

# HEATHROW CARBON FOOTPRINT 2017

We are thinking long-term about how to reduce our carbon impact and we have set a goal that, by 2050, we will operate zero carbon airport infrastructure (buildings and other fixed assets). Measuring and understanding our carbon footprint is an important process in moving towards this goal. It's a complex task and we are constantly improving our approach to ensure that we have a robust process.\*

Since April 2017 Heathrow Airport has been powered with 100% renewable electricity, our first step towards operating a zero carbon airport by 2050. Given this, the biggest changes we saw in 2017 were emissions from grid electricity which reduced by approximately 75% under both our Scope 2 and Scope 3 consumption. We also performed well against our 2020 target to reduce carbon emissions generated from energy used in fixed infrastructure by 34% against a 1990 baseline. In 2016 we exceeded this target, achieving a 37% reduction and progress continued in 2017 with a 48% reduction since 1990. We will continue to track progress against this target until 2020 and we have also committed to set science based targets to guide future emissions reduction. We will publish details of these targets in 2019.

We saw a slight increase in emissions from aircraft on the ground, caused by an increase in the use of auxiliary power units (APU) compared to previous years. We're already taking steps to improve the way we track APU activity to drive improvements. We currently measure APU use through manual surveys that only cover a percentage of Heathrow flights. In 2016 we piloted a system that automatically detects and records APU use and we are continuing to develop a roll-out plan that would help to monitor the use of APUs throughout the airport and intervene when we see opportunities to improve performance.

We've recently completed a review of energy consumption at the airport and our offsite facilities and have updated the boundaries of our carbon footprint to better reflect our operational control and to more accurately align to the Greenhouse Gas (GHG) Protocol. Within Scope 2 emissions, we have historically reported all electricity consumption for Heathrow and all third parties. In recent years, the levels of sub-metering for electricity consumption from third parties has improved to the point we can accurately quantify the total. Consequently, we've updated our historic footprints to include third party electricity and gas consumption under Scope 3 emissions. In addition, at our offsite facilities (eg., Business Support Centre in Glasgow) where we've determined we have a sufficient level of operational control, associated energy consumption has been moved from Scope 3 to the appropriate sections in Scope 1 and 2. Within our Scope 1 emissions, activity reported for operational vehicles and equipment has been updated to only include vehicles owned or leased by Heathrow Airport Limited. We had historically reported emissions associated with contracted passenger and colleague transfer bussing services provided by suppliers; these emissions are now included in Scope 3 under third party operational vehicles, which better reflects our operational control.

Given these recent updates to the boundaries of our carbon footprint, we are re-reporting our 2015 and 2016 data alongside our 2017 footprint to provide a more consistent approach to historic reporting. Finally, we've also updated data for all years to report emissions activity in tonnes of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) to align to the GHG Protocol and best practice.

SCOPE 1			
EMISSION SOURCE	GREENHOUSE GAS EMISSIONS (tCO <sub>2</sub> e)		
	2015	2016	2017
Fuel consumption – utilities <sup>1</sup>	29,014	27,290	23,250
Operational vehicles	1,711	1,889	1,749
LPG for fire training	51	28	9
Refrigerants	840	1,031	153
SCOPE 2			
EMISSION SOURCE	GREENHOUSE GAS EMISSIONS (tCO <sub>2</sub> e)		
	2015	2016	2017
Grid electricity consumption – market based <sup>2</sup>	78,841	63,393	15,680
<i>Grid electricity consumption – location based</i>	<i>145,041</i>	<i>121,049</i>	<i>97,408</i>
SCOPE 3 <sup>3</sup>			
EMISSION SOURCE	GREENHOUSE GAS EMISSIONS (tCO <sub>2</sub> e)		
	2015	2016	2017
Aircraft in landing or take off mode	1,263,702	1,303,238	1,321,566
Passenger surface access	569,865	547,370	514,313 <sup>4</sup>
Staff surface access	149,829	148,416	120,164
Business travel	1,056	992	839
Third party fuel consumption- utilities <sup>5</sup>	235	306	297
Third party grid electricity consumption – market based <sup>6</sup>	49,055	41,580	10,562
<i>Third party grid electricity consumption – location based<sup>5</sup></i>	<i>91,625</i>	<i>79,337</i>	<i>67,223</i>
Third party operational vehicles	39,064	38,584	36,495
Waste	767	664	799
Water	1,795	1,926	1,752
<b>SCOPE 1</b>	<b>31,616</b>	<b>30,238</b>	<b>25,161</b>
<b>SCOPE 2</b>	<b>78,841</b>	<b>63,393</b>	<b>15,680</b>
<b>SCOPE 3</b>	<b>2,075,368</b>	<b>2,083,076</b>	<b>2,006,787</b>
<b>TOTAL</b>	<b>2,185,825</b>	<b>2,176,708</b>	<b>2,047,628</b>

