

**Building a Zero Carbon Economy - Call for Evidence  
Committee on Climate Change**

**Response by Richmond Heathrow Campaign  
7 December 2018**

1. The following written response from Richmond Heathrow Campaign (RHC) comments on Heathrow's expansion with a third runway and its impact on climate change.
2. RHC represents three amenity groups in the London Borough of Richmond upon Thames: The Richmond Society, The Friends of Richmond Green, and the Kew Society, which together have over 2000 members. The members of our amenity groups are adversely affected by noise from Heathrow Airport's flight paths, poor air quality and road and rail congestion in west London. We acknowledge Heathrow's contribution to the UK economy and seek constructive engagement in pursuit of a better Heathrow. We are an active participant in the Heathrow Community Noise Forum.
3. Our premise is that it would be preferable to aim for a better Heathrow rather than bigger Heathrow and to capitalise on the world beating advantage of London's five airports, in particular by improving surface accessibility to all five airports, which would be a major benefit to users. Our approach is to continue supporting the case for no new runways in the UK and we believe this is well supported by the evidence produced by the Airports Commission and the DfT in relation to the Airports National Policy Statement.
4. Over recent years we have undertaken extensive research on Heathrow and submitted a large number of papers to the Airports Commission, the DfT, CAA and others - all of which can be found at [www.richmondheathrowcampaign.org](http://www.richmondheathrowcampaign.org).
5. **Annex 1** is a brief note that highlights the much higher negative impact of Heathrow's expansion with a third runway on climate change than is generally acknowledged. This is on account of the much higher potential number of flights and heavier aircraft fleet.
6. **Annex 2** does not directly address climate change but demonstrates there is no overall UK economic benefit from Heathrow's third runway expansion. The question of balancing growth with the environmental cost does not arise in the absence of any benefit. The brief note is based on the evidence claimed to support the Airports National Policy Statement.

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## Heathrow Capacity with 3<sup>rd</sup> Runway and Impact on Climate Change

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7 December 2018

This brief note highlights the largely ignored potential capacity of Heathrow expanded with a 3<sup>rd</sup> runway. Heathrow, the Airports Commission and the Airports National Policy Statement approved by parliament in June 2018 all refer to Heathrow adding 260,000 flights a year to the existing planning limit of 480,000 flights or 740,000 flights in total. Actually, the references are to a minimum of 740,000 flights as Heathrow so often points out.

Adding one runway to the existing two suggests a 50% increase in capacity, which equates approximately to the 740,000 flights. However, the way Heathrow will use its runways is to use two runways at the same time for arrivals and two for departures, instead of cycling one at a time as at present. Therefore, theoretically the capacity doubles to 960,000 flights a year.

### **Mixed Mode Constraint**

At any one time two runways will be used for arrivals and two for departures. This means that one of the two runways will have to operate in mixed mode, i.e. arrivals and departures from the same runway. This reduces the flow rate, due to obstruction from taxiing aircraft on the ground and the vortexes from departing aircraft. The flow rate on the mixed mode runway would likely reduce from one arrival every 90 seconds to say one every 120 seconds or a reduction of 25% and similarly for departures.

If it is assumed a single runway's physical segregated mode capacity is 240,000 flights per year (i.e. similar to the existing planning capacity) then the mixed mode capacity is say 180,000 flights per runway. Heathrow's capacity with three runways becomes 900,000 flights per year ( $240,000 \times 3 + 180,000 \times 1$ ).

### **Independent Parallel Approaches**

Heathrow's two existing runways are too close to operate as independent parallel runways (IPA) and the third runway similarly will be too near the existing northern runway. This means that aircraft arriving on two adjacent runways have to be separated because the vortexes interfere with stable flight and are a major safety risk. The issue is not so acute on departures because the aircraft can be quickly separated after take-off. Potentially this risk reduces the flow rate on arrivals and therefore also departures because the two must be roughly in sync if the airport is not to become over crowded with aircraft on the ground. However, Heathrow has made a proposal to the CAA under the airspace change process to overcome this IPA constraint. It involves curving the arrivals onto the ILS straight line final approach around 8 nautical miles from the airport instead of around 15 nautical miles out. Concentrated Performance Based Navigation is essential for this operation. It remains to be seen whether this operation is approved on safety and environmental grounds given the noise impact. But

for the moment we can only assume it will not be a constraint.

