



A focus on climate change

Towards a sustainable Heathrow

Heathrow 

Making every journey better.

Aviation and climate change

Demand for air travel is increasing - driven by globalisation and the rise of emerging economies. As the UK's only hub airport, our interest is in enhancing the national and local economic benefits that Heathrow provides while minimising our impact on local communities and the environment. This report sets out our approach to managing our impact on climate change.

Aviation's CO₂ emissions

We believe that the growth of aviation and avoiding dangerous climate change is not a zero sum game. Both can be achieved through technological advances, low carbon fuels and more efficient operations supported by aviation's participation in open emissions trading, initially at the European level and then globally.

Globally, aviation accounts for around 3.5% of the total human contribution to climate change. The Intergovernmental Panel on Climate Change estimate that this will increase to between 5% and 15% by 2050.¹

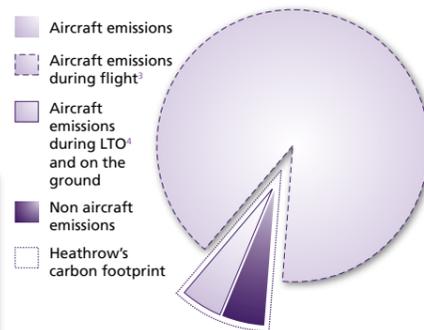
In the UK, the Department For Transport (DfT) calculate that CO₂ emissions from international and domestic aviation as being 37.5 million tonnes in 2005, i.e. 6.4% of the UK's total.²

“There is potential for aviation demand to increase while still meeting the Government's [climate change] target.”
Lord Turner of Ecchinswell, Chair of the Committee on Climate Change

Heathrow's CO₂ emissions

During 2005, domestic flights to and from Heathrow and international departures from Heathrow generated 17.1 million tonnes of CO₂.³

Heathrow's operations generated a carbon footprint of 2.31 million tonnes of CO₂ in 2009. This includes emissions from aircraft landing, taking off and moving on the ground as well as from passengers and staff travelling to the airport and activities in and around the terminals.



³ International departures and domestic flights on route to and from Heathrow

⁴ Landing and take-off cycle

Growing aviation within CO₂ limits

Can UK aviation grow and be consistent with the UK Government's ambitious CO₂ reduction targets?

Based on a set of prudent assumptions, the Committee on Climate Change⁵ recently announced that the answer is 'yes'. They concluded that the UK can accommodate aviation growth of up to 60% while meeting the government's 2050 target to cut CO₂ emissions to less than 80% of the level in 1990.

Technological advancements will make this possible through the development of more efficient aircraft, low carbon fuels and more efficient operations. Modal shift and other measures will also have a role to play.

Investment in technology will be encouraged through aviation's participation in emissions trading, initially within the European Union and then globally.

The Committee also concluded that building a third runway at Heathrow could be compatible with the UK's overall CO₂ reduction targets.

⁵ Committee on Climate Change "Meeting the UK Aviation Target: options for reducing emissions to 2050," 2009

Emissions from flights: technology and emissions trading

BAA contributes to the international approach to managing aviation's climate impacts. Technology can help cut emissions even as the industry grows. Emission trading offers the potential for further reductions.

Technology, operations & fuels

Industry group Sustainable Aviation¹ has published a road map demonstrating how, by 2050, CO₂ emissions can be reduced to the level they were in the year 2000, even with a three-fold increase in flights.

CO₂ savings include:

- 26% through improvements in engine and airframe design up to 2020.
- 25% through more radical technologies such as open-rotor engines introduced after 2020.
- 10% through improved air traffic control resulting in more direct routes.
- 10% through the use of biofuels from sustainable sources.

Emissions trading

We regard emissions trading as an important measure in managing aviation's CO₂ impacts and view the inclusion of emissions from flights in the EU ETS² as a positive first step prior to an international solution.

IATA³ has led the global industry in making a commitment, by 2050, to reduce net CO₂ emissions by 50% against 2005 levels – a target which exceeds the level agreed by aviation industry regulator ICAO⁴.

