

Heathrow Air Quality

Together towards sustainability



Air Quality Strategy Executive Summary

2011–2020

Executive Summary

Introduction

As the world's busiest international airport and the UK's only major hub airport, Heathrow performs the important economic role of maintaining a frequent and profitable network of direct long haul air routes that help the economic vitality of London and the UK.

Located to the west of London, the airport is within an area of high emissions; with significant contributions from London itself as well as from two nearby motorways, major roads, local industry and local housing as well as the airport. Tackling local air quality issues will require action and collaboration from a range of industries, organisations and individuals. Where airport operations significantly add to these emissions Heathrow Airport Ltd (HAL) will play its role in achieving compliance with the EU limit values at sites around Heathrow. We will do this by tackling our own emissions (those we control), and working in partnership with airlines and other companies that use our airport to address the emissions they create (those we guide and influence).

We take a logical, systematic approach and this Strategy sets out the actions we will take to reduce air pollution emissions. The actions taken will be balanced against the other operational environmental needs of the airport – i.e. seeking reductions in noise and CO₂ emissions. This Strategy builds on the success of previous Air Quality Action Plans as well as incorporating new initiatives and technological advances. It has three primary objectives:

1. To accurately quantify the contribution from airport related sources to local air quality concentrations at all relevant local receptors to ensure we focus our management activity in areas with the most significant impacts;
2. To reduce NO_x emissions we control, guide and influence to help achieve compliance with the EU air quality limit values;
3. To demonstrate we are using the best practicable measures to reduce Heathrow's contribution to air quality to ensure our contribution is understood by key stakeholders.

Pollutants of concern

Large areas of London exceed the health-based air quality limit values due primarily to emissions from road traffic and from buildings, and every London borough has declared at least one Air Quality Management Area (AQMA). This pattern is repeated locally, where the activities that take place at Heathrow Airport are just one of the many sources of air pollutant emissions in the local area.

Air quality management is a key priority for HAL and local air quality is one of the issues of concern to local residents and national stakeholders. The main pollutants of concern in the Heathrow area are nitrogen dioxide (NO₂) and particles (measured as PM₁₀ and PM_{2.5}). The EU has specified concentration limits for these pollutants due to their impact on human health. Only NO₂ exceeds the EU limit value in some local areas which requires HAL and other stakeholders to reduce emissions of its precursor – oxides of nitrogen (NO_x).

Local air quality monitoring shows measured concentrations of particles have declined over recent years and that the UK and EU health-based air quality objectives have not been breached at locations inside or outside the airport boundary since 2003. Even so, HAL is committed to reduce these emissions and many of the actions within this Strategy, focussed on reducing emissions of NO_x, will also reduce emissions of particles.

We use two methods to determine air quality levels;

1. Continuous air quality measurements are undertaken to national standards at a number of fixed sites – providing comparison with legal limit values, as well as historical trends and a basis to enable computer models to be verified.
2. Dispersion modelling gives a much clearer picture of concentrations over a large area, and ‘fills the gaps’ between monitoring stations. Because the modelling is based on an estimate of emissions in and around the airport, the impact of changing these emissions and carrying out future projections is also possible.

Areas of focus

HAL recently completed a new emissions inventory for Heathrow Airport¹. It updates the last inventory completed for 2002, which was used as a basis for the Project for the Sustainable Development of Heathrow (PSDH) and takes account of the new airport layout – including Terminal 5.

Direct airport NO_x (oxides of nitrogen) emissions for 2008/09 were estimated to be in the region of 5,800 tonnes. Ground level emissions, which make the most impact to local air quality, were less than half of these – approximately 2,600 tonnes.

The main improvements to on-airport emissions were brought about from the opening of Terminal 5 enabling more efficient aircraft movements on the airport and changes to the aircraft fleet. Total NO_x emissions from ground-level aircraft sources were approximately 1,637 tonnes; a fall since 2002 of around 24 tonnes even though there were 3,500 more aircraft movements in 2008/09.

In 2010, we calculated emissions fell by approximately 80 tonnes compared with 2008/09 which indicates two of our key policies are working well:

1. More aircraft with lower NO_x emissions are using the airport, partly in a response to our landing charges. Ground emissions from aircraft main engines fell by approximately 45 tonnes
2. Limit the use of auxiliary power unit (APU) use on the airport and assess how long they run for. This data indicates APU emissions fell by approximately 35 tonnes, based on manual surveys.

Elevated aircraft NO_x emissions – those produced after take-off – have a much lower impact on local air quality. These emissions increased between 2002 and 2008/09, and although part of this increase was due to increase number of aircraft movements, methodological changes have also had an impact – See section 4 of the Air Quality Strategy for details.

Emissions for airside vehicles and stationary sources increased between 2002 and 2008/09, which may partly be due to better data collection methods for the 2008/09 inventory.

Although HAL is committed to reducing airport-related emissions, we also expect other organisations to play their part to reduce emissions from other sources over which HAL has no influence or control; non-airport related road traffic for example. We will work in partnership with relevant organisations to influence emissions reduction from these non-airport sources.

