



A strategy towards sustainable  
development of UK aviation

▶▶▶▶ The UK aviation industry is committed to help deliver a sustainable future.



The publication of Sustainable Aviation marks an historic development with all sectors of the UK aviation industry working together to produce a long-term strategy that balances the needs of the environment with economic growth and social responsibilities.

Sustainable Aviation provides a coordinated industry response to the challenges outlined by the UK Government in the 2003 Air Transport White Paper and the joint industry and government report of the Aerospace Innovation and Growth Team (AeIGT). These made clear that the long-term sustainable development of the

aviation industry was essential to the environmental, economic and social well-being of the United Kingdom and set industry the task of leading the drive towards sustainability.

The strategy has been developed by UK airlines, airport operators, aircraft manufacturers and the principal air navigation service provider. It is the first national sustainability strategy ever produced for the aviation industry and establishes the mechanisms for monitoring and reporting on progress towards the 8 goals and 34 detailed commitments it sets out.

A long-term strategy for limiting aviation's contribution to climate change.

Technological innovation to reduce the environmental impacts of new aircraft.

A balanced approach to limit, and where possible, reduce the number of people affected by aircraft noise.

Joint industry governance to develop, strengthen and communicate the strategy.



The commitments made are significant and challenging.

- ▶ Aircraft manufacturers and suppliers are committed to improving fuel efficiency by 50% per seat kilometre, reducing NOx emissions by 80% and reducing perceived external noise by 50% (for new aircraft) by 2020 relative to their equivalents in 2000.
- ▶ Airlines are committed to developing practical solutions for the inclusion of aircraft CO<sub>2</sub> emissions in the EU Emission Trading Scheme by 2008, or as soon as possible thereafter, and common reporting of total CO<sub>2</sub> emissions and fleet fuel efficiency by the end of 2005.
- ▶ Airport operators are committed to introduce plans for community-related mitigation of noise, including operational restrictions where necessary, and active contributions to improve local air quality and reduce traffic congestion.
- ▶ Industry trade bodies are committed to establishing a joint mechanism to implement the sustainability strategy, increasing participation and strengthening commitments.

## ▶▶▶▶ Sustainability

The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life without compromising the quality of life for future generations. The UK aviation industry's vision for 2020 and beyond is to meet the needs of society for air travel and transport, while removing or minimising any negative impacts on the local and global environment.

In developing this strategy the aviation industry has taken full account of the guiding principles established by the Government for delivering a sustainable future, these include:

- ▶ living within environmental limits
- ▶ ensuring a strong, healthy and just society
- ▶ achieving a sustainable economy
- ▶ promoting good governance
- ▶ using sound science responsibly.

## ▶▶▶▶ Environmental challenges

The rapid and sustained growth in air travel has created significant detrimental environmental impacts. Noise, air quality and the contribution of aviation to climate change are causes of public concern at a local, national and global level.

The Aviation and the Environment - Using Economic Instruments Report<sup>1</sup> estimated the climate change costs associated with UK passenger travel at £1.4 billion in 2000, rising to over £4 billion in 2030. Local air quality costs for all passengers at UK airports in 2000 were estimated in the range £119 - £236 million a year, while noise costs at all UK airports in 2000 were estimated at £25 million a year. There is a range of other environmental factors associated with aviation which are more difficult to quantify in monetary terms.

The aviation industry takes its environmental responsibilities seriously and has made some significant progress. Engine development has meant that in the most modern aircraft carbon monoxide and unburned hydrocarbons have been virtually eliminated. Modern aircraft are 70 per cent more fuel efficient and 75 per cent quieter than those introduced in the 1960s, but the industry accepts that further progress is required.

The impact of aviation on the communities adjacent to airports can be very significant, but progress has been made. It is estimated that the population disturbed by noise around six of the major UK airports (Heathrow, Gatwick, Stansted, Manchester, Birmingham and Luton) fell from 503,000 in 1993 to 338,000 in 2003<sup>2</sup>. The increasing demand for air transport increases the demand on the local transport system, adding to congestion and air quality concerns. Airport operators have invested in improved public transport facilities and worked with local communities to develop integrated transport plans.

## ▶▶▶▶ Value of the aviation industry

The aviation industry plays a vital role in the national economy and in supporting those of the devolved administrations and regions. The huge range of international connections to the UK not only supports industry and commerce, but is also a key factor in attracting inward investment.

Aviation makes a £14 billion value added contribution to the UK economy, supporting 675,000 jobs with £13 billion of exports. Inward tourism is worth an additional £12 billion per annum to the UK economy, £10 billion of which is derived from visitors arriving by air.

The increasing availability of affordable air travel has widened the opportunities, experience and understanding of peoples across the world.

