

# Air Quality around Heathrow Airport

## Q3 2016 Briefing

### Background

Heathrow Airport Ltd (HAL) began an air quality monitoring programme in 1993. Today HAL owns and operates one on-airport monitor and funds three other monitors around the airport. Data from these four continuous monitoring stations, as well as eight other continuous monitors operated by local authorities and DEFRA within 2km of the Airport, are shared and summarised on [heathrowairwatch.org.uk](http://heathrowairwatch.org.uk).

Air quality management is a key priority for HAL and we continue to work in partnership with our key stakeholders – especially local authorities and national Government – to reduce emissions from all sources in the area in order to meet the EU & UK limit values. The main pollutants of concern around Heathrow are measured at all stations – nitrogen dioxide (NO<sub>2</sub>) and particles (measured as PM<sub>10</sub> and PM<sub>2.5</sub>).

### Headlines

Key information for this quarter is:

- There were no exceedances of the hourly mean NO<sub>2</sub> limit value recorded at the continuous monitoring stations. 18 exceedances are allowed per year before the limit value is breached for a given location. Only one exceedance of the hourly has been recorded in the first nine months of the year at any of the HAL-funded monitoring sites.
- There were also no exceedances of the daily mean PM<sub>10</sub> limit value recorded at the continuous monitoring stations. 35 exceedances are allowed per year before the limit value is breached for a given location.
- The number of aircraft movements made by the newest aircraft (CAEP8) has increased to over 20% in the first three quarters of 2016 and the percentage of continues to rise (see Fig. 1).

### Year-to-date monitoring

NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are measured at HAL-funded monitoring sites. In addition, ozone is measured at the Harlington station. For a strict comparison against air quality objectives, data capture should be >90% over a calendar year. The hourly mean limit value for NO<sub>2</sub> is 200µg/m<sup>3</sup>, not to be exceeded more than 18 times per calendar year. The daily mean limit value for PM<sub>10</sub> is 50µg/m<sup>3</sup>, not to be exceeded on more than 35 days per calendar year. Table 1 provides a summary of measured data capture from HAL's four monitoring sites as well as year-to-date exceedances of the hourly NO<sub>2</sub> and daily PM<sub>10</sub> limits.

Data capture for all pollutants at all HAL-funded monitoring sites has been >90%

**Table 1. Year-to-date data capture and exceedances of hourly NO<sub>2</sub> and daily PM<sub>10</sub> at HAL-funded monitoring sites**

Monitoring station	NO <sub>2</sub> data capture	PM <sub>10</sub> data capture	PM <sub>2.5</sub> data capture	Hourly NO <sub>2</sub> exceedances in Q (ytd)	Daily PM <sub>10</sub> exceedances in Q (ytd)
Heathrow LHR2	92.8%	99.0%	99.0%	0 (1)	0 (1)
Harlington	91.3%	99.9%	99.9%	0 (0)	0 (2)
Green Gates	98.8%	99.0%	99.0%	0 (0)	0 (3)
Oaks Road	99.3%	99.3%	99.3%	0 (0)	0 (1)

## Emission Reduction Efforts

Heathrow has successfully reduced annual ground-based nitrogen oxides (NO<sub>x</sub>) emissions by 430 tonnes (16%) between 2009 and 2013<sup>1</sup> as part of our commitment to playing our part in improving local air quality. These reductions have been achieved through a combination of efforts to reduce emissions from every major source, including aircraft, vehicles, and heating.

### 2016 Blueprint for Reducing Emissions

Last year, we developed *Heathrow's 2015 Blueprint for Reducing Emissions*, a 10-point plan to reduce emissions from all airport sources of ground-based NO<sub>x</sub> in 2015, focusing on our four main sources of ground-based NO<sub>x</sub>: aircraft activity, airport traffic, airside vehicles, and heating. To build on the success of last year's Blueprint and continue to reduce emissions further we launched [Heathrow's 2016 Blueprint for Reducing Emissions](#). The 2016 Blueprint comprises the top 10 actions we are delivering this year to reduce emissions and help improve local air quality. It is available by clicking the link above or by visiting [heathrowairwatch.org.uk](http://heathrowairwatch.org.uk).

### CAEP standard of aircraft movements

Through its Committee on Aviation Environmental Protection (CAEP), the International Civil Aviation Organization (ICAO) sets new emissions standards for aircraft engines – including for NO<sub>x</sub>. Engine models which were certified on or after 1 January 2014 must meet CAEP8, the latest standard for NO<sub>x</sub>.

Fig. 1 shows the proportion aircraft movements at Heathrow based by CAEP standard. The proportion of flights made by newer, cleaner aircraft (CAEP4 or better) increased from 93.6% in 2015 to 94.4% at the end of Q3 2016. CAEP8 only movements increased to over 20%. The trend is expected to continue as airlines proceed in replacing their older, higher emission aircraft and Heathrow's NO<sub>x</sub> emission landing charges and engagement encourages the use of best-in-class aircraft.

<sup>1</sup>[http://www.heathrowairwatch.org.uk/documents/Heathrow\\_Airport\\_2013\\_Air\\_Quality\\_Assessment\\_Detailed\\_Emissions\\_Inventory.pdf](http://www.heathrowairwatch.org.uk/documents/Heathrow_Airport_2013_Air_Quality_Assessment_Detailed_Emissions_Inventory.pdf)

**Fig.1. Total aircraft movements since 2010 by CAEP standard**