The Air Quality Strategy focuses on reducing emissions from the four main airport sources:

- Aircraft emissions – both airborne and whilst on the ground
- Airport-related road traffic
- Airside vehicles and plant
- Fixed energy plant

Key actions

We encourage the cleanest possible aircraft fleet to use Heathrow by levying a NO_x-based landing charge; minimise the use of auxiliary power units by enforcing mandatory time limits and encourage the efficient movement of aircraft whilst taxiing.

Over the next 10 years, the development of low and zero emission vehicle fuels and technologies is likely to provide a range of choices to reduce NO_x (and CO₂). It is not clear at this stage which will be most appropriate for use in airside vehicles. It is likely that a mix of technologies and fuels will be needed due to the niche applications that exist on a major airport such as Heathrow, and we are committed to supporting the trials of new vehicle fuels and technologies to assess their cost-benefits for deployment. These trials could include further investigations of electric vehicles, biofuels and hydrogen.

Actions to reduce emissions from landside airport-related vehicles will be investigated and where appropriate incorporated into the Sustainable Transport Plan in 2012.

For further information on our wider corporate responsibility programme, please visit our website www.heathrow.com.

Key Performance Indicators

The following table summarises the Key Performance Indicators we will use to track the effectiveness of key policies in the Strategy.

| Objective | KPI | Current position |
|---|--|--|
| 1. Accurately quantify contribution from airport related sources to local air quality | Maintain agreement between monitored and modelled NO _x concentrations of $\pm 15\%$ | met in 2008/09 inventory |
| | Minimum of 90% data capture at our monitoring sites | 9 monitors out of 13 above 90% data capture in 2010, 2 above 80% and 2 above 75% |
| 2. Reduce NO _x emissions we control, guide and influence | Number of relevant air quality monitoring sites within the Heathrow Study Area which are not compliant with the EU limit value for NO ₂ | 3 sites out of 8 exceeded in 2010 |
| -Control | PPC permit emissions limits exceedance for boiler plant resulting in EA taking enforcement action | zero in 2010 |
| | Total NO _x emissions from HAL vehicle fleet | Emissions baseline of 4.2 tonnes established for 2010 |
| -Guide | Proportion of ATMs by CAEP standard | 91% ATMs CAEP 4 or better |
| | Compliance with maximum APU run time allowances on arrival and departure | 2010 compliance target was 85% Actual compliance was 91% |
| -Influence | Total NO _x emissions from airport related traffic. | Calculated as 929 tonnes in 2002. Updated contribution to be determined in 2011 |
| 3. Demonstrate we are using best practicable measures to reduce emissions and ensure our strategy is understood by key stakeholders | Heathrow's performance benchmarked against other airports | To be determined in 2011 |
| | Survey of stakeholder opinion | To be determined in 2011 |

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Together towards sustainability

For more information, please download the full Air Quality strategy here:
www.heathrowairwatch.org.uk/reports/HAL_Air_Quality_Strategy.pdf

Working towards a sustainable Heathrow

Heathrow plays an important role connecting London and the UK to the world.

Heathrow's vision is to be 'Europe's hub of choice'.

Delivering this vision relies on Heathrow being managed sustainably. This means enhancing the airport's social and economic benefits and reducing its negative environmental impacts.

Achieving the right balance between those impacts, and aligning with the UK Government's sustainable development principles, will help Heathrow to earn the trust of its many stakeholders and achieve our vision.

Our sustainability commitments are to:

1. Enhance the local, regional and national economic and social benefits of Heathrow.
2. Seek to prevent, reduce or offset Heathrow's significant effects on the environment and local communities, and work with others to ensure that the airport plays its role in respecting environmental limits.
3. Provide good conditions of employment, respect diversity and equal opportunity, and provide a safe, healthy and secure airport for staff and passengers.

Where we do not directly control Heathrow's impacts, we will work in partnership with stakeholders at and around Heathrow to improve performance. We will also work constructively to influence the development of appropriate government policies.

We will:

- Ensure that our business strategies integrate the sustainability issues that are material to our business.
- Define objectives and goals in consultation with our stakeholders and will deliver these through action plans and performance targets embedded within our business functions.
- Measure and review progress against these targets and communicate performance transparently.

About this briefing

This document is part of a series of briefings which outline our approach to developing a sustainable Heathrow.

The series replaces the annual Corporate Responsibility Report we have previously published and is designed to provide an accessible, frequent insight into key sustainability issues.

In 2011, the series will cover:

- 2010 Sustainability performance summary
- Economy
- Waste
- Safety

In 2010, the series covered:

- 2009 Sustainability performance summary
- Climate change
- Noise
- Air quality
- Education, employment and skills

Detailed information on the issues contained in these briefings as well as our wider sustainability programme is available at heathrowairport.com/sustainability

About BAA

UK airports

BAA owns and runs Heathrow, Stansted, Southampton, Glasgow, Edinburgh and Aberdeen airports.

Rail

BAA owns and operates the public rail service Heathrow Express and jointly owns Heathrow Connect.

Information relating to BAA and the airports it owns is available at baa.com

Contact us

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