



# The UK Economy

## Heathrow Expansion Factsheet 1

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### What impact would a new runway at Heathrow have on the UK Economy?

The Airports Commission's brief was to maintain the UK's position as Europe's most important aviation hub. The Commission's conclusion and recommendation for a northwest runway (NWR) at Heathrow is not supported by the Commission's own evidence.

This Fact Sheet, updated to reflect the Commission's Final Report, shows that the Commission's evidence, if not the conclusions, demonstrates on economic grounds that Heathrow should not be expanded:

- Expansion reduces overall UK aviation growth and diverts growth from the rest of the UK at the expense of regional balance.
- Fifty percent of the new runway would be used by international-to-international transfers that add little economic benefit to the UK.
- Expansion has a negative impact on the two main sources of economic benefit: it reduces growth across the UK of inbound tourism and of long-haul business passengers that bring trade to the UK.
- It results in no material change to the number of destinations from the UK or domestic destinations and hence no improvement in connectivity.
- Air travel would be concentrated with limited competition at a single airport, Heathrow - the most expensive major airport in the world.
- The economic return on investment using Government criteria is bordering on poor.
- Expansion may not be deliverable without substantial State aid, ultimately to support international-to-international transfers and leisure passengers from the UK which provide little benefit to the UK economy.

These highlights are expanded in a [two page summary Fact Sheet covering the impact on the UK economy](#) and in greater detail below.

### Why does it matter?

1. The Airports Commission's brief was to examine the scale and timing of any requirement for additional capacity to maintain the UK's position as Europe's most important aviation hub. In addressing this objective, the Commission has sought to balance the wider economic benefits of Heathrow's NWR expansion with the environmental costs. The net effect of the proposed investment at Heathrow needs to show it can deliver both economic benefits to the UK and meet environmental and public health standards. Any benefits to the aviation market of expanding Heathrow also need to be tested against the Government's Aviation Policy Framework, which supports airports outside the South East of England [\[1\]](#), and which in turn contribute towards the Government's aim of re-balancing the economy by supporting a "Northern Powerhouse".
2. Aviation is a major contributor to the UK economy through provision of jobs and added value by providing a service enabling other sectors to operate. Broadly, the objective is to serve a growing number of passengers with an optimum number and mix of destinations in an operationally and financially efficient manner. Heathrow contributes to the economic benefits. Whether Heathrow is efficient in converting resources into services, taking the UK economy as a whole, and whether a decision to expand Heathrow is in the national interest and deliverable needs to be tested rigorously given the costs and risks involved.

3. The issue concerns business, leisure and freight markets. The capacity to provide for these markets involves not just the number of runways but the number of flights, destination routes and their service frequencies, available airspace, airport terminals and surface access to and from the airports. There are major constraints on aviation expansion: its impact on CO<sub>2</sub> and climate change, air quality, noise, safety, land use and financial costs and return on investment. These all need to be factored in to the equation and the right capacity constraints need to be addressed. It is not just about runways and unrestricted demand.

## Background

4. The Airports Commission concluded in its Interim Report in December 2013 [2] that one net new runway is needed in the southeast by 2030. After subsequently ruling out a Thames estuary airport it reduced the choice to two options at Heathrow and one at Gatwick. The Commission ruled out growth in other parts of the UK as an alternative because it argued that government intervention in the market outside the south east was unlikely to be feasible or successful. It also ruled out the 'Do minimum' option, which assumes there are no new runways in the UK.
5. In November 2014 the Commission launched its consultation on its appraisal of the three remaining options [3].
6. The All Party Parliamentary Group on Heathrow and the wider economy (APPG) responded to the consultation on the economic issues with three reports - (1) *The Wider Economy-Impact of Heathrow's expansion on the number and distribution of UK passengers and destinations* [4]; (2) *Supplementary report* [5]; and (3) *Wider Economy - Report 2* [6]. The APPG's Passenger Report and its supplement focused on the aviation market and were based almost entirely on the Commission's own consultation estimates in its *Strategic Fit: AC 05 Forecasts* [7].
7. In June 2015 RHC published a set of fact sheets based on evidence previously published by the Commission and mainly the evidence contained in the Commission's consultation plus subsequent evidence provided by the Commission in respect of air quality.
8. In its Final Report-July 2015 [8], the Commission recommended the NWR expansion in preference to an extended northern runway at Heathrow or 2<sup>nd</sup> runway at Gatwick.
9. The Airports Commission considered five scenarios for the future aviation market (the five scenarios are defined by the Airports Commission on page 14 of its Strategic Fit Updated Forecasts [9]). Each of which was examined on the assumption that CO<sub>2</sub> emissions are dealt with by either restricting aviation growth through a carbon cap or alternatively by an emissions trading scheme, whereby 'gross' CO<sub>2</sub> emissions from flights would not increase 'net' global CO<sub>2</sub> emissions, since compensatory offsets from elsewhere would be purchased under the scheme. [Fact Sheet 3-Carbon](#) gives more detail on the carbon issue and its impact.
10. The evidence in the Commission's consultation has been retained in its Final Report. However, in its Final Report the Commission focused its commerciality and environment tests on the 'Assessment of Need' carbon capped scenario, in which demand is primarily determined by central projections of the OBR, OECD and IMF. This is the scenario reported on in these fact sheets. In the absence of this guidance, the original fact sheets and reports by the APPG referred to above were based on averages of all ten scenarios. The carbon capped scenario now adopted is more restrictive on the aviation market and the economic value for both the 'Do minimum' case and NWR option.