BAA are founding members of the Aviation Global Deal Group (AGD)⁵ which has proposed a detailed international solution. This involves giving international aviation an equivalent status to a country: allocating CO₂ permits and reduction targets and allowing the industry to trade emissions with other countries or sectors.

The AGD has modelled possible scenarios which demonstrate how, by 2050, CO₂ emissions from aviation could be reduced by between 50% and 80% from 2005 levels. Revenues of between US \$1.5 and \$5 billion could be generated through the sale of CO₂ emission allowances and the AGD recommends that these should be invested in climate change initiatives in developing countries.

¹ A body bringing together airlines, the National Air Traffic Service, technology providers, BAA and UK airports

² European Union Emissions Trading Scheme

³ International Air Travel Association

⁴ International Civil Aviation Organisation

⁵ An industry coalition including BAA, leading airlines and NGO The Climate Group

“The global deal offers the best way for society to reduce CO₂ emissions from flights while supporting investment in climate change mitigation and adaptation.”
Steven Howard, CEO The Climate Group.

How emissions trading works

- Emission levels are capped for countries or sectors.
- The cap is allocated between companies operating within these countries or sectors.
- The cap can be lowered to achieve reduction targets.
- Companies whose emissions are below their allocation can sell the surplus, providing a commercial incentive for carbon reduction.
- Companies which can't operate within their allocation buy surpluses from others.
- Market forces draw investment towards the most cost-effective carbon reduction projects.
- CO₂ reduction targets are achieved in the most efficient way.

EU Emissions Trading Scheme

- Flights arriving and departing in the EU will be included in the EU ETS from 2012.
- Emissions will be capped at 95% of 2005 levels, with 15% of permits being bought by airlines through auction.
- Emissions above the cap must be purchased by airlines from the open carbon market, thereby paying for CO₂ reductions in other sectors.

60%

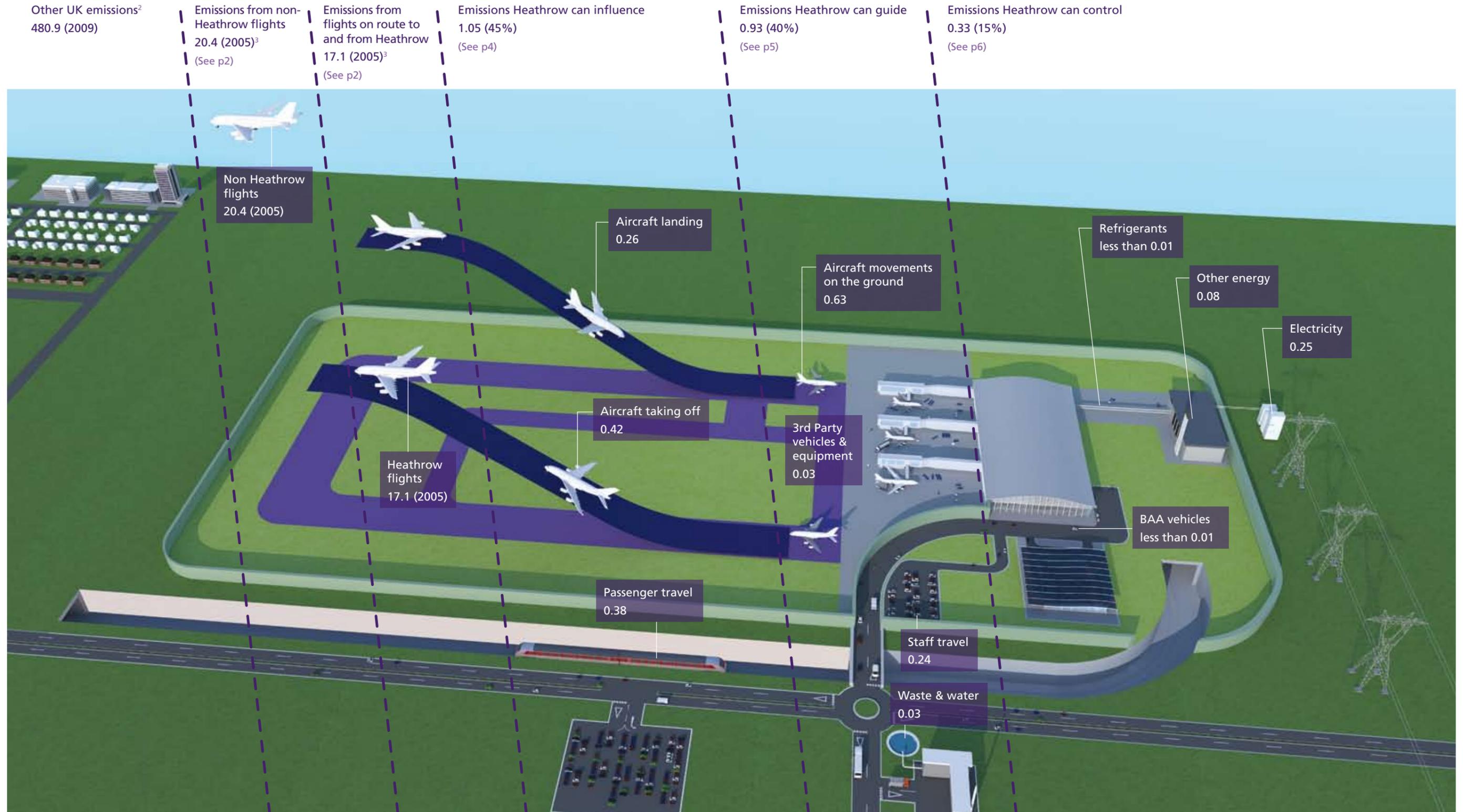
The UK can accommodate a 60% growth in aviation while meeting government CO₂ reduction targets.