The UK aviation industry operates in a globally competitive market and is subject to international agreements and regulations. Operating within this framework limits the scope for national responses. In the UK the aviation industry is responsible for all its infrastructure costs and contributes just under £1 billion per annum to the Government in Air Passenger Duty. The industry believes that taxes or charges are unlikely to be effective measures to limit aviation's contribution to climate change impacts.



<sup>1</sup> Department of Transport, London, 2003. Aviation and the Environment - Using Economic Instruments.

<sup>2</sup> Source: DEFRA.

## ▶▶▶▶ Role of government

The aviation industry has appreciated the support it has received from the Department for Transport (DfT), Department of Trade and Industry (DTI) and the Department of Environment, Fisheries and Rural Affairs (DEFRA) in developing Sustainable Aviation. The long-term engagement of ministers and officials in meeting the challenges of sustainable development will be essential in securing industry's goals and commitments.

Aviation operates within a framework of controls operating at global, national and local levels. Some of the goals established in Sustainable Aviation assume changes that can only be effected by government. The aviation industry has set out a series of recommendations that it believes government needs to address to secure success.

These include:

- ▶ continuing to work through the International Civil Aviation Organisation (ICAO) and other relevant international organisations, to define solutions at an international level
- ▶ continuing to take a leading role in ensuring the delivery of the National Aerospace Technology Strategy through the coordination of government resources identified in the AeIGT Implementation report, and ensuring funding mechanisms are available to enable manufacturers to maintain the drive towards technological and operational targets
- ▶ encouraging and facilitating studies on technical and economic impacts, and on trade-offs, aimed at meeting environmental targets, in association with academic studies on the environmental impacts of aviation
- ▶ this joint approach should also include active support to link international research in this area through networking and knowledge transfer
- ▶ establish a consistent policy of more rigorous examination of planning permission for new noise sensitive buildings within specific noise impact areas.

## ▶▶▶▶ Governance, reporting and participation

The Airport Operators Association (AOA), the British Air Transport Association (BATA), National Air Traffic Services (NATS) and the Society of British Aerospace Companies (SBAC) as the bodies representing the airport, airline, aerospace manufacturing industries and the principal air traffic control provider have taken on the responsibility of taking forward the Sustainable Aviation strategy. Their goal is:

Full industry commitment to sustainable development, and a broader understanding of the role of aviation in a sustainable society.

To achieve this goal Sustainable Aviation signatories commit to:

- ▶ progressively strengthen the Sustainable Aviation goals and encourage all aviation companies to endorse the strategy and participate in its delivery
- ▶ report formally and publicly on progress towards the strategy's goals and commitments every two years, with the first review in the autumn of 2006
- ▶ a Sustainable Aviation Governance Framework, to facilitate progress towards achieving the strategy's goals
- ▶ UK aviation companies will develop, implement and encourage best practice among industry partners across sustainable development issues
- ▶ provide the means for communication on issues related to aviation and sustainable development, including stakeholder dialogue, through the ongoing Sustainable Aviation process.

## ▶▶▶▶ Tackling climate change

Climate change is one of the most important challenges facing humanity in the 21st Century. The long-term objective of policy-makers is to achieve stabilisation of greenhouse gas concentrations at a level that will prevent dangerous man-made interference with the climate system. The aviation industry supports that goal and is committed to limiting aviation's contribution.



**The goal of Sustainable Aviation is that:**

Aviation incorporated into a global policy framework that achieves stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous man-made interference with the climate system.

To achieve this goal Sustainable Aviation signatories commit to:

- ▶ airline and airport signatories to build support and assist policymakers in developing practical solutions for inclusion of aircraft CO<sub>2</sub> emissions in the EU Emissions Trading Scheme by 2008, or as soon as possible thereafter, as a first step towards a global approach
- ▶ take a proactive role towards securing a positive engagement from the international aviation community to support measures to address climate impacts
- ▶ provide relevant data and expertise for the scientific community to enhance understanding of the non-CO<sub>2</sub> atmospheric effects of aviation, and support improvements in metrics for quantifying and reporting effects
- ▶ propose appropriate mechanisms by 2012 for mitigating non-CO<sub>2</sub> effects based on a consensus of scientific understanding
- ▶ continual improvement in technology and air traffic management towards the ACARE emission targets; to improve fuel efficiency by 50% per seat kilometre, including up to 10% from air traffic management system efficiencies, and reduce NOx emissions by 80%, by 2020 based on a new aircraft of 2020 relative to an equivalent new aircraft in 2000
- ▶ develop and implement common reporting of total CO<sub>2</sub> emissions and fleet fuel efficiency by airlines by the end of 2005
- ▶ inform passenger understanding of the climate impacts of air travel, including evaluating carbon offset initiatives as a practical short-term measure. Provide an update by the end of 2006.