11. This fact sheet on the economy focuses on the comparison of the Commission's recommendation for the NWR expansion at Heathrow with the 'Do minimum' case using the 'Assessment of Need' carbon capped scenario. The evidence is contained mainly in the Final Report's Strategic Fit Updated Forecasts [\[9\]](#) and the Business Case and Sustainability Assessment- Heathrow Airport [\[10\]](#).
12. The local economy is dealt with in [Fact Sheet 6](#).

### Is there sufficient UK capacity without Heathrow's north-west runway expansion?

13. The Commission's Assessment of need carbon capped scenario constrains demand to 386 million passengers and 3,039,000 flights in 2050 in order to keep the CO<sub>2</sub> emissions to no more than the 37.5 million tonne limit. (Carbon is dealt with in [Fact Sheet 3](#)). There is sufficient capacity to satisfy this demand without any new runways (i.e. the 'do minimum' case), as shown by the Commission's evidence summarised in the following table and Annex 1:

Passenger demand (millions) constrained by CO <sub>2</sub> emissions ceiling. 'Do minimum' option - Assessment of Need carbon capped.								
	Total Passengers including I to I transfers				Terminating Passengers excluding I to I transfers			
	2011	2050	Increment 2011 to 2050		2011	2050	Increment 2011 to 2050	
Heathrow	70	94	24	33%	52	86	34	65%
Other London airports	65	107	42	65%	63	107	44	70%
Total London	135	201	66	49%	115	193	78	68%
Regions	83	185	102	123%	83	184	101	122%
Total UK passengers	218	386	168	77%	198	378	180	91%

Source: Airports Commission Strategic Fit Updated Forecasts. Other London airports: Gatwick, Stansted, Luton & City. There are rounding differences.

Terminating passengers start and end their journey in the UK. I to I transfer passengers start and end their journey overseas.

14. Heathrow is currently at its planning limit of 480,000 flights a year in segregated mode but in passenger terms is far from full. The Commission says it can accommodate 33% growth between 2011 and 2050 without exceeding its existing planning limit by using larger planes and higher load factors. The Commission has also forecast a reduction in International (I to I) transfer passengers of 10 million a year by 2050. The number of terminating passengers at Heathrow is therefore forecast to rise by 34 million or 65% to 86 million by 2050 in the 'Do minimum' case.
15. London's four other airports currently all have spare runway capacity. In the 'Do minimum' case, Stansted flights reach 81% of runway capacity and Luton flights reach 73% by 2050. But Gatwick and City Airport reach runway capacity in terms of flights before 2050. The four airports are at 88% of capacity in terms of flights by 2050. But, as with Heathrow, capacity limits in terms of flights are overcome by the passenger numbers increasing through use of larger planes and loads. Passenger numbers at London's four airports (excluding Heathrow) grow by 65% between 2011 and 2050. Terminating passenger numbers grow by 70%.
16. London's five airports served around 135 million passengers in 2011 which was more than any other city in the world. Frankfurt served 35 million, Amsterdam 41 million and New York 105 million, for example.

17. Runway use in the UK regions outside the south-east, so excluding London's five airports, was 980,000 flights in 2011. These increase to 1,841,000 flights by 2050 (39% of regional runway capacity). Regional passenger numbers grow by 123% to 185 million passengers by 2050.
18. There is substantial unused airport runway capacity across the UK through to 2050 in the 'do minimum' case, based on the demand constrained by limits placed on carbon capped emissions.

### What's the impact of Heathrow's north-west runway expansion on aviation demand?

19. The Commission's Assessment of Need carbon capped scenario constrains demand to 369 million passengers and 2,891,000 flights in order to keep the CO<sub>2</sub> emissions to no more than 37.5 million tonnes in 2050. The impact of Heathrow's NWR expansion on the UK aviation market is summarised in the following table:

Passenger demand (millions) constrained by CO <sub>2</sub> emissions. Northwest runway option - Assessment of Need carbon capped								
	Total Passengers including I to I transfers				Terminating Passengers excluding I to I transfers			
	2011	2050	Increment 2011 to 2050		2011	2050	Increment 2011 to 2050	
Heathrow	70	135	65	93%	52	105	54	104%
Other London airports	65	93	28	43%	63	92	29	46%
Total London	135	228	93	69%	115	197	83	72%
Regions	83	141	58	70%	83	141	58	70%
<b>Total UK passengers</b>	<b>218</b>	<b>369</b>	<b>151</b>	<b>69%</b>	<b>198</b>	<b>338</b>	<b>141</b>	<b>71%</b>

Source: Airports Commission Strategic Fit Updated Forecasts. Other London airports: Gatwick, Stansted, Luton & City. There are rounding differences.