50%

IATA led the aviation industry in committing to a 50% reduction on CO₂ levels by 2050 relative to 2005.

Aviation and Heathrow's contribution to the UK's carbon footprint¹

Heathrow works to influence, guide and control CO₂ emissions from aircraft in flight, landing, taking off and on the ground, from passengers and staff travelling to the airport, and from activities on the airfield and in and around the terminals.



¹ All emissions are reported in million tonnes of CO₂ or CO₂e (refrigerants)
² Department of Energy and Climate Change, "2009 Provisional statistical release". Excludes international aviation and shipping
³ Department of Transport, "UK air passenger demand and CO₂ forecast" 2009. Table 3.7, p84

Heathrow's carbon footprint

We describe our approach to measuring and managing Heathrow's carbon footprint using a model based on what we, as the airport operator, 'influence', 'guide' and 'control'.

- BAA influences CO₂ performance at and beyond Heathrow by engaging with stakeholders to develop and promote solutions to managing emissions.
- BAA guides CO₂ performance at Heathrow by agreeing with airport companies and staff the policies, standards and operating procedures used to manage emissions within and close to the airport boundary.
- BAA controls CO₂ performance at Heathrow by directly managing emissions within its operational and financial control, primarily related to energy use.

BAA influences, guides and controls CO₂ emissions as passengers journey from home through Heathrow to their destination.

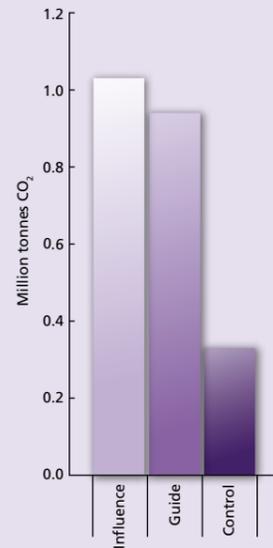
	Influence	Guide	Control
Home	Passenger travel to airport	Airport staff travel	
Airport		Aircraft on the ground 3rd party vehicles Waste and water	Electricity and gas BAA vehicles Refrigerants
Destination	Aircraft taking-off and landing		
CO ₂ (million tonnes) (total 2.31)	1.05	0.93	0.33
% of Heathrow carbon footprint (2009)	45%	40%	15%

Heathrow's carbon footprint

Our carbon footprint includes emissions from activities we control as well as those we guide and influence.

