, and 10 per cent of the energy in transport, from renewable sources by 2020. In the longer term, sustainable biofuels, particularly second generation biofuels, could play an important role in addressing aviation's CO<sub>2</sub> impacts.
- 3.19** It is essential that biofuels lead to a worthwhile reduction in full life-cycle CO<sub>2</sub> emissions and are sustainable. Under the Renewable Energy Directive the European Commission must monitor and report every two years on the impact of biofuels policy and increased demand for biofuels on environmental, economic and social sustainability. This will include reporting on land use for biofuels and the availability of foodstuffs at affordable prices, in particular for people living in developing countries.
- 3.20** Because sustainable biofuels are a finite resource and second generation biofuels will have only limited commercial-scale production in the near-term, we believe that sustainable biofuels should be used where they achieve the greatest benefits, both within the transport sector and across the transport, heat and power sectors. The Government is working towards a co-ordinated, evidence-based bioenergy strategy, including an analysis of the best use of available biomass resources.
- 3.21** In recent years the aviation industry has conducted research and carried out flight tests to help provide information on different fuels. This work has demonstrated that biofuels for aviation are technically feasible. However, there are currently a range of barriers to introducing biofuels,

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<sup>52</sup> Renewable Energy Directive 2009/28/EC of 23 April 2009  
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0016:0062:en:PDF>

including sustainability, scalability of the feedstocks and commercial viability.

- 3.22** It is clear that governments and international bodies will have a significant role to play in encouraging the use of sustainable biofuels in aviation. At the European level, the Sustainable Way for Alternative Fuels and Energy in Aviation<sup>53</sup> study is bringing together aircraft and engine manufacturers, airlines, the oil industry and research organisations to investigate the feasibility and the impact of the use of alternative fuels in aviation. The final results of this study should be available in the first half of 2011.

## Alternatives to travel

- 3.23** Aviation will continue to have an important role to play in our transport system, but that role will change. We are consulting on proposals for a national high speed rail network, and expect that, in the longer term, much of the demand for domestic aviation and for near-European short-haul aviation could be met by high speed rail.
- 3.24** The Government's investment of £530 million to provide Britain with the best superfast broadband network in Europe will support the development of options such as videoconferencing, telepresence and web conferencing, which have the potential to reduce some elements of the demand for flying. However, we acknowledge that the CCC noted in its 2009 report there was some evidence suggesting that meetings based on videoconferencing might be additional, rather than substitutes for meetings which require air travel. As outlined earlier, we are currently assessing the costs and benefits of different policy measures to reduce UK aviation's CO<sub>2</sub> emissions, and this includes increased use of alternatives to travel.

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<sup>53</sup> Sustainable Way for Alternative Fuels and Energy in Aviation, European Commission <http://www.swafea.eu/>

## Non-CO<sub>2</sub> climate impacts of aviation

- 3.25** The total climate change impacts of aviation are greater than its CO<sub>2</sub> emissions alone. Although aviation does not emit significant quantities of any other Kyoto greenhouse gases, its other emissions have both cooling and warming effects on the climate. These effects come about as a direct result of the atmospheric conditions in which they are emitted. Non-CO<sub>2</sub> emissions with climate impacts include water vapour and nitrogen oxides (NO<sub>x</sub>). Emissions of NO<sub>x</sub> result in the production of ozone, an air pollutant with harmful health and ecosystem effects and a greenhouse gas, and the reduction of ambient methane (a cooling effect), although the overall balance is warming, based upon current understanding.
- 3.26** The last major international assessment of these impacts was made by the Intergovernmental Panel on Climate Change (IPCC) in 1999. A comprehensive updated assessment of aviation emissions was undertaken by Lee et al in 2009. Scientific advances since the 1999 assessment have reduced key uncertainties. However, considerable scientific uncertainty still remains.
- 3.27** Agreeing on actions to reduce these non-CO<sub>2</sub> climate impacts has been challenging due to the difficulties involved with quantifying the climate effects of some of these emissions. The CCC addressed this issue in its 2009 report on aviation. It made clear that it believes that, as scientific understanding develops, it is very likely that non-CO<sub>2</sub> effects will be fully accounted for in any international framework for limiting climate impacts. There are important links with air pollution policy, for example, the UNECE Convention on Long Range Transboundary Pollution seeks to reduce emissions of ozone precursors and is considering scope for control of black carbon.
- 3.28** The UK continues to support action to improve understanding of the non-CO<sub>2</sub> impacts of aviation. Existing and planned actions in place to address CO<sub>2</sub> emissions, such as more efficient routings, will help to reduce some of the impacts of aviation's non-CO<sub>2</sub> emissions.