Compared to the 'Do minimum' option the impact of a NWR expansion at Heathrow is summarised in the following table and in Annex 1.

Passenger demand (millions) constrained by CO <sub>2</sub> emissions.. Northwest runway option compared to 'Do minimum' option - Assessment of Need carbon capped		
	Total passengers including I to I transfers	Terminating passengers excluding I to I transfers
	2050	2050
Heathrow	42	20
Other London airports	-15	-15
Total London	27	5
Regions	-43	-43
<b>Total UK passengers</b>	<b>-17</b>	<b>-39</b>

Source: comparison of passenger demand in para 13 table and in para 19 table. There are rounding differences.

The following examination of the facts looks first at the impact on the UK and secondly on Heathrow itself. The figures are taken from the Airports Commission's Final Report as summarised above and in Annex 1.

## **Impact on UK**

- i. Reduces growth of UK passengers from an average 1.5% to 1.4% per annum between 2011 and 2050, both of which are much less than historic annual GDP growth of 2.45% (1954 to 2014) and forecasts of future GDP growth, in part due to the carbon constraint. The Commission has not published the split in growth before and after 2026. But since growth up to 2026 is the same in the NWR expansion option as in the 'do minimum' option, the NWR growth after first flight in 2026 must be relatively much less than that of the 'do minimum' option. NEGATIVE for the UK
- ii. Reduces growth of total UK passengers, for example, by 17 million passengers in 2050 (from 386 million to 369 million). Similarly, the number of UK flights is reduced by 148,000 from 3,039,000 flights to 2,891,000 in 2050. NEGATIVE for the UK.
- iii. Reduces growth of UK terminating passengers (excluding International to International (I to I) transfers), for example, by 39 million passengers in 2050 (from 377 million to 338 million). NEGATIVE for the UK.
- iv. 1The diversion of growth in passengers to Heathrow from the rest of the UK translates into reduced growth in flights at virtually all UK airports. As examples, the Commission estimated the number of flights in 2050 at Birmingham airport would be reduced from 206,000 to 113,000 (45%) (2011 – 86,000 flights), comparing no Heathrow expansion with expansion. Growth at Luton would be reduced by 35%, Glasgow: 22%, Bristol: 26%, East Midlands: 20%, Newcastle: 11%, Belfast International: 10%, Liverpool: 11%, Manchester: 10%, Stansted: 7% and Gatwick: 7%. 1Heathrow ends up serving 70% of the long-haul passenger market and 35% of UK passengers with many other UK airports left with substantial unused capacity. We submit this concentration at Heathrow negatively impacts airport connectivity and competition. It has a negative impact on the UK as an aviation hub and on most UK airports, some of which may not survive, and on local economies and employment. This outcome works against the Government's aim of re-balancing the UK economy. NEGATIVE for the UK.
- v. 1Reduces the growth in number of air inbound tourists to the UK. One of two main economic benefits from air travel is inbound tourism. 1By 2050 Heathrow expansion adds at Heathrow 4 million foreign resident leisure passengers to/from the UK compared to the no expansion case. But there would be losses of 2 million at Gatwick, 2 million at other southeast airports and 7 million in the regions. The net loss to the UK would be 7 million foreign resident leisure passengers or 12% (from 59 million passengers a year to 52 million), compared to no Heathrow expansion. We submit this would result in a material loss to the UK economy and balance of payments. Inbound tourists spent £22 billion in 2014 and 73% reached the UK by air. NEGATIVE for the UK.
- vi. Reduces both UK resident business and foreign resident business passenger growth by 2%. Reduces UK resident leisure passenger growth by 13%. In spite of these differences, the segment market shares, as related to total UK terminating passengers, do not change materially as a result of the 3<sup>rd</sup> runway. The absence of a shift in market shares means it is unlikely there would be a change in economic value other than in relation to the reduction in growth of total passenger numbers (see 19iii). NEGATIVE for the UK.
- vii. Reduces UK domestic passenger growth by 10%, for example by 2050, but the market share, as related to total UK terminating passengers, is not changed materially as a result of the 3<sup>rd</sup> runway. So it is unlikely there would be a change in economic value other than in relation to the reduction in growth of total passenger numbers (see 19iii). NEGATIVE

for the UK.

- viii. Increases growth in UK long-haul passengers by 5%, for example by 2050. 1 The claim by the Commission of the increase in long-haul business travel and its benefit to the UK economy appears not to be supported by any evidence. The growth in long-haul travel is likely to be from growth in UK resident leisure passengers. There is evidence for business passenger numbers and long-haul passenger numbers but not the two combined. What evidence there is suggests the total number of long-haul business passengers (from the UK and overseas) may reduce across the UK as a result of Heathrow expansion, compared to no Heathrow expansion. PROBABLY NEGATIVE for the UK.
- ix. Reverses the decline in I to I transfers in the UK (most are at Heathrow). Without a 3<sup>rd</sup> runway, UK-wide I to I transfers decrease from 20.4 million transfers in 2011 to 8.3 million in 2050. But the NWR option results in 30.5 million I to I transfers across the UK by 2050, which means the NWR option adds 22.2 million transfers compared to the 'do minimum' option or the equivalent of around 52% of the 3<sup>rd</sup> runway's capacity. These provide little or no economic benefit to the UK (see paras. 26-29 below). NEGATIVE for the UK.