We include emissions from flights up to 3,000 ft during landing and take-off (LTO), aligning with ICAO's LTO cycle.

We don't include emissions from aircraft on route to and from Heathrow in our annual footprint, but we do recognise these as relating to Heathrow. These were 17.1m tonnes in 2005, the most recent UK Government data published.



Emissions that Heathrow can influence

We influence industry partners to reduce emissions from aircraft during take-off and landing and support Government policy for rail transport connecting Heathrow to the UK.

Aircraft during landing & take-off

Trials at Heathrow demonstrate how CO₂ savings can be achieved through new landing and departure procedures.

For example, a partnership involving Singapore Airlines, Airbus, NATs and BAA has developed a new departure procedure for A380s which saves 300kg of fuel per flight.

By using less power when taking off, and applying flexible acceleration between 1,500 and 4,000 feet, the new procedure delivers 1 tonne fewer CO₂ emissions per flight while complying with the airport's noise procedures and reducing NO_x emissions.

“Over the last few decades the industry has taken enormous strides to enhance the efficiency of aircraft and I see no reason why, with the appropriate regulation and incentives, this progress cannot be sustained in the years ahead.”
Lord Adonis,
Secretary of State for Transport.

Travelling to and from Heathrow

We support viable low carbon alternatives to air travel that connect Heathrow to the rest of the UK and Europe.

We believe that high-speed rail could offer passengers an alternative to some domestic flights and to European destinations where the journey time is between three and four hours.

We support the UK Government's commitment to a high speed national rail network linking London and the north-west of England, and are currently studying a number of options for optimising Heathrow's rail connectivity.

We want to reduce the proportion of Heathrow passengers who opt to 'kiss and fly' (be dropped off or collected by private car) and increase the use of public transport by passengers.

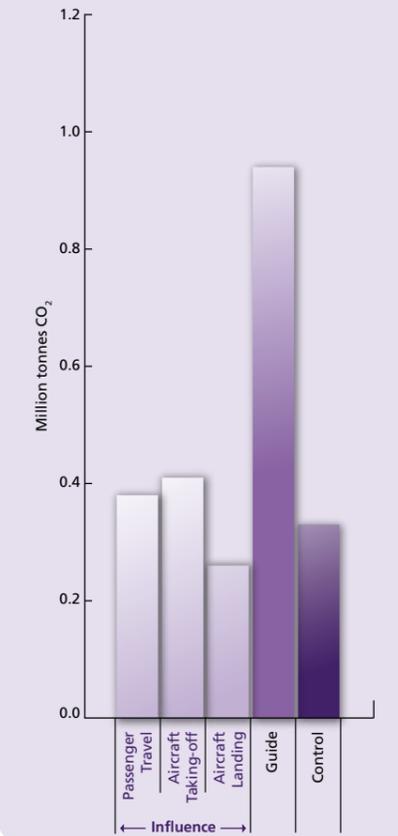
Over the last decade we have invested £1 billion in rail infrastructure. We have spent £5.2 million in developing the first stages of the Heathrow Airtrack rail project linking Terminal 5 with the rail network to the south and west of the country.

We have already achieved our 2012 goal for 40% of passengers to take public transport. We maintain our commitment to increase this to 45% in the longer term with the introduction of new strategic public transport infrastructure such as Airtrack.

Our carbon footprint

Heathrow's carbon footprint includes:

- Emissions which we influence
- Emissions which we guide
- Emissions which we directly control



15%

BAA directly controls 15% of Heathrow's carbon footprint.

45%

Our goal is for 45% of passengers to take public transport to and from Heathrow.