#### **Ground Movement Constraint**

It is not clear yet that Heathrow can accommodate 900,000 aircraft a year on the ground, given the location of the terminals and restricted footprint of the airport.

#### **Airspace Constraint**

It is also not yet clear that there is sufficient airspace to handle 900,000 flights a year.

#### **Demand**

Demand and the rate of growth are additional considerations.

**But at the moment, we expect Heathrow to be planning capacity to approach 900,000 flights a year and not the 740,000 flights that is generally assumed. The additional flights will increase still further the carbon resulting from a third runway and hence the impact on climate change.**

#### **Aircraft Weight**

The increasing weight of Heathrow's fleet is little mentioned. We have repeatedly requested Heathrow provide further evidence but neither the Government nor the industry seemingly have focussed on this issue. Increasing weight has an impact on the fuel burn and hence carbon produced. The average capacity of each flight has been increasing and is forecast to continue doing so from around 165 passengers per flight today to near 200 per flight by 2050. This is partly the result of increased load factors but also more seats. Passengers and their baggage represent only a small proportion of an aircraft's weight, especially on take-off when laden with fuel. But it is to be expected that the weight of Heathrow's aircraft fleet will increase so as to accommodate increased passengers per flight.

Furthermore, forecasts by the DfT and others expect a greater proportion of long-haul flights and hence fuel and take-off weight.

#### **Summary**

From the evidence we have examined we expect the number of Heathrow's flights and weight of Heathrow's aircraft fleet to be greater than generally is expected. There is considerable likelihood on both accounts to increase the carbon footprint of Heathrow, the UK's single largest producer of carbon and climate change. On other occasions (as recorded on our website) we have raised our concerns about the unsustainable carbon emissions resulting from Heathrow's expansion. This note highlights the much higher negative potential impact than is generally acknowledged.

**3<sup>RD</sup> RUNWAY IMPACT ON UK AS AN AVIATION HUB (Slide 20)  
THE FOLLOWING IS DFT EVIDENCE**

**WITHOUT A 3<sup>RD</sup> RUNWAY:**

- THE NUMBER OF PASSENGERS TERMINATING THEIR JOURNEY AT HEATHROW GROWS BY 60% BY 2050 ***HEATHROW IS NOT FULL.***
- UK SPARE CAPACITY IS EQUIVALENT TO 6 RUNWAYS IN 2050. ***UK CAPACITY IS WELL ABLE TO SATISFY DEMAND THROUGH TO 2050.***

**WITH A 3<sup>RD</sup> RUNWAY:**

- NO ADDITIONAL LONG-HAUL OR DOMESTIC BUSINESS PASSENGER ARE SERVED AT THE UK LEVEL. ***ECONOMIC BENEFIT FROM ADDITIONAL BUSINESS TRAVEL IS NON-EXISTENT.***
- THE 43 MILLION ADDITIONAL PASSENGERS A YEAR COMPRISE - 17 MILLION CANNIBALISED GROWTH FROM OTHER UK AIRPORTS AND 16 MILLION INTERNATIONAL-TO-INTERNATIONAL TRANSFERS OF NO VALUE TO THE UK. ONLY 10 MILLION ADDITIONAL MOSTLY SHORT-HAUL TERMINATING PASSENGERS ARE SERVED. ***A 3<sup>RD</sup> RUNWAY HARMS THE UK REGIONAL ECONOMIC BALANCE AND IS INEFFICIENT USE OF CAPACITY.***
- THERE ARE NO ADDITIONAL DESTINATIONS FROM THE UK AND FREQUENCY OF FLIGHTS AT OTHER UK AIRPORTS IS REDUCED. ***UK CONNECTIVITY IS IMPAIRED.***
- INTERNATIONAL-TO-INTERNATIONAL TRANSFERS USE 37% OF ADDITIONAL RUNWAY CAPACITY AND 94% OF THE UK'S ADDITIONAL LONG-HAUL CAPACITY. ONLY 300,000 OUT OF 24 MILLION ANNUAL TRANSFERS ARE ON THIN ROUTES AND ARE INSUFFICIENT TO SUPPORT OTHERWISE UNVIABLE THIN ROUTES. ***HEATHROW'S INTERNATIONAL TRANSFERS PROVIDE NO UK VALUE AND SHOULD BE REPLACED BY PASSENGERS TERMINATING THEIR JOURNEYS IN THE UK.***
- **THERE IS A SUBSTANTIAL DIS-BENEFIT TO THE UK AVIATION MARKET**