

# Heathrow's blueprint for reducing emissions

**Our ten-point plan to reduce Heathrow's emissions in 2015**

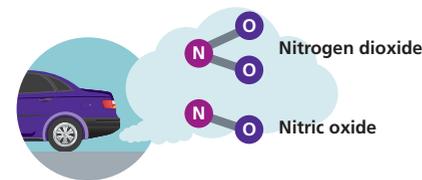


## Improving air quality around Heathrow

**Our goal:** to reduce ground-based NOx emissions by 5% by 2020.

**The air quality in some areas near Heathrow – and in many other parts of London and the UK – exceeds the EU's health limit for the pollutant, nitrogen dioxide (NO<sub>2</sub>).**

Most NO<sub>2</sub> in the air comes from the burning of fuels. Combustion creates nitrogen oxides (NOx), a mixture of NO (nitric oxide) and NO<sub>2</sub>. Some NO then reacts with oxygen in the atmosphere to form more NO<sub>2</sub>.



Air pollution around Heathrow comes from the airport and from a variety of other sources: surrounding roads, industry, heating and background levels of NO<sub>2</sub>. As a responsible neighbour, we and the bodies responsible for those other sources of emissions are working to bring local air quality within EU and UK Government limits.

At the airport, we and our partners are working to improve air quality by reducing emissions from aircraft, vehicles and buildings. Our goal is to cut ground-based emissions of NOx by 5% by 2020 (from 2009 levels).

Responsible Heathrow 2020 is our plan to support the UK and local economies, reduce Heathrow's environmental impacts and look after passengers and people. It's a step towards achieving our ambition to be one of the most responsible airports in the world.



# Our ten-point plan to manage and reduce emissions



Terminal 2 | The Queen's Terminal



## Aircraft activity



## Airport traffic



1

### Reduce emissions from aircraft at the gate

When their engines are turned off, aircraft rely on on-board generators, known as APUs, for internal power and climate control. To discourage APU use, we've invested around £20 million on equipment to supply pre-conditioned air and electrical power to aircraft at many gates. We've also set limits on the use of APUs by aircraft standing at gates offering ground-based air and power.

To help achieve this, we will encourage airlines to regularly use ground-based air and power with a target to increase usage by 15% in 2015, investigate ways to expand and upgrade our supplies and publish an investment plan by the end of the year. We'll also ensure that airlines adhere to the limits we've set on APU use. By comparing our performance and standards against other leading airports, we'll work to be among the best.

2

### Phase out the oldest and dirtiest aircraft

Some aircraft pollute more than others. The worst are aircraft that were built before the introduction of a series of higher international emissions standards. In 2014, these aircraft types accounted for just over 6% of Heathrow flights.

To encourage airlines to fly cleaner aircraft, we already link our landing fees to an aircraft's NOx emissions. In 2015, we've proposed to nearly double our NOx landing fees and will work at a senior level with our airline partners to encourage an earlier phase-out of older aircraft. We'll work to add the international NOx standards to our quarterly Fly Quiet league table to create a single comparison table for airline performance on noise and emissions.

3

### Improve taxiing efficiency

Taxiing produces just over 40% of our ground-based aircraft emissions. By working more collaboratively with our airline partners, we've streamlined the decision-making process, which helps to reduce taxi times and emissions. We've also been working with the air-transport community to develop a code of practice that encourages the turning off of one or more engines during taxiing – known as 'reduced-engine taxiing'.

During 2015, we'll do more by:

- Working with NATS to record the frequency and effectiveness of reduced-engine taxiing
- Increasing the frequency of reduced-engine taxiing
- Upgrading taxiways to maximise efficiency
- Investigating other approaches such as hybrid-electric aircraft tugs that tow aircraft to the runway while their engines are off.

4

### Provide more and better electric-vehicle charging points

To encourage more electric vehicles to Heathrow, we've installed 21 charging points in our car parks. They're part of the Source London network. In 2015, we'll upgrade the charging infrastructure in our short-stay car parks and look for the best way to introduce points for our taxi feeder, long-stay passenger and colleague car parks.

5

### Incentivise low-emission vehicles

Heathrow has invested millions in public transport to host the UK's largest free travel zone and deliver the Personal Rapid Transport system to provide electric transport for passengers between the business car parks and Terminal 5. Since 2002, we've been home to one of the biggest employee car share schemes in Europe.

We want to encourage a wider range of low-emissions vehicles at Heathrow. So we'll develop incentive schemes for low or zero-emission buses, coaches and taxis. Measures we're looking at include lower fees for better performing vehicles and priority to hybrid or electric taxis in our taxi feeder park. We'll also review our colleague incentive schemes to encourage low or zero-emission cars for staff commuting.