## Adapting to climate change impacts

**3.29** It is important that airport operators consider the potential long-term impacts of a changing climate on the resilience of their infrastructure and operations. The Government will shortly be publishing *Climate Resilient Infrastructure: Preparing for a Changing Climate* which examines the likelihood of more frequent extreme weather events, such as increased rainfall and higher temperatures, and the impact this may have on the UK's infrastructure. Ten UK airports<sup>54</sup> will also be reporting on how they are identifying and addressing the risks they may face from climate change under the Climate Change Act (2008) Reporting Power.

## Summary

**3.30** This chapter has given an overview of the Government's key policies and current work on tackling aviation's climate change impacts at national, European and international levels. A sustainably growing aviation sector must be one which is significantly reducing its overall climate change impacts. Questions on aviation and climate change are set out on page 40.

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<sup>54</sup> The ten airports are: Heathrow, Gatwick, Stansted, Luton, Manchester, Birmingham, East Midlands, Edinburgh, Glasgow and Cardiff

## 4. Aviation and the local environment

- 4.1** Aviation has significant local environmental impacts, especially on those living close to airports or under flight paths. These local concerns were a key consideration behind the Government's decision to scrap plans for a third runway at Heathrow, to oppose plans for further runway expansion at Gatwick and Stansted, and to rule out mixed mode operations at Heathrow.
- 4.2** The most prominent local environmental impacts of aviation are generally considered to be noise and local air pollution, which can in turn impact on health. Measures introduced to mitigate local environmental impacts may require difficult trade-offs, for example, with global environmental impacts. Changes in operational procedures designed primarily to achieve fuel savings and reduce CO<sub>2</sub> emissions may result in increased noise impacts for local communities. Conversely, if technological development means much lower CO<sub>2</sub> emissions from aircraft engines, operational procedures which reduce noise impact may be possible without unacceptable CO<sub>2</sub> impacts.
- 4.3** In deciding how best to address local environmental impacts, a fair balance needs to be struck between the national and local benefits that can be gained from airport operations and the local environmental costs, including health. The onus is firmly on the aviation industry to show how it will reduce its impacts.

### Community involvement

- 4.4** Community involvement in aviation issues, particularly local airport operations and development plans, is very important. Airports vary enormously in their size and type of operations and in their environmental impact on communities living around airports or under flight paths. It is therefore essential that airports continue to work with

local communities to consider options on how best to mitigate local environmental impacts and seek mutual agreement on any proposed measures. At Heathrow, Gatwick and Stansted, where statutory noise control measures apply<sup>55</sup>, the Government will continue to consult publicly on any new proposed measures (noise impacts are addressed in more detail later in this chapter).

- 4.5** To assist airports and local communities in developing an effective engagement process, over 51 airports and aerodromes are statutorily required to provide consultative facilities. The Government has issued guidance which we hope helps airports and committees in providing effective local consultation<sup>56</sup>. We plan to review this guidance later this year.
- 4.6** Consultative committees can play a valuable role in representing local interests and making the airport management aware of key concerns. An example of the constructive role that committees can play has been the current airport noise action planning process. Major airports have been required to engage with their local consultative committees in the development of their draft noise action plans. This has ensured active local community involvement in the process.
- 4.7** Airport master plans are non-statutory documents prepared by airport operators to explain their future plans, including any airport development proposals and surface access initiatives, along with their related local environmental impacts and proposed mitigation measures. These master plans are designed to inform local planning processes and facilitate engagement with a wide range of stakeholders, including local communities, local authorities and businesses.
- 4.8** Many airports also run Airport Transport Forums to oversee their surface access strategies with the overall aim of increasing the use of public transport to access airports, which has the potential to reduce road transport air pollutants and so improve local air quality. These Forums bring together representatives from local authorities, transport operators, infrastructure providers, airport consultative committees and other interested parties to work collaboratively on preparing, monitoring and implementing the airports' surface access strategies.