## ▶▶▶▶ Noise

Historically, noise has been the external impact of aviation with the highest profile. There have been substantial reductions in the noise generated by new aircraft and in the overall noise at many airports. For some people near airports, aircraft noise continues to be a significant nuisance affecting their quality of life. Noise emitted at night is of particular concern and the industry, government and society must seek to balance disturbance, the constraints on international schedules, and the best use of available aviation capacity.

**The goal of Sustainable Aviation is to:**

Limit and, where possible, reduce the number of people affected by aircraft noise in the UK.

To achieve this goal Sustainable Aviation signatories commit to:

- ▶ continual improvements in technology and operations towards the ACARE goal of 50% reduction in perceived external noise by 2020 based on new aircraft of 2020 relative to equivalent new aircraft in 2000
- ▶ where appropriate and not already in place, plans for community-related mitigation initiatives to be completed by 2007
- ▶ develop and promote low-noise flight procedures through evaluation of future operational methods and implementation of best practice, for example: evaluating implementation of steeper and curved approaches for noise abatement at relevant airports; completing a CDA outreach programme at all main airports by end 2006; and assessing the feasibility of a best practice guide for environmentally optimum departure procedures, balancing both noise and local air quality requirements, by end 2006

- ▶ support operating restrictions at particular airports, where these are shown to be proportionate and necessary, and less restrictive solutions are not available
- ▶ continue to engage with noise-affected communities and develop local airport noise communication programmes by 2007, tailored to the needs of those communities.

## ▶▶▶▶ Local air quality

There is concern that EU standards for the annual mean concentrations of nitrogen dioxide (NO<sub>2</sub> a component of NO<sub>x</sub>) and, possibly, particulates, will be breached at residential dwellings near some airports. The NO<sub>2</sub> burden in the vicinity of airports is comprised of contributions from aviation as well as from other sources, principally road traffic.

More stringent NO<sub>x</sub> standards will apply to all newly certified aircraft engines from 2008. While many engines already achieve this standard it should reduce NO<sub>x</sub> emissions from comparable aircraft types. Some airlines have retrofitted low NO<sub>x</sub> technology for their fleets substantially reducing emissions into the local environment around airports where these aircraft operate.



**The goal of Sustainable Aviation is for:**

Industry playing its full part in improving air quality and meeting air quality regulatory requirements at sensitive airport locations.

To achieve this goal Sustainable Aviation signatories commit to:

- ▶ contribute to air quality measurement programmes and aid research to improve the assessment of aircraft and airport emissions to enable a better understanding, by 2007, of their actual contribution to local air quality close to airports
- ▶ continual improvement in technology towards the ACARE target of an 80% reduction in NO<sub>x</sub> emissions by 2020 based on new aircraft of 2020 relative to equivalent new aircraft in 2000
- ▶ deliver continued improvements in airport ground vehicles, supply of ground power services, operational practice and the availability of cleaner fuels, in order to reduce NO<sub>x</sub> emissions. Report on progress by end 2006
- ▶ quantifying trade-offs between NO<sub>x</sub>, noise and CO<sub>2</sub> emissions, so that these are taken into consideration by relevant regulators when setting future requirements.

## ▶▶▶▶ Integrated transport

Increased demand for air transport has created congestion on local transport systems. All major UK airports are well served by public transport including direct coach and rail services and an underground service to Heathrow. This benefits both passengers and staff and reduces the environmental impact relative to cars.



**The goal of Sustainable Aviation is for:**  
Industry to play its full part in the development of an integrated transport system.

To achieve this goal Sustainable Aviation signatories commit to:

- ▶ completing, by 2007, establishment of surface access strategies for each airport and those companies located at airports, within Air Transport Forums, for staff, freight and passengers.



## ▶▶▶▶ Natural resources

In addition to emissions and noise, aviation has other more general impacts on the UK environment, specifically the consumption of natural resources, land use, and impacts on biodiversity. Aviation companies have been developing their environmental management systems with many having certified systems in place.



**The goal of Sustainable Aviation is for industry to:**

**Continue to manage and limit the industry's overall environmental footprint.**

To achieve this goal Sustainable Aviation signatories commit to:

- ▶ achieve continuous improvement in the efficiency of use of energy and water use, and the management of waste, chemicals, water quality and environmentally sensitive materials
- ▶ make substantial progress in further limiting the environmental impact of supply chains
- ▶ for new developments requiring land, avoid the loss of natural and man-made heritage wherever possible
- ▶ review periodically the potential and practicalities of alternative fuels to aviation kerosene.

## ▶▶▶▶ Economy

The aviation industry plays a vital role in the economy. The economic aim is to maintain and develop a competitive and commercially viable aviation industry, which can continue to make a sustainable contribution to the UK economy. In order to achieve this, while meeting its environmental goals, it is necessary that the UK industry remains in good financial health and is allowed to compete on a level playing field. While some airlines and airports are key players in providing global air transport connections there is also an important regional aviation market.