Emissions that Heathrow can guide

We guide emissions resulting from aircraft moving on the ground and from the activities of companies and staff based at the airport.

Managing aircraft ground movement

Almost 27% of Heathrow's carbon footprint is from aircraft running their engines on the ground.

In partnership with Sustainable Aviation we are working to deliver reductions in emissions from aircraft movements on the ground. The Clinton Climate Initiative has provided independent scrutiny and expert input into the project, which has identified that CO₂ savings per aircraft movement are already being delivered, with potential for further cuts.

Measures offering the greatest potential for reductions include aircraft taxiing with fewer engines than normal and increasing the use of electricity and conditioned air provided by BAA at stands in place of less efficient onboard engines. Our model provides a blueprint for emissions reductions which can be used by other airports around the world.

Staff travel

Heathrow operates Europe's biggest car share scheme for airport employees, with over 2,500 people working in over 100 different Heathrow companies regularly sharing their car journey to work.

We invest in improving the quality, coverage and frequency of local bus services in

partnership with transport operators. We provide funding to set up new routes, support existing routes and subsidise rail and local bus journeys for Heathrow employees. We also use emissions criteria in selecting contractors for our car park and inter-terminal coaches.

We are achieving our 2012 target of no more than 65% of employees travelling to work in single occupancy vehicles.

Operational vehicles

A 'Clean Vehicle Programme' is in place at Heathrow, through which companies working at the airport are supported in improving the efficiency of their vehicle fleets and encouraged to switch to low carbon fuels.

Currently, 894 (11.8%) of the vehicles operating at the airport are hybrid or electric powered. We are developing a new strategy to increase the use of cleaner vehicles further.

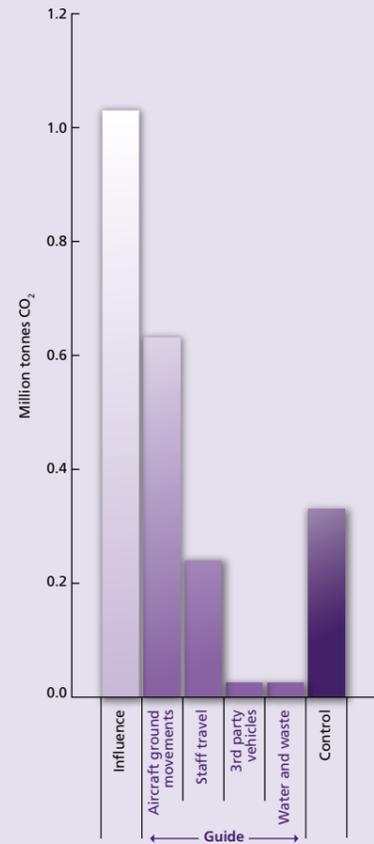
Water and waste

By using water more efficiently, we intend to reduce CO₂ generated through pumping and treating water used at the airport. Achieving our targets to recycle 70% of waste and send zero waste to landfill will contribute towards reduced CO₂ from transporting and processing waste generated at Heathrow.

Our carbon footprint

Heathrow's carbon footprint includes:

- Emissions which we influence
- Emissions which we guide
- Emissions that we directly control



Emissions that Heathrow can control

We control emissions at Heathrow through a combination of energy efficiency initiatives and investment in less carbon intensive energy sources and buildings.

Heathrow plans a 34% cut in CO₂ emissions from buildings and infrastructure by 2020 against 1990 levels, aligning with the UK Government's target.

Energy efficiency initiatives

We can take many practical steps to reduce energy through switching off equipment when not needed and using appliances more effectively.

To create accountability for energy consumption, we have devolved responsibility for paying energy bills to individual terminals and challenged employees to find ways to save energy. This resulted in 600 projects saving around 15% of the energy consumed by existing assets.

"BAA has worked hard to engage their employees at Heathrow in identifying opportunities to save energy and sustain CO₂ reductions across the airport."
Tom Delay, Chief Executive, The Carbon Trust.