FIXED INFRASTRUCTURE REDUCTION TARGET AND PERFORMANCE			
TARGET	2015	2016	2017
34% reduction in carbon emissions generated from energy used in fixed infrastructure by 2020 against a 1990 baseline of 360,437 tonnes	263,010 tonnes – 27% reduction	225,762 tonnes – 37% reduction	185,786 tonnes – 48% reduction

Notes:

- Location based carbon emission factor for electricity based on UK grid average
- Based on the scope and boundaries which the target was based. Includes energy associated with fixed assets within the Heathrow boundary plus the Colnbrook Logistics Centre. Excludes HEX depot
- Includes energy used by both Heathrow and third party companies that operate at the airport
- Expressed in tonnes of CO<sub>2</sub>

<sup>1</sup>Includes biomass

<sup>2</sup>Market based emissions for grid electricity have been used to calculate total emissions.

<sup>3</sup>This footprint does not currently include supply chain emissions, specifically from freight and logistics activity. However, we are currently mapping out these emissions as part of our carbon trust supply chain accreditation. When we report out 2018 activity, we plan to include historic years including 2017.

<sup>4</sup>The passenger km distances used in calculating the 2017 GHG emissions from Passenger Surface Access to Heathrow is representative of the year 2017. The passenger km distance calculations were based on a 2016 dataset (2016 CAA data) then scaled up to represent 2017 using 2017 Heathrow Airport Limited passenger throughput data. The 2016 CAA data was used as this was the latest processed data set available at the outset of the analysis.

<sup>5</sup>Includes HEX depot

<sup>6</sup>Market based emissions for grid electricity have been used to calculate total emissions; includes HEX depot

\*CO<sub>2</sub>e emissions data has been prepared in accordance with the UK Government's 'Environmental Reporting Guidelines' (June 2013), and the latest emissions factors from the UK Government GHG Conversion Factors for Company Reporting (2017). All data unless otherwise stated covers the reporting year ending 31st Dec 2017. More detail is available here: [https://www.heathrow.com/file\\_source/Company/Static/PDF/Communityandenvironment/HAL-GHG-Reporting-Criteria.pdf](https://www.heathrow.com/file_source/Company/Static/PDF/Communityandenvironment/HAL-GHG-Reporting-Criteria.pdf)

# INDEPENDENT ASSURANCE STATEMENT TO HEATHROW AIRPORT LTD.

ERM CERTIFICATION AND VERIFICATION SERVICES (ERM CVS) WAS ENGAGED BY HEATHROW AIRPORT LTD. (HAL) TO PROVIDE ASSURANCE IN RELATION TO THE 'HEATHROW CARBON FOOTPRINT 2017' (THE REPORT) AS PUBLISHED ON THE HEATHROW AIRPORT LTD. WEBSITE.

## ENGAGEMENT SUMMARY

Scope of our assurance engagement	Whether the selected 2017 GHG data listed below, as included in the Report, are fairly presented, in all material respects, with the reporting criteria: <ul style="list-style-type: none"> <li>Total Scope 1 emissions (tonnes CO<sub>2</sub>e)</li> <li>Total Scope 2 emissions (tonnes CO<sub>2</sub>e)</li> <li>Total Scope 3 emissions (tonnes CO<sub>2</sub>e)</li> <li>Total of Scope 1, 2 and 3 emissions (tonnes CO<sub>2</sub>e)</li> </ul>
Reporting criteria	HAL's Carbon Footprint document, which includes the reporting boundary, set out at: <a href="https://www.heathrow.com/file_source/Company/Static/PDF/Communityandenvironment/HAL-GHG-Reporting-Criteria.pdf">https://www.heathrow.com/file_source/Company/Static/PDF/Communityandenvironment/HAL-GHG-Reporting-Criteria.pdf</a>
Reporting Period	Reporting period 1 January 2017 to 31 December 2017.
Assurance Standard	ERM CVS' assurance methodology, based on the International Standard on Assurance Engagements ISAE 3000 (Revised).
Assurance level	Limited assurance.
Respective responsibilities	Heathrow is responsible for: <ul style="list-style-type: none"> <li>Selecting the Reporting Criteria;</li> <li>Measuring and reporting the selected information in accordance with the Reporting Criteria; and</li> <li>Preparing the Report and for the collection and presentation of the selected data within it.</li> </ul> ERM CVS's responsibility is to provide a limited assurance conclusion on the agreed scope based on the assurance activities performed and exercising our professional judgement.