UK Aerospace is world-class, with a leading science base and a high value added manufacturing sector. A programme established by the AeIGT to enhance skills, promote greater investment in research and technology and increase the rate of productivity improvement is designed to ensure that the sector remains globally competitive.

**The goal of Sustainable Aviation is for:**

**A competitive and commercially viable aviation industry making a positive contribution to the UK economy.**

To achieve this goal Sustainable Aviation signatories commit to:

- ▶ play an active ongoing role in local economies close to all major sites, promoting regeneration and employment opportunities
- ▶ maintain and develop commercially viable air links to support the UK economy and regional development
- ▶ promote the maintenance and development of UK civil aviation manufacturing as a world-class industry.

## ▶▶▶▶ Social

Aviation, like other industries, needs to address its responsibilities to the many people with whom the industry interacts. UK Aviation is committed to building and maintaining constructive relationships with key stakeholders and employees.



**The goal of Sustainable Aviation is for:**

An industry with constructive relationships with employees, local communities, customers and industry partners, meeting society's air transport needs.

To drive towards this goal Sustainable Aviation partners commit to:

- ▶ make a positive contribution to the skills, knowledge and motivation of all employees and provide a safe, healthy work environment
- ▶ investigate consultative approaches leading to binding agreements as an agreed approach to the development of commercial airport infrastructure
- ▶ deliver high quality service to passengers
- ▶ continue to meet the requirements of people for access to aviation
- ▶ engage with the tourism industry to coordinate approaches to sustainable development issues and clarify areas of responsibility.

## ▶▶▶▶ Taking Sustainable Aviation forward

The delivery of the goals and commitments outlined in Sustainable Aviation is a long-term project. AOA, BATA, NATS and SBAC are establishing operating arrangements to evolve, report on and promote this strategy.

*This strategy is fully endorsed by the following companies:*

**Airlines:**

*British Airways  
First Choice Airways  
flybe  
Monarch  
Thomas Cook  
Thomsonfly  
Virgin Atlantic*

**Air navigation service provider:**

*National Air Traffic Services Ltd*

**Airports:**

*BAA (Aberdeen, Edinburgh, Gatwick, Glasgow, Heathrow, Stansted, Southampton)  
Belfast City  
Birmingham International  
Bristol International  
Glasgow Prestwick International  
Leeds Bradford  
London City  
Manchester Airports Group (Bournemouth, Humberside, Manchester, NEMA)  
Newcastle International  
Peel Airports Group (Durham Tees Valley, Liverpool John Lennon, Robin Hood Doncaster Sheffield, Sheffield City)  
TBI Group (Belfast International, Cardiff International, London Luton)*

**Manufacturers:**

*Airbus UK Ltd  
BAE SYSTEMS PLC  
Bombardier Aerospace, Belfast  
Cobham plc  
Defence Aviation Repair Agency (DARA)  
Doncasters Ltd  
GKN plc  
Marshall of Cambridge Aerospace  
Meggitt PLC  
Messier-Dowty Ltd  
Rolls-Royce PLC  
Smiths Group plc*

## ▶▶▶▶ Indicators

A set of indicators has been established to measure industry's progress towards sustainability.

GOAL	INDICATOR
Governance	List of companies/organisations endorsing strategy.
Climate change	Total direct CO <sub>2</sub> emissions from individual companies. Aggregated and individual airline fuel efficiency in grammes per revenue tonne kilometre. Progress towards the 50% fuel efficiency target.
Noise	The number of people living within the 57 dBA 16 hour LEQ contours at individual airports. % achievement of continuous descent approaches at individual airports. Progress towards the 50% noise reduction target.
Air quality	Inventories of airport ground levels emissions of NO <sub>x</sub> . Annual mean concentrations of NO <sub>2</sub> at appropriate monitoring sites.
Integrated transport	Modal split for transport access by passengers at individual airports. Modal split of transport used by staff at individual airports.
Natural resources	The list of companies producing externally verified reports covering environmental issues.
Economic	Market share and industry gross value added. % of GDP due to the aviation industry. Turnover and gross margin of individual companies.
Stakeholder engagement	Number of employees within the industry. Proportion of UK population that flies annually by air.

For future information on Sustainable Aviation log on to:

[www.sustainableaviation.co.uk](http://www.sustainableaviation.co.uk)

[www.aoa.org.uk](http://www.aoa.org.uk)

[www.bata.uk.com](http://www.bata.uk.com)

[www.sbac.co.uk](http://www.sbac.co.uk)

[www.nats.co.uk](http://www.nats.co.uk)

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Printed in the UK on recycled paper

Pub 7848/5k/06/05/NP.

URN 05/1252