While overall energy consumption increased at Heathrow during recent years, this growth was 11.5% lower than forecast during 2009, resulting in an absolute reduction in CO₂ of 1%.

We aim to deliver a further absolute reduction in CO₂ from 331,084 tonnes in 2009 to 330,367 tonnes in 2010. Energy saving examples at Heathrow include:

- Turning off baggage belts earlier
- Trialling energy efficient lights and lighting controls
- Recommissioning car park lighting
- Adding on-demand air-conditioning controls

Low carbon building design

Our ambitious plans to redevelop Heathrow offer the opportunity to improve the energy efficiency of new buildings and refurbishments.

For example, the new Terminal 2 (T2) development will produce 40% fewer CO₂ emissions than that required for new buildings by regulations. This will be achieved by reducing heat loss in winter and solar gains in summer and through energy efficient lighting, heating and cooling systems.

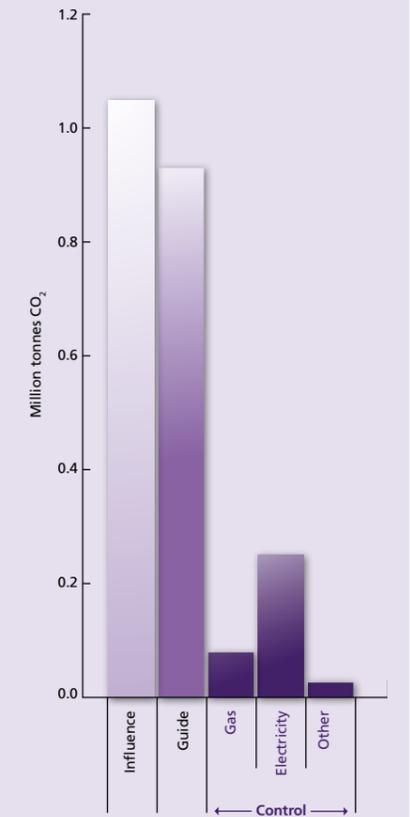
Low carbon energy supply

The new T2 will include a combined heat and power boiler, powered by locally sourced biomass, which will be the largest in London. This will provide 20% of the energy used at the terminal.

Our carbon footprint

Heathrow's carbon footprint includes:

- Emissions which we influence
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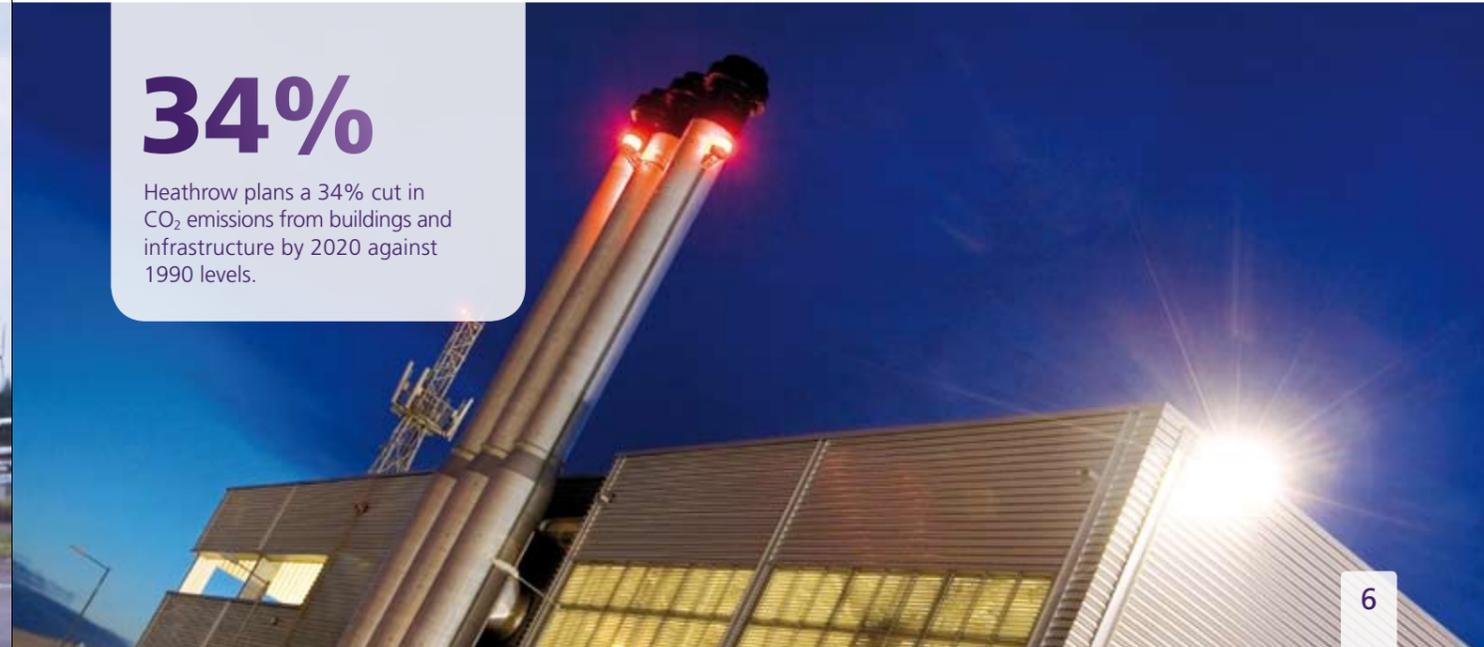
27%

