

# Air Quality around Heathrow Airport

## Q1 2017 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 limit values and UK air quality objectives. 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:

- The number of aircraft movements made by the newest aircraft (CAEP8) has increased to 22.7% in the first three quarter of 2017 and the percentage of continues to rise (see Fig. 1).
- There were 7 exceedances of the hourly mean NO<sub>2</sub> limit value recorded at the LHR2 continuous monitoring station. High concentrations have been recorded as this monitoring station is located on the airfield. The concentrations recorded are not therefore representative of concentrations to which members of the public are exposed. As there is no public access at this site, it is not considered to be a relevant location for the consideration of limit values. Where there is public access, 18 exceedances are allowed per year before the limit value is breached for a given location.
- There were exceedances of the PM<sub>10</sub> daily mean of 50µg/m<sup>3</sup> at all 4 continuous monitoring stations. At relevant locations, 35 exceedances are allowed per year before the limit value is breached for a given location. The results from the first quarter therefore indicate that the daily mean limit value is unlikely to be breached at any monitoring station in 2017.
- An overview of the air quality aspects of Heathrow 2.0, our new sustainability strategy (published in February), is presented below.

### 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.

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	95.8%	99.8%	99.8%	7 (7)	6 (6)
Harlington	99.6%	99.7%	99.7%	0 (0)	3 (3)
Green Gates	99.9%	99.9%	99.9%	0 (0)	3 (3)
Oaks Road	99.9%	99.2%	99.2%	0 (0)	3 (3)

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.

## 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.

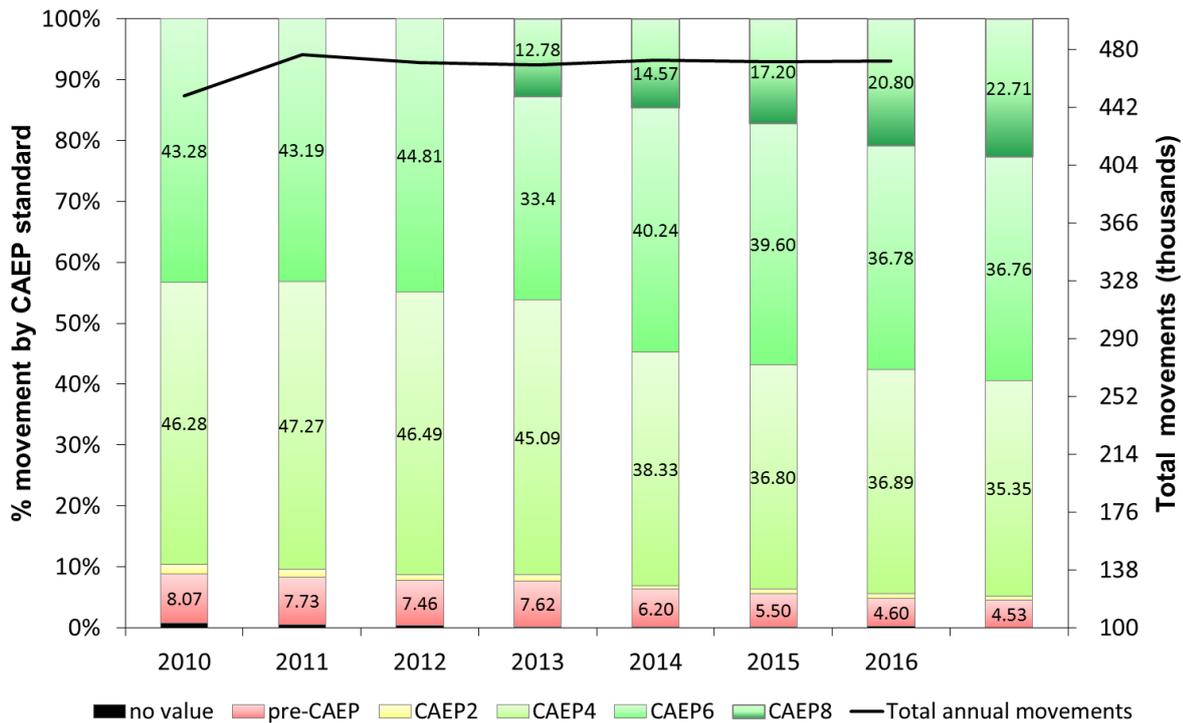
### CAEP standard of aircraft movements

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 on CAEP standard. The proportion of flights made by newer, cleaner aircraft (CAEP4 or better) increased from 94.5% in 2016 to 94.8% at the end of Q1 2017. CAEP8 only movements increased to over 22.7%. 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**



## Heathrow 2.0

In March 2017 we published [Heathrow 2.0](#), our new plan for sustainable growth, which details how we will be a good neighbour, improving local quality of life and ensuring that the area around Heathrow is *A Great Place to Live*.

Heathrow 2.0 aims to establish Heathrow as a world-leading airport in reducing emissions from all sources of activity, both on and off airport. Heathrow 2.0 includes the following key targets for air quality:

- Reduce NOx emissions from airport related traffic by at least 40% by 2020 and 60% by 2025 (from 2013 baseline);
- Reduce NOx emissions from airside vehicles by at least 50% by 2020 and 70% by 2025 (from 2013 baseline);
- At least 45% of passengers to use public and sustainable transport by 2019 and 50% by 2030; and
- 0% of flights by pre-CAEP standard aircraft by 2020, At least 60% of flights by CAEP 6 or newer aircraft by 2020.

In order to achieve these targets, we will put a number of strategies in place, including: developing incentives to encourage the use of low emission and EVs; establishing a Heathrow sustainable freight partnership; developing Ultra-Low Emission Zone standards for airside vehicles by 2025; working with rail partners to ensure they prioritise major rail projects that access Heathrow from the north, south, east and west; developing incentives for mode shift away from private car; and engaging at senior levels with airline partners to encourage the early phase-out of the oldest and dirtiest aircraft whilst bringing in the newest and cleanest aircraft in class.