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<sup>55</sup> Heathrow, Gatwick and Stansted are "noise designated" airports under Section 78 of the Civil Aviation Act 1982

<sup>56</sup> Guidelines for Airport Consultative Committees, DfT  
<http://webarchive.nationalarchives.gov.uk/+http://www.dft.gov.uk/pgr/aviation/environmentalissues/guidelinesforairportconsulta2880>.

Northern Ireland has a separate but parallel statutory basis for these committees and its Department for Regional Development has, in the past, issued separate guidance, based on the DfT guidance.

## Noise

- 4.9** Considerable progress has been made over the past 30 years in reducing the number of people affected by significant levels of aircraft noise. Aircraft have become progressively quieter and operating procedures have been improved to deliver real environmental benefits. For example, the number of people within the 57dBA contour around Heathrow has shrunk since the 1970s from two million to 245,000<sup>57</sup>, although we recognise that this has been accompanied by an increase in the frequency of flights. At Heathrow, runway alternation, a procedure which this Government strongly supports, provides defined periods of respite for local communities.
- 4.10** Successive governments have set specific statutory noise controls at Heathrow, Gatwick and Stansted. Elsewhere, airports have been encouraged to engage constructively with local communities in developing and implementing noise control measures, appropriate to local circumstances which can vary considerably from airport to airport.
- 4.11** The Noise Policy Statement for England (NPSE) contains a high-level vision of promoting good health and good quality of life through the effective management of noise in the context of Government policy on sustainable development. It is supported by three aims, including avoiding significant adverse impacts on health and quality of life<sup>58</sup>. Comparable principles apply for other parts of the UK.
- 4.12** Under the EU Environmental Noise Directive (END) 2002<sup>59</sup>, major airports<sup>60</sup> must prepare strategic noise action plans, based on previously generated noise maps, and submit these for formal adoption by the Government. The preparation of these plans encourages airports to explain their noise mitigation policy and describe their actions to reduce local impacts. Airports in England are encouraged to take account of the

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<sup>57</sup> Noise Exposure Contours for Heathrow Airport 2009, CAA, March 2010  
<http://www.dft.gov.uk/pgr/aviation/environmentalissues/nec/secnoise09/noiseheathrow09.pdf>

<sup>58</sup> *Noise Policy Statement for England*, Department for Environment, Food & Rural Affairs, March 2010  
<http://www.defra.gov.uk/environment/quality/noise/policy/documents/noise-policy.pdf>

<sup>59</sup> EU Environmental Noise Directive 2002/49/EC, June 2002  
<http://ec.europa.eu/environment/noise/directive.htm>

<sup>60</sup> Airports with more than 50,000 annual movements, excluding training on light aircraft



NPSE objectives in their action plans, which are “living documents” underpinning airports’ noise management policies.

- 4.13** Engagement with local communities is vital to the process, enabling specific local concerns to be considered. Seventeen airports in England, three in Scotland and two in Northern Ireland were required to produce action plans. The plans for airports in Scotland and Northern Ireland have already been adopted, while those for Heathrow, Gatwick, Manchester, Birmingham and East Midlands airports are in the final stages of adoption and all remaining plans for other major airports in England are expected to be adopted by the summer.
- 4.14** In terms of airspace, the Government has provided the CAA with air navigation guidance on consideration of airspace change proposals<sup>61</sup>. This guidance has led to the establishment of clearly defined flight paths which are designed to minimise noise disturbance by concentrating aircraft departures along routes avoiding the more densely populated areas. This has resulted in prescribed Noise Preferential Routes (NPRs) at many UK airports. NPRs support an underlying aim of limiting and, where possible, reducing the number of people significantly affected by aircraft noise. Future developments under SES, SESAR and the CAA’s Future Airspace Strategy will also bring advanced technology and improved procedures to further mitigate the effects of aircraft noise around airports. These may result in changes to existing routes and associated noise impacts.
- 4.15** In addition, the UK is working internationally to take forward initiatives to assist in future noise mitigation. These include operational procedures, such as steeper approaches and continuous climb departures, and developments in air navigation equipment and procedures. The UK is actively contributing to technical work on setting international noise standards for new aircraft types within the Committee on Aviation Environmental Protection (CAEP), which assists ICAO in formulating new policies and adopting new standards on aircraft noise and aircraft engine emissions. Through ICAO and ACARE, we also continue to develop stretching technology goals for industry to reduce noise over the medium and long term.
- 4.16** Looking forward, the Government wants to explore options to refresh noise policy with a view to providing clear objectives for industry and other key actors to improve aircraft technology and operating procedures. In respect of larger airports where growth might lead to a