## OUR CONCLUSIONS

Based on our activities, as described below, nothing has come to our attention to indicate that the selected 2017 GHG data are not fairly presented, in all material respects, with the reporting criteria.

This conclusion is to be read in the context of the remainder of this report, in particular the sections on inherent uncertainty and this report's intended use.

## SUMMARY OF ASSURANCE ACTIVITIES

A multi-disciplinary team of GHG and assurance specialists performed a range of assurance procedures as follows:

- Interviews with management representatives responsible for preparing modelled and calculated data which was included in the GHG inventory.
- Interviews with relevant staff to understand and evaluate the management systems and processes (including internal review processes) used for collecting and reporting the selected data.
- An analytical review of the 2017 carbon emission data.
- Inspection of the underlying calculations used to derive the GHG emission values.
- For the surface access GHG emissions:
  - The basis of the calculation was confirmed as being data collected by the Civil Aviation Authority (CAA) a separate third party entity.
  - The methodology used to extrapolate the third party/CAA collected data was reviewed.
  - It was confirmed that extrapolation of the data to calculate the GHG emissions was in line with the stated methodology.
- Confirmation of the conversion factors and assumptions used.
- Reviewing the presentation of information relevant to the scope of our work in the Report to ensure consistency with our findings.
- Agreed a sample of electricity consumption back to supplier invoices.
- Inspection of the Renewable Energy Guarantees of Origin (REGO) certificate for the renewable energy supplied to HAL.
- We did not undertake source data verification at any operated facilities.

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## OUR OBSERVATIONS

We have provided Heathrow with a separate management report with our detailed (non-material) findings and recommendations. Without qualifying our conclusions as presented above, and recognising the improvements made in the carbon footprint for 2017, we have the following key observations:

- The calculation and reporting of the 2017 emissions from Passenger Surface Access are in line with the Airport Carbon Accreditation (ACA) Guidance. However, it is important to understand that the independent data set used to extrapolate the Passenger Surface Access distances travelled, which is used to calculate the corresponding GHG emissions, was based upon a sample that represented 0.1% of the total passengers travelling to and from Heathrow Airport. We recommend the use of a larger sample on which to base the emissions for this important element of the footprint in future years.
- The 2017 Scope 3 GHG emission figures do not include emissions resulting from the transport of freight to and from Heathrow Airport. We recommend collecting data to be able to report on this in future years.
- The distances used in calculating the 2017 GHG emissions from Passenger Surface Access to Heathrow is representative for the year 2016. These figures were then scaled up to represent the 2017 HAL passenger throughput data.

## ASSURANCE LEVEL

The work performed in a limited assurance engagement varies in nature and timing from, and it less in extent than, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

## INHERENT UNCERTAINTY

The reliability of the assured information is subject to inherent uncertainties, given the scientific uncertainty about the measurement of GHGs and the Estimation uncertainty due available methods for determining, calculating or estimating the underlying data. It is important to understand our assurance conclusions in this context.

## THIS REPORT'S INTENDED USE

This assurance report is made solely to HAL in accordance with the terms of the engagement contract between HAL and ERM CVS. To the fullest extent permitted by law, we accept no responsibility and deny any liability to any party other than HAL for our work, for this assurance report or for the conclusions we have reached.



Jennifer Iansen-Rogers  
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12th October 2018

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ERM CVS is a member of the ERM Group. The work that ERM CVS conducts for clients is solely related to independent assurance activities and auditor training. Our processes are designed and implemented to ensure that the work we undertake with clients is free from bias and conflict of interest. ERM CVS and the staff that have undertaken work on this assurance exercise have provided no consultancy related services to Heathrow Airport Ltd in any respect.