### ***Impact on Heathrow***

- ix. Increases Heathrow's total passengers between 2011 and 2050, compared to the 'do minimum' option, for example by an incremental 42 million passengers in 2050, i.e. from 94 million to 135 million (small rounding difference). The incremental increase in terminating passengers is 20 million passengers by 2050, i.e. from 85 million to 105 million. POSITIVE for Heathrow but NEGATIVE for the UK.
- x. Reverses the decline in I to I transfers at Heathrow. Without a 3<sup>rd</sup> runway, Heathrow I to I transfers decrease from 18.5 million transfers in 2011 to 8.1 million in 2050. But the NWR option results in 29.9 million I to I transfers at Heathrow by 2050, which means the NWR option adds 21.8 million transfers compared to the 'do minimum' option or the equivalent of around 52% of the 3<sup>rd</sup> runway's capacity. These provide little or no economic benefit to the UK (see paras. 26-29 below). POSITIVE for Heathrow but NEGATIVE for the UK.
- xi. Increases the concentration of UK terminating passengers at Heathrow with its market share rising from 26% in 2011 to 31% in 2050. The share decreases to 23% in the 'do minimum' option. POSITIVE for Heathrow but NEGATIVE for the UK.
- xii. Reduces the market share of Heathrow's long-haul passengers in 2050, for example, from 65% to 53% of total terminating flights at Heathrow. The share of short-haul flights increases from 34% to 44%. Long-haul, when for the purpose of business or tourists from overseas, is said by the Commission to be more valuable to the economy than short-haul. NEGATIVE for both Heathrow and the UK.
- xiii. The Commission claims Heathrow's NWR expansion will add economic value with additional long-haul business passengers but no numbers are published. We know from Department for Transport (DfT) Passenger Forecasts that in 2010 Heathrow had 3.1 million business UK resident long-haul passengers and 2.7 million business foreign resident long-haul passengers. Our estimate is that these numbers will nearly double by 2050 without the NWR expansion. The NWR expansion adds around 7 million business passengers (short and long-haul) by 2050 but the rest of the UK loses 8.5 million business passengers. We conclude from these figures and other evidence that Heathrow expansion will probably reduce growth of long-haul business passengers across the rest of the UK. POSITIVE for Heathrow but PROBABLY NEGATIVE for the UK.

xiv. Makes no material difference to market shares by purpose of travel of Heathrow's terminating passengers, e.g. business UK resident 21%, business foreign resident 15%, leisure foreign resident 22% and leisure UK resident 39%. Business domestic rises from 0.7% to 1.6% and leisure domestic from 0.5% to 1.2%, which in aggregate amount to 3 million passengers in 2050; this is just 6% of total UK domestic flights. The absence of a shift in market shares means it is unlikely there would be a shift in economic value other than in relation to growth of passenger numbers which increases at Heathrow but reduces for the UK as a whole. NEUTRAL for Heathrow and the UK.

### **Is connectivity and competition improved by Heathrow's north-west runway expansion?**

20. Heathrow's connectivity increases, albeit with doubtful benefit, and this is more than offset by reduced connectivity of London's other airports and of those in the rest of the UK. Annex 1 Table 3 details flights by airport in which it can be seen how, with the NWR expansion of Heathrow, the number of flights across the UK is reduced. Annex 2 details the destinations. Both Annexes are sourced from the Commission's Final Report.

#### ***Impact on UK***

21. The number of destinations served by the UK is forecast to increase from 361 in 2011 to 400 in 2050 without Heathrow's NWR expansion and to 397 with Heathrow's NWR expansion. The small loss, together with the forecast reduction in number of UK flights, means that overall the frequency of UK flights is reduced by expansion compared to no 3<sup>rd</sup> runway. The number of destinations and frequency of flights together are a measure of the UK's connectivity. Based on these figures taken from the Commission's forecasts, the inevitable conclusion is that there is some reduction in overall UK connectivity as a result of Heathrow's NWR expansion. NEGATIVE for the UK.

#### ***Impact on Heathrow***

22. The number of destinations served by Heathrow itself is forecast to decrease from 179 in 2011 to 151 in 2050 without Heathrow's NWR expansion but to increase to 198 with Heathrow expansion. Compared to no NWR expansion, Heathrow's NWR expansion adds 9 long-haul destination, 37 short-haul and one domestic destination. These increases, together with an increase of over 50% in the number of flights, improve Heathrow's connectivity. But this results in increased numbers of I to I transfer passengers, UK resident leisure passengers on short-haul flights and increased frequency of flights to popular destinations. Therefore, the increased connectivity of Heathrow flights and destinations is of doubtful economic value. POSITIVE for Heathrow but of doubtful value for the UK.