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<sup>61</sup> DfT (January 2002) Guidance to the Civil Aviation Authority on environmental objectives relating to the exercise of its Air Navigation Functions, DfT, January 2002  
<http://www.dft.gov.uk/pgr/aviation/environmentalissues/ancetothecivilaviationau2879.pdf>

significant increase in noise impacts for local communities, we would like to seek views on the concept of setting a 'noise envelope'. Such an approach would aim to limit the total noise impact from airport operations, thus defining the 'envelope' within which growth would be possible, as technology and operations reduce noise impacts per plane. Local circumstances would also need to be taken into account in such an approach.

## Night noise

- 4.17** There is fairly broad consensus that night noise is the least acceptable impact of aircraft operations. At a number of airports, it continues to be a major concern for local residents. The Government has set strict controls on night flights at Heathrow, Gatwick and Stansted for many years, and there are similar restrictions at many other airports. The current night restrictions regime<sup>62</sup> for the three main London airports, which expires in October 2012, seeks to reduce noise levels progressively. Given the disruptive impact of night time disturbance, we wish to explore options for a more effective night flying regime at these three London airports that seeks to provide respite to local residents, while being mindful of the potential impacts on businesses. In considering the options we will need to adopt a balanced approach, taking into account the full range of potential impacts. These include local environmental considerations and the impact of restrictions on all stakeholders. We will ensure that any new restrictions are consistent with our better regulation principles.
- 4.18** We intend to make an announcement shortly on our proposed way forward on night noise, including arrangements for a detailed consultation on a new night flying regime for Heathrow, Gatwick and Stansted. We want to ensure that the new regime is consistent with our overall aviation policy framework. We have therefore included some specific questions on night noise in this document so that we can listen to people's views on overall noise policy and consider broad principles on night noise, before proceeding to consider detailed issues such as movement and quota limits.

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<sup>62</sup> Night Flying Restrictions at Heathrow, Gatwick and Stansted, DfT [http://webarchive.nationalarchives.gov.uk/20060715135117/http://dft.gov.uk/stellent/groups/dft\\_aviation/documents/pdf/dft\\_aviation\\_pdf\\_611809.pdf](http://webarchive.nationalarchives.gov.uk/20060715135117/http://dft.gov.uk/stellent/groups/dft_aviation/documents/pdf/dft_aviation_pdf_611809.pdf)

## Air quality

- 4.19** While local air quality has improved significantly in recent decades, levels of pollution in some areas of the UK remain harmful to health, and the rate of reduction in some key air pollutants is now levelling off. Air quality is subject to a strict legal framework which sets concentration limits for the protection of human health and the natural environment.
- 4.20** Levels of particulate matter in air are currently in compliance with European standards across the vast majority of the country. However, the World Health Organisation advises that there is no safe level of exposure to this pollutant<sup>63</sup> and additional action to address it will bring benefits to public health. A review of EU legislation in 2013 will explore how best to achieve further reductions in this pollutant. Many specific locations across the country, most frequently at roadsides, have been assessed as having excessive levels of nitrogen dioxide pollution. Road transport is the major source of air pollution at most hotspots. Aviation contributes near airports through aircraft engine emissions, airport operations, and road transport to and from airports. The Government, airport operators and local authorities all have a role to play in improving local air quality in and around airports as we work towards compliance with air quality limit values.
- 4.21** Where air quality is poor it can contribute to heart and lung conditions, as well as reducing life expectancy. Modelling by the Department for the Environment, Food and Rural Affairs suggests air pollution from man-made fine particulate matter is estimated to cut life expectancy by six months, averaged across the UK population. Based on 2008 figures, this equates to health costs up to £15 billion per year<sup>64</sup>. The Government is committed to working towards compliance with legally binding European standards for ambient levels of pollutants thought to be harmful to human health and the natural environment.
- 4.22** The UK actively contributes to technical work on setting international NOx standards for new aircraft types within CAEP. The latest standard, agreed earlier this year, represents a reduction of 15 per cent compared to the previous standard. The ICAO and ACARE frameworks set stretching technology goals for industry to reduce NOx emissions over the medium and long term. We are also contributing to the development

