

Air Quality at Heathrow Airport

Q2 2015 Briefing

Background

Heathrow Airport Ltd (HAL) began an air quality monitoring programme in 1993. Today HAL owns and operates one on-airport monitor and three other monitors around the airport. Data from HAL's four continuous monitoring stations, as well as eight other continuous monitors operated by local authorities and DEFRA in the vicinity of the Airport, are shared and summarised on 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 (NO₂) and particles (measured as PM₁₀ and PM_{2.5}).

Headlines

Key information for this quarter is:

- The format and information of this quarterly briefing has been updated to focus on year-to-date monitoring performance and relevant emissions reduction efforts; analyses of historic trends to annual metrics can be found in the 2015 Q1 briefing.
- Year-to-date data capture for all four HAL monitoring sites was >90% for all pollutants measured.
- There were two exceedences of the daily average PM₁₀ limit value at the Oaks Road monitoring site and one daily exceedence at the Harlington site in Q2 2015. 35 exceedences are allowed per year before the limit value is breached for a given station.
- Heathrow's Blueprint for Reducing Emissions was published in April (see summary below)
- The number of aircraft movements made by more modern aircraft (CAEP4 and newer) to date in 2015 was 93.7%, the highest proportion recorded to date (see Fig. 1).

Year-to-date monitoring

NO₂, PM₁₀, and PM_{2.5} are measured at all of HAL's monitoring sites. In addition, ozone is measured at the Harlington station. Data capture rates must be >90% over a calendar year in order for a given monitor to provide useable annual averages. The daily limit value for PM₁₀ is 50µg/m³ averaged over 24 hours, 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 PM₁₀ exceedences.

Table 1. Year-to-date data capture and daily PM₁₀ exceedences at HAL monitoring sites

Monitoring station	NO ₂ data capture	PM ₁₀ data capture	PM _{2.5} data capture	Daily PM ₁₀ exceedences in 2015 (Q2 alone)
Heathrow LHR2	93.2%	99.1%	98.5%	2 (0)
Harlington	93.9%	97.9%	98.0%	3 (1)
Green Gates	98.1%	99.4%	98.9%	2 (0)
Oaks Road	98.7%	98.9%	98.3%	4 (2)

Emission Reduction Efforts

Heathrow has successfully reduced annual ground-based nitrogen oxides (NO_x) emissions by 430 tonnes (16%) between 2009 and 2013 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.

Blueprint for Reducing Emissions

In April, we launched [Heathrow's Blueprint for Reducing Emissions](#), a 10 point plan to reduce emissions from all airport sources in 2015. The Blueprint focuses on our four main sources of ground-based NO_x: aircraft activity, airport traffic, airside vehicles, and heating. The following provides a summary of progress made against the commitments and targets outlined in the Blueprint.

Aircraft activity

- Options study for pre-conditioned air investment underway, analysing costs and emissions reductions of expanding supply in T3 and T4 and improving existing supply in T2 and T5.
- Movements of older 'Pre-CAEP' aircraft continue to decrease, 5.6% of total year-to-date (see Fig. 1)

Airport traffic

- Initial meeting to formulate scope and timeline for a West London Air Quality Plan held with TfL, DEFRA, DfT and local authorities on 1 June. Next meeting set for 8 Jul to share details and data from Heathrow transport and emissions models.
- Currently developing plan to upgrade and expand electric vehicle charge points and evaluate low-emission incentives for coaches and taxis.

Airside vehicles

- Electric vehicle and charging point data gathering trial on track to begin this summer with six companies trialling various electric ground support equipment in addition to cars and small vans.
- Telematics have now been installed on all HAL airside vehicles, pilot study being pursued to understand the potential data analysis and applications to improve performance.

Energy

- Boiler house 448 operating on low-temperature, low-NO_x replacement boilers on track for installation in early 2016.

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 NO_x.

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) in Q1 2015 rose to its highest point ever; 93.7%, while CAEP8 only movements increased to just under 17%. The trend is expected to continue as airlines proceed in replacing their older, higher emission aircraft and Heathrow's NO_x emission landing charges and engagement encourages the use of best-in-class aircraft.

Fig.1. Total aircraft movements since 2005 by CAEP standard