#### ***Impact on London***

23. The increase in Heathrow's leisure passengers and short-haul destinations is at the expense of other London airports. London's five airports, including Heathrow, add just one long-haul and 4 short-haul destinations by 2050 as a result of Heathrow's NWR expansion. In the absence of data from the Commission, we can only guess at the impact on other London airports but almost certainly the number of destinations is reduced. Furthermore, while Heathrow adds 269,000 flights a year, the other four London airports lose 76,000 flights a year. London airports, other than Heathrow, lose connectivity as a result of Heathrow's NWR expansion. NEGATIVE for London airports other than Heathrow.

### ***Impact on Regions***

24. Given there is no overall increase in UK destinations but a material increase in Heathrow' destinations, it is reasonable to conclude that in addition to the loss of destinations at other London airports there is also a loss at other UK airports. The Commission does not provide this data. The number of flights to/from regional airports is reduced by 341,000 flights a year or 19% in 2050. The negative impact is especially felt at airports in Heathrow's catchment area, such as Birmingham, East Midlands and Bristol. There is wide-scale loss of connectivity at regional airports (see also para.19iv). NEGATIVE for Regional airports.
25. Heathrow's NWR expansion concentrates flights and passengers at a single airport. It follows that competition will be stifled. It could thrive if other airports were allowed to grow their market share and, in the south-east, all five London airports were encouraged to compete. In 2011 Heathrow had 26% of the UK terminating passengers, which falls by 2050 to 23% without Heathrow's NWR expansion but rises to 31% with expansion. Heathrow has over 90% of the I to I transfer market. POSITIVE for Heathrow but NEGATIVE for all other airports.

### ***Hub airport and Connectivity***

26. Heathrow Airport Limited (HAL) claims that Heathrow competes with overseas airports as the UK's only hub airport. A hub airport is one where transfers represent a major part of the activity and there are the facilities to cater for transfers. I to I transfer passengers represented 18 million or 27% of Heathrow passengers in 2011 or 91% of the UK's total I to I transfers. In the absence of Heathrow's NWR expansion, the number of I to I transfers at Heathrow decreases to 8 million passengers by 2050. This is 9% of Heathrow passengers. But with Heathrow's NWR expansion the I to I transfers rise to 30 million passengers or 22% of Heathrow passengers by 2050.
27. An increase of 22 million I to I transfer passengers is over 50% of the new capacity of 42 million passengers served by an additional Heathrow runway.
28. Transfer passengers do not leave the air-side at Heathrow. They contribute to the airline and airport profits and their value is said to add connectivity by providing minimum aircraft loads for otherwise unviable routes and by adding to route frequency. However, there are very few thin (i.e. low demand/frequency) international routes from Heathrow that have any I to I transfers. There were 44 long-haul thin destinations in 2011 (less than one arrival and one departure a day) out of a total of nearly 100 long-haul destinations. Only 7 of these thin destinations had I to I transfers and these accounted for just 446,000 out of 18 million transfers. It is doubtful that the economic viability of any of these 7 low frequency services depended on transfers. But support for thin destinations is a main justification for the Commission recommending a hub airport such as Heathrow. Instead, 95% of Heathrow's I to I transfers support higher frequencies to already popular destinations rather than otherwise economically unviable thin destinations. In 2011 New York JFK and Newark airports together had over 26 departures from Heathrow every day serving 1.2 million I to I transfers and 2.6 million terminating passengers. Average loads were as low as 216 passengers on flights to New York JFK in 2011 and 170 passengers to Newark, compared to an A380's capacity of over 500 passengers. This issue was confirmed by the Sunday Times 18/10/15; it said that BA has over capacity on some US routes from Heathrow and is cutting the frequency of flights.
29. While frequency is important to connectivity there is a question of diminishing returns and efficient use of resources on high frequency routes, especially those serving primarily the leisure market. I to I transfer passengers are exempt from Air Passenger Duty. They support

business travel between overseas countries in competition with the UK. The routes tend to be circuitous with an additional landing and take-off compared to a direct flight, which results in additional noise and pollution. They use the UK's valuable CO<sub>2</sub> ceiling. As a result of Heathrow expansion, a very substantial 22% of Heathrow's capacity would be used for the benefit of I to I transfers but not for the benefit of the UK. Fewer I to I transfers could free up Heathrow slots for flights to as many as 100 new destinations a day.