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<sup>63</sup> *Air Quality Guidelines*, World Health Organisation, 2005  
[http://whqlibdoc.who.int/hq/2006/WHO\\_SDE\\_PHE\\_OEH\\_06.02\\_eng.pdf](http://whqlibdoc.who.int/hq/2006/WHO_SDE_PHE_OEH_06.02_eng.pdf)

<sup>64</sup> *Air Pollution: Action in a Changing Climate*, Department for Environment, Food & Rural Affairs, 2010  
<http://www.defra.gov.uk/environment/quality/air/airquality/strategy/documents/air-pollution.PDF>

of a metric and methodology to underpin a potential non-volatile particulate matter emissions standard.

## Summary

- 4.23** This chapter has focused on noise, which is considered by many to be aviation's least acceptable local impact. We are keen to hear views on the idea of setting a 'noise envelope' within which aviation growth would be permitted, as noise per plane is reduced through technological advances or improved operational procedures. We also welcome views on night noise and air quality around airports, as well as other local impacts – positive and negative – associated with aviation. Questions on aviation and local environmental impacts are set out on page 41.

# 5. Questions

## 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.
- 5.2** What do you consider to be the aviation sector's most important contributions to economic growth and social well-being?
- 5.3** Are some sub-sectors of aviation more important than others? If so, which and why?
- 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?
- 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?
- 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?
- 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?
- 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?

## 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?
- 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?
- 5.11** Are direct connections from the UK to some international destinations more important than others? If so, which and why?
- 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)?
- 5.13** What are the benefits of maintaining a hub airport in the UK?
- 5.14** How important are transfer and transit passengers to the UK economy?
- 5.15** What are the relative merits of a hub versus a point-to-point airport?
- 5.16** Would it be possible to establish a new 'virtual' hub airport in the UK with better connectivity between existing London and / or major regional airports? Could another UK airport take on a limited hub role? What would be the benefits and other impacts?

## 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?
- 5.18** What more can be done – and by whom – to encourage a switch from domestic air travel to rail?
- 5.19** How could the benefits from any future high speed rail network be maximised for aviation?
- 5.20** How can regional airports and the aviation sector as a whole support the rebalancing of the economy across the UK?

## 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?
- 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?
- 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?
- 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?
- 5.25** Could resilience become an issue at regional airports? If so, how might this be avoided?
- 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?
- 5.27** What provision, if any, should be made for regional access into congested airports?
- 5.28** What provision, if any, should be made for General and Business Aviation access into congested airports?
- 5.29** What is the role of airspace design and air traffic management in making better use of existing capacity?

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



## 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?
- 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?
- 5.42** Do you think that current arrangements for ensuring sustainable surface access to and from airports, e.g. Airport Transport Forums and airport surface access strategies, are effective? Could more be done to improve surface access and reduce its environmental impacts? If so, what and by whom?
- 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?
- 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?
- 5.45** What is the best way to encourage aircraft manufacturers and airlines to continue to strive to achieve further reductions in noise and air pollutant emissions (notably particulate matter and NOx) through the implementation of new technology?
- 5.46** What are the economic benefits of night flights? How should the economic benefits be assessed against social and environmental costs?
- 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?
- 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?

## Any other comments

- 5.49** If you have comments on any strategic issues not covered in this scoping document, which you consider to be relevant to the development of the aviation policy framework, please include them in your response.