27% of Heathrow's carbon footprint is from aircraft running their engines on the ground.



34%

Heathrow plans a 34% cut in CO₂ emissions from buildings and infrastructure by 2020 against 1990 levels.



Working towards a sustainable Heathrow

We are proud of the services that Heathrow Airport provides and of the role it plays in connecting London and the UK to the world.

We recognise the contribution that aviation makes to economic, social and cultural development in the UK and worldwide. We also recognise the impact aviation can have on local communities and the environment.

We believe that both aviation and Heathrow Airport can expand sustainably, enhancing economic and social benefits while also respecting environmental limits.

Achieving a sustainable Heathrow is key to our vision for Heathrow to be 'Europe's hub of choice'.

This means creating a future Heathrow which:

- Is safe and secure for staff, passengers and the airport community.
- Enables the achievement of positive social and economic effects.
- Seeks to prevent, reduce or offset significant effects on communities and the environment.
- Has surface access which limits congestion and other local effects.

We have strategies and action plans to achieve these commitments which cover all aspects of our business:

- **What we design** – the design of our infrastructure, transport links and buildings.
- **How we build** – how we construct and redevelop our airport.
- **What we buy** – the products and services we buy, the organisations we do business with and the contracts we manage.
- **How we operate** – the people, technology and processes in place to operate our airport.
- **How we collaborate** – working with partners who are based at and around Heathrow Airport.

About this briefing

This document is part of a series of bi-monthly briefings which outline our approach and our performance in delivering a sustainable airport at Heathrow.

The series replaces the annual Corporate Responsibility Report we have previously published and is designed to provide an accessible and more frequent insight into key sustainability issues. We will include a short annual summary of key performance data in the series.

The series will cover the following issues through 2010:

- 2009 Sustainability performance summary
- Climate change
- Noise
- Air quality
- Employment, training and skills
- Economy

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

About BAA

UK airports

BAA owns and runs Heathrow, Stansted, Southampton, Glasgow, Edinburgh and Aberdeen airports. We sold Gatwick Airport during 2009.

Rail

BAA owns and operates the public rail services Heathrow Express and are joint owners of Heathrow Connect.

Other interests

BAA has a 65% interest in and operates Naples Airport, and manages retail operations at Baltimore Washington International Airport, Boston Logan Airport and Pittsburgh International Airport.

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

Contact us

E-mail us about this briefing via heathrowsustainability@baa.com