### How might Heathrow's north-west runway expansion benefit the UK economy?

30. The aviation market is a major factor in determining the impact of a 3<sup>rd</sup> runway at Heathrow on the UK economy. The Commission has approached an economic valuation at a local level using the government's standard "WebTAG" approach, modified to include some wider benefits. In addition, it has produced a valuation based on the wider UK benefits using an econometric model promoted by PwC called an S-CGE model [11]. The estimates are summarised in present value terms over 60 years from start of first flight in 2026 and in 2014 money terms. The results commented on here are for the carbon capped assessment of need scenario.
31. Webtag valuation. The Commission's WebTAG model estimates the incremental benefit of a 3<sup>rd</sup> runway compared to the 'do minimum' case. The consumer surplus estimate is £33.6 billion (60 year present value) based on benefits to passengers such as cheaper flights. Some benefits reduce the airline and airport profits resulting in a producer deficit of £25.8 billion. There is an increase in government revenue of £1.9 billion. Passengers and airlines benefit from a reduction in delays valued at £3.0 billion. The local net benefits are therefore £12.7 billion. To this are added the wider economic benefits of £7.7 billion, which include exports, imports and agglomeration. The resultant total benefits are £20.4 billion.
32. Offsetting the total benefits of £20.4 billion are the monetised environmental costs: noise £1.5 billion, air quality £0.8 billion and carbon emissions £0.7 billion, or £3.0 billion in total. The incremental carbon costs are relatively small because the Commission says the 'do minimum' and the 3<sup>rd</sup> runway options both assume the carbon is reduced to 37.5 million tonnes in 2050 and therefore there is little incremental impact. The total benefits less environmental costs results in a 'Net Social Benefit' (NSB) of £17.4bn.
33. The present value of the scheme costs of £17.6 billion, including contingencies, is £12.7. The incremental surface access costs assumed are £3.3 billion. The 'Present Value Costs' (PVC) are therefore £16.0bn.
34. The resulting overall net incremental benefit from a 3<sup>rd</sup> runway is **£1.4 billion** (NSB-PVC).
35. There are a number of non-monetised benefits and costs: - surface access and local economy are said to be positive; quality of life - neutral; and community, place and water and flood risk - negative. Included in these is the negative impact of demolishing over 1,000 homes.
36. The net benefit of £1.4 billion of present value over 60 years we regard as small in relation to the investment of £17.6 billion. It is within the margin for statistical error; insufficient to absorb the downside risks; and it is a tiny fraction of the UK GDP. The value for money ratio (NSB/PVC) is just 1.1 (17.6bn/16bn), which is bordering on "poor" in the DfT webtag guidelines and this is before the negative adjustments suggested below.

37. The Commission does provide some risk analysis of some of the component parts. We raise the following questions on the WebTAG results:

i. Consumer Surplus: £33.6 billion benefit.

- The Commission has given weight to the importance of I to I transfers supporting new long-haul destinations with potentially rich business opportunities. However, we question whether I to I transfers support thin destinations and we question their value in adding frequency to already popular routes serving the leisure market and the diminishing returns on high frequency routes, as explained in paras. 26-29. The WebTAG model attributes £6.2 billion of benefit to I to I transfer passengers but why WebTAG assumes their benefit should benefit the UK is unclear; they appear to be excluded explicitly from the S-CGE valuation because they are said by PWC to add no value to the UK. Oxera also confirm no I-to-I value in their report [16].
- While economically valuable market segments, such as business, increase at Heathrow as a result of a 3<sup>rd</sup> runway they remain little changed across the UK as a whole. The long-haul passenger numbers increase at Heathrow and marginally across the UK as a whole. The Commission seemingly has not published figures for long-haul business passengers to support its claim that this segment adds value. We estimate the number of additional long-haul business passengers at Heathrow is only 2 million by 2050 and as such is unlikely to have much economic impact. Moreover, this gain is probably offset by a loss in number of long-haul business passengers across the rest of the UK.
- It is unclear that the WebTAG model has extended to the wider economy in a way that reflects the negative impact on both the reduction in total UK terminating passenger by 39 million a year (see para. 19iii) and the allocation across the UK, whereby Heathrow benefits at the expense of the rest of the UK which loses 58 million passengers a year (see para. 19iv) and we assume a commensurate loss of jobs and economic activity.
- These three points and others raised in our examination of the aviation market discussed above are potentially significantly negative, and we question whether they have been fully reflected in the WebTAG appraisal.

ii. Delay reduction: £3 billion benefit. A 3<sup>rd</sup> runway at Heathrow is forecast by the Commission to fill up rapidly. But the Commission has not made clear why delays caused by existing capacity constraints do not re-appear and in magnified form given the larger airport, and why this would not negate the benefit from any reduction in the delays.

iii. Noise: £1.5 billion cost.

We question whether the noise cost is not substantially under-estimated by the Commission.

- Modernisation of London's airspace using new technology is in serious doubt because of the community's resistance to change in overflight and the noise consequences and the unproven noise benefits of introducing multiple flight paths and respite. Redesign is complicated by the substantial forecast growth in London's population. Heathrow, the DfT, NATS, and the CAA have not yet been able to formulate any meaningful airspace modernisation plans, let alone the far more difficult scenario including Heathrow expansion. To increase the number of flights by 50% probably is impossible in these circumstances and to approve Heathrow expansion without any plans on how the airspace capacity and efficiency can be upgraded is a huge shot in the dark, potentially making the expansion undeliverable. Furthermore, as of September 2016,

the Government has still to revise the National Aviation Policy Framework, which is urgently needed to establish policy for modernisation.