6

### Work with partners to set up emission zones and standards

On our local stretch of the M4, 13% of vehicle-generated NOx comes from airport-related traffic. To tackle the whole problem, we have to work with local authorities, TfL, GLA, Highways England and other stakeholders.

In 2015, we will champion a joint approach to reducing emissions from road traffic in the Heathrow area and work with TfL, GLA, and local key stakeholders to help formulate a Regional Strategy for Air Quality to include a roadmap for compliance with NO<sub>2</sub> limit values by 2020.

Measures we'll investigate include:

- Establishing emissions standards for Heathrow buses and coaches aligned with London's Ultra Low Emission Zone
- Working with bus and coach operators to increase the number of hybrid buses
- Seeing whether we can set up a geofence around Heathrow that forces hybrid vehicles to operate in electric-only mode.



# Heathrow emissions in context

Heathrow is just one of many local sources of NOx emissions. Although the airport is a significant contributor of NOx, it's by no means the largest. Most NOx in the Heathrow locality comes from general road traffic. Railways and industry also generate NOx.

## Airside vehicles



## Energy

7

8

9

10

### Reduce emissions from our own fleet

### Pool vehicles to reduce numbers and emissions

### Lead the move to electric vehicles airside

### Modernise our heating supply

More than 400 companies operate around 8,500 vehicles airside at Heathrow. We're leading the way for the airport community by cutting emissions from our own (Heathrow Airport Ltd) fleet of 220 vehicles – and monitoring progress once a month. During 2015, we'll review our entire fleet to help us plan ahead; our goal for 2020 is that every car or small van we own or lease will be electric or a plug-in hybrid.

Pooling of ground-support equipment could cut the size of this element of the airside fleet by up to 30%. During 2015, we'll use the data from our pooling trials to develop a preferred option and support our ground handling partners to implement it. Wherever practical, we'll specify that pooled equipment should be electric.

By the end of the year, all airside vehicles will carry tracking devices to give the airport community the data it needs to reduce vehicle numbers, emissions and costs. We'll also start planning for the introduction by 2025 of airside vehicle emissions standards aligned with London's Ultra Low Emission Zone.

We encourage investment in electric vehicles by exempting them from the maximum age limit for airside vehicles. We already have hundreds of electric charging points, and nearly all of our 800 baggage tugs are electric.

In 2015, we'll increase our investment in airside electric-charging infrastructure. Through the Heathrow Clean Vehicles Partnership, we'll run trials to generate data on the costs and operational needs of a range of electric vehicles and charging facilities. We'll also look at how we can favour cleaner vehicles by adapting the pricing structure for airside vehicle passes, and how we can contract and provide charging for electric airside buses.

On-site energy generation, a more efficient district heating network and the construction of an 11MW biomass plant is helping us cut emissions from Heathrow's energy use. We'll continue to cut emissions by modernising our heating infrastructure. We'll replace old equipment and move towards a more efficient network in which heating and energy are shared.

Increases to our biomass capacity are already in the pipeline. Until that happens we'll wind down operations in one of our oldest boiler houses and replace it with low-NOx boilers. And we'll upgrade Terminal 5 boilers with the same low-NOx technology.

## Traffic not aircraft

Data from the Hillingdon monitoring station shows that non-airport traffic generates more than twice as much NOx as all airport sources combined.

At the Hayes monitoring station, non-airport traffic is responsible for more than six times as much NOx as all airport sources combined.

Emissions from airborne aircraft are negligible at ground level. Once an aircraft rises above 100m, pollutants disperse rapidly throughout the atmosphere. They have no effect on air quality at ground level.

## Carbon reduction

Although the actions covered by this Blueprint are aimed at NOx emissions, they'll also help to reduce our carbon emissions. To find out more about our efforts to tackle climate change, visit [heathrow.com/responsibleheathrow](http://heathrow.com/responsibleheathrow)

**The Heathrow Air Quality Working Group** is a partnership between us, our neighbouring local authorities (Hillingdon, Hounslow, Slough and Spelthorne), British Airways and Environment Agency. Together we monitor, share and publish data from more than 20 air-quality recording stations around Heathrow. For up-to-date air-quality data, as well as information and reports on Heathrow's emissions, visit [www.heathrowairwatch.org.uk](http://www.heathrowairwatch.org.uk)

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## Working together to improve air quality

This Blueprint builds on our **Air Quality Strategy and Action Plan** – our plan to reduce ground-based emissions by 5% by 2020.

