# Air Quality around Heathrow Airport

### Q2 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 <u>heathrowairwatch.org.uk</u>.

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 airport related sources in the area and play our part in meeting 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  $PM_{10}$  and  $PM_{2.5}$ ).

#### Headlines

Key information for this quarter is:

- The number of aircraft movements made by the newest aircraft (CAEP8) has increased to 22.84% in the first half of 2017 and the percentage continues to rise (see Fig.1).
- There were 4 exceedances of the hourly mean NO<sub>2</sub> concentration of 200µg/m<sup>3</sup> recorded at the LHR2 continuous monitoring station (11 to date). High concentrations are recorded at this monitoring station as it 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 of this concentration are allowed per year before the limit value is breached for a given location.
- There were no exceedances of the NO<sub>2</sub> daily mean of 200µg/m<sup>3</sup> at the continuous monitoring stations located outside of the airport boundary. The results from the first half of the year therefore indicate that the hourly mean limit value is unlikely to be breached at any monitoring station located in an area of potential public exposure in 2017.
- There were no exceedances of the PM<sub>10</sub> daily mean of 50µg/m<sup>3</sup> at the continuous monitoring stations located outside of the airport boundary. At relevant locations, 35 exceedances are allowed per year before the limit value is breached for a given location. The results from the first half of the year therefore indicate that the daily mean limit value is unlikely to be breached at any monitoring station in 2017.

#### Year-to-date monitoring

 $NO_2$ ,  $PM_{10}$ , and  $PM_{2.5}$  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  $NO_2$  and daily  $PM_{10}$  limits. Data capture for all pollutants at all HAL-funded monitoring sites has been >90%.

## Table 1. Period data capture and exceedances of hourly $NO_2$ and daily $PM_{10}$ at HAL-funded monitoring sites

Monitoring station	NO <sub>2</sub> data capture	PM₁₀ 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	95.7%	99.8%	99.8%	4 (11)	1 (7)
Harlington	99.6%	99.8%	99.8%	0 (0)	0 (3)
Green Gates	99.3%	99.4%	99.4%	0 (0)	0 (3)
Oaks Road	97.8%	96.1%	96.2%	0 (0)	0 (3)

The hourly mean limit value for NO<sub>2</sub> is  $200\mu g/m^3$ , not to be exceeded more than 18 times per calendar year. The daily mean limit value for PM<sub>10</sub> is  $50\mu g/m^3$ , not to be exceeded on more than 35 days per calendar year.

#### **Emission Reduction Efforts**

Heathrow successfully reduced annual ground-based nitrogen oxides (NOx) 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 were 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  $NO_x$ . Engine models which were certified on or after 1 January 2014 must meet CAEP8, the latest standard for NOx.

Fig. 1 shows the proportion aircraft movements at Heathrow based by CAEP standard. The proportion of flights made by newer, cleaner aircraft (CAEP6 or better) increased from 57.58% in 2016 to 59.39% at the end of Q2 2017. CAEP8 only movements increased to 22.84%. 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>&</sup>lt;sup>1</sup>http://www.heathrowairwatch.org.uk/documents/Heathrow\_Airport\_2013\_Air\_Quality\_Assessment\_Detailed\_Emiss ions\_Inventory.pdf

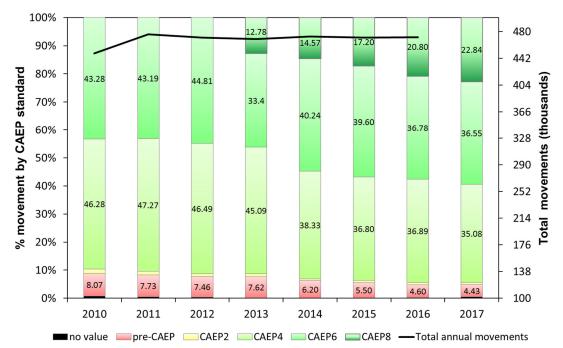


Fig.1. Total aircraft movements since 2010 by CAEP standard