- It appears that the Commission has not applied the current London-wide flight path re-design and the claimed benefits therefrom to the 'do minimum' option. Thus the incremental noise cost of £1.5 billion could be substantially understated. In effect apples and oranges have been compared. Given the speculation on modernisation in the first bullet point, we suggest the optimisation of the do-something airspace options should be stripped out so as to match the 'do minimum' case rather than the latter being optimised (optimisation generally reduces the noise impact on communities)
  - It is unclear as to whether the cost Heathrow says it is willing to pay for mitigation (double glazing, etc.) is fully included.
  - The Commission has applied a cost of annoyance, sleep disturbance, etc. caused by noise to the number of people affected by the NWR expansion. The Commission estimates a wide range of outcomes (from zero to £15.5 billion), depending on the unit cost, flightpath design and number of people affected. The chosen estimate is at the lower end of this range. There is a risk it substantially underestimates the noise cost.
  - The £1.5 billion cost works out at a unit cost per person affected of around £150 per year, which seems low, especially when there could be over 300,000 people newly affected by noise. The cost is the amount a person is willing to pay to avoid the noise.
  - The £1.5 billion cost appears to be based on around 500,000 people being affected by Heathrow's NWR expansion. But at the World Health Organisation noise guideline levels of 50 decibels averaged over 16 hours (the onset of moderate annoyance), the population affected could reach 1,500,000 people.
- iv. Air Quality £0.8 billion cost. The surface access cost, estimated by the Commission to be an un-discounted £5 billion, is estimated by TfL to be around £20 billion if adequate road and rail capacity is to be provided [\[12\]](#). Without the additional investment, road congestion is likely to be much higher with a knock-on effect on air quality, which already exceeds legal limits. It seems very unlikely the government would fund the £20 billion, although Heathrow will argue it is mainly for background demand unrelated to the airport. If the additional £15 billion for surface access were spent over the same period as the £5 billion, then the present value cost would be around £13 billion compared to the Commission's estimate of £3 billion. Clearly, a £10 billion difference turns the net benefit of £1.4 billion substantially negative. The Commission seems to have substantially under-estimated road congestion and the quantity of pollutants, thus making it even harder to comply with air quality standards. A 3<sup>rd</sup> runway could be undeliverable either because of the excessive pollution or because the cost of mitigation cannot be financed either privately by the airport or by the State.
38. The PwC S-CGE model. The Airports Commission relies on a report that attempts to value the economic benefits of Heathrow's NWR expansion. (Technical PwC Report - Economy: Wider Impacts Assessment – prepared by PwC and dated June 2015) model [\[11\]](#). Section 8.8.7 page 288 et seq. provides a sensitivity test for the carbon capped passenger scenario. The PwC report describes the substantial efforts that have been made in developing a model appropriate for forecasting the impacts of increases in aviation capacity on GDP and highlights the difficulties in attempting to forecast those impacts. This experimental model raises many questions as to its validity and doubts are raised by a peer review carried out by Deloitte for the Commission [\[13\]](#). These questions and doubts need to be addressed before

a decision is made. The model regards aviation as enabling other economic activities across the UK and seeks to assess the value of these additional activities resulting from Heathrow's NWR expansion. The carbon capped sensitivity case is based on the Commission's 'demand reduction' carbon capped numbers, which are the result of reducing demand by a percentage reduction rather than an increase in ticket prices used by the WebTAG model. The incremental benefit of a third runway is estimated by the S-CGE model as £129.9 billion for the Assessment of Need carbon capped scenario. The carbon traded value is £147.2 billion.

Given the UK incremental loss of 39 million terminating passengers a year in the NWR expansion option, as discussed above in paragraph 19(iii), we question the incremental increase of 6.3 million passengers input into the S-CGE model. The Commission calculates the 6.3 million passengers by first calculating the level of demand in the NWR expansion option constrained so as to achieve no more than the Climate Change Committee's planning assumption of 37.5 million tonnes of carbon in 2050. It then uses the same underlying demand in the 'do minimum' case. However, this substantially reduces the 'do minimum' demand and resulting carbon emissions to 33.6 million tonnes. In so doing the increment is turned from a substantial loss into the positive 6.3 million passengers. It is inconceivable that the industry would be able to operate in the 'do minimum' case by producing just 33.6 million tonnes of carbon by 2050. We have considerable concerns with this approach and would expect there to be a substantial loss rather than the Commission's estimate of £129.9 billion benefit in the carbon capped Assessment of Need scenario.

The APPG report, Wider economy-report 2 [6], examined the economic case contained in the PWC report and in doing so raised still further doubts about the economic value of expanding Heathrow.

39. Capital investment unjustified. The overall spend of £17.6 billion on the 3<sup>rd</sup> runway scheme plus £20 billion on surface access has not been demonstrated to be of value in terms of the aviation market or the UK economy. The impact on the aviation market and probably in turn the national and regional economics is significantly negative based on the Airports Commission's data.
40. 1Heathrow expansion ensures Heathrow is the most expensive major airport in the world. Heathrow's aeronautical charges rise from £22.53 per passenger in 2014 to £31.20 with expansion (£ real 2014). This compares with around £9 at Gatwick, £12 at Schipol, £8 at Dublin and Manchester and £11 at New York JFK, for example. The high cost of Heathrow is partly due to facilities for I-to-I transfers, which in (5) above we submit are of questionable value to the UK.
41. The Alternative. The investment in other airports needed to realise their existing runway capacity is likely to be small in comparison with the £17.6 billion at Heathrow. Furthermore, Heathrow is far from full in the 'do minimum' option and can increase terminating passengers by at least 34 million a year with larger planes and loads without a new runway and restricted to the existing planning limit of 480,000 flights a year in segregated mode. We believe better use of all five London airports and indeed those across the UK, together with investment in better surface access, should be considered instead of an additional third runway at Heathrow.