1. By accurately measuring the contribution to local air quality from airport-related activities
2. By helping to meet EU air-quality limits locally by reducing NOx emissions we control, guide or influence
3. By engaging stakeholders to explain and ensure that our approach is the best way to reduce Heathrow's effect on air quality.

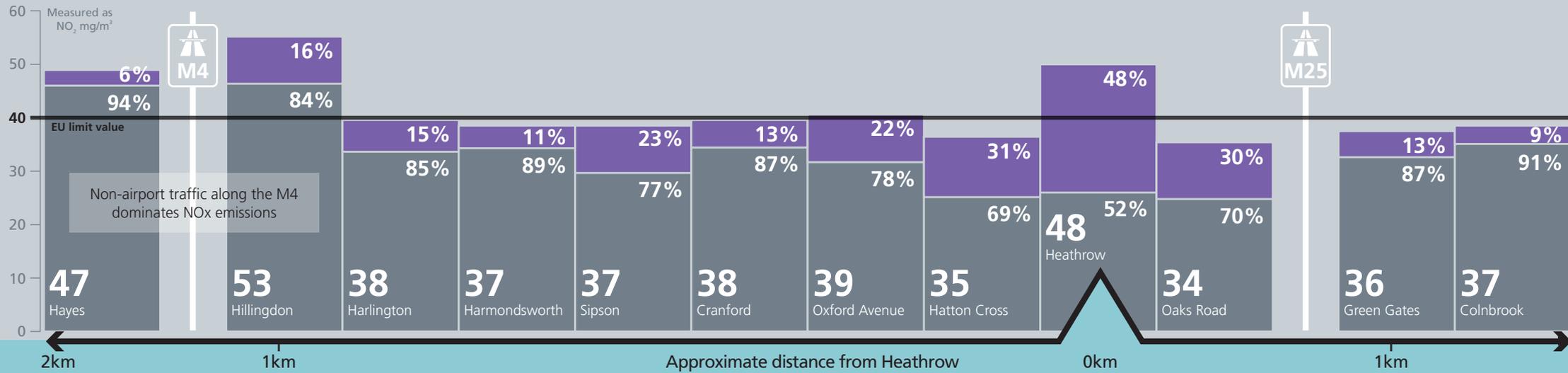
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# Air quality monitoring sites around Heathrow

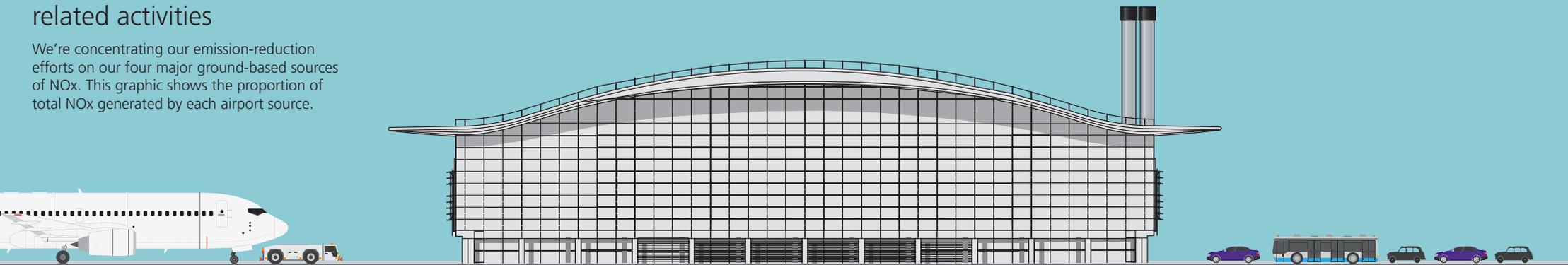
For exact locations of the monitoring stations see [www.heathrowairwatch.org.uk/latest](http://www.heathrowairwatch.org.uk/latest) All data from 2013

Non-airport related emissions % of total NOx  Airport related emissions % of total NOx



## Sources of Heathrow's NOx: ground-based, airport-related activities

We're concentrating our emission-reduction efforts on our four major ground-based sources of NOx. This graphic shows the proportion of total NOx generated by each airport source.



Aircraft activity  
**70%**

Emissions from all ground-based aircraft activity, including take-offs, landings and taxiing, in which aircraft wheels are in contact with the ground.

Airport traffic  
**17.6%**

Emissions from vehicles carrying passengers, staff and goods to, from and around Heathrow, occurring within an 11x11km grid centred on the airport in line with agreed upon air quality modelling methods.

Airside vehicles  
**8.4%**

Emissions from vehicles and specialist equipment, such as catering vehicles, aircraft tugs and baggage loaders, operating on the airfield.

Energy  
**4%**

Emissions from on-site generation of heat and electricity to power the airport.