## Who pays for Heathrow's North West Runway?

42. Heathrow expansion may not be financially deliverable without substantial State aid. 1 The Commission's base case financial model for Heathrow forecasts capital costs of £80 billion (money of the day) (£48 billion £ real 2014), excluding a probable underestimate of up to £15 billion of surface access costs. The £80 billion comprises £25 billion for the Northwest runway expansion scheme, £22 billion for core capital expenditure and £33 billion for replacement capital expenditure, all through to 2050. Heathrow needs to find £28 billion to finance a third runway and ongoing cash outflows [\[14\]](#) and £20 billion for surface access [\[12\]](#). Peak debt will need to rise from £11 billion in 2014 to £34 billion in 2028, which with re-financing needs will be a huge challenge for debt markets. The shareholders (90% owned overseas) are forecast to raise their capital from £3 billion to £8 billion, which is hardly cushion enough to absorb the substantial construction, operational and financial risks. The passenger and tax payer are left to absorb most of the risk but the former will be heavily burdened with high aeronautical charges leaving the risk to be borne by the UK tax payer. State aid may require Government cuts elsewhere in the economy, and may be contrary to competition legislation. State aid will be at the expense of the rest of the UK and UK tax payer and will end up subsidising the return of Heathrow's mainly overseas shareholders and the majority of users of the new capacity of 42 million passengers a year who will be I to I transfers passengers (an incremental 22 million by 2050) and UK resident leisure passengers (an incremental 7 million by 2050). The latter has a negative impact on the UK's balance of payments. Air travel for leisure is also predominantly by the more wealthy and a questionable candidate for state subsidies. ABC1s are the predominant users of leisure air travel (74%)[\[15\]](#). There is already substantial spare capacity at airports outside London requiring little further investment.
43. The Airports Commission in its Interim Report rejected the Richmond Heathrow Campaign's proposal for increasing taxation of the aviation sector on the grounds that the payments under carbon capped forecasts are a proxy for increased taxation. RHC made the case that in the absence of VAT on tickets, fuel tax and on account of the tax exemption of I to I transfers, the aviation sector is being subsidised by other sectors of the UK economy and stimulates the already large leisure demand. Tax raised on the principle that the pollutant pays is not a general tax and difficult to regard as a proxy for a general tax. Furthermore, the carbon tax does not feature in the carbon trading forecasts. Forecasts of demand by the DfT in the past have maintained existing aviation taxation through to 2050, which ignores the fact that the taxation has been on an upward trend for seventeen years. It appears that the Commission has also not increased aviation taxation in their latest forecasts.

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File:WP/Heathrow/Demand 12-Aug-15					DESTINATIONS Strategic Fit Updaaed Forecasts Assessment of Need Carbon Capped AON CC					ANNEX 2				
					Actual	DM No expansion	NWR Expansion	Increment NWR-DM						
					UK	UK	UK	UK						
<b>Heathrow</b>					<b>Gatwick</b>					<b>London</b>				
SFU Forecasts table					SFU Forecasts table					SFU Forecasts table				
All Destinations					All Destinations					All Destinations				
Domestic	7	3	4	1	Domestic	9	8	?	?	Domestic	10	10	10	0
Short-haul	80	59	96	37	Short-haul	158	147	?	?	Short-haul	215	222	226	4
Long-haul	92	89	98	9	Long-haul	49	42	?	?	Long-haul	107	129	130	1
Total	179	151	198	47	Total	216	197	?	?	Total	332	361	366	5
SFU Forecasts table					SFU Forecasts table					SFU Forecasts table				
Daily Destinations					Daily Destinations					Daily Destinations				
Domestic	7	3	4	1	Domestic	9	8	?	?	Domestic	10	9	10	1
Short-haul	75	54	86	32	Short-haul	58	60	?	?	Short-haul	104	130	137	7
Long-haul	57	63	73	10	Long-haul	13	19	?	?	Long-haul	61	82	87	5
Total	139	120	163	43	Total	80	87	?	?	Total	175	221	234	13
Less than daily Destinations					Less than daily Destinations					Less than daily Destinations				
Domestic	0	0	0	0	Domestic	0	0	?	?	Domestic	?	?	?	?
Short-haul	5	5	10	5	Short-haul	100	87	?	?	Short-haul	?	?	?	?
Long-haul	35	26	25	-1	Long-haul	36	23	?	?	Long-haul	?	?	?	?
Total	40	31	35	4	Total	136	110	?	?	Total	?	?	?	?
Other Modelled					UK									
SFU Forecasts table					SFU Forecasts table					SFU Forecasts table				
All Destinations					All Destinations					All Destinations				
Domestic	28	29	29	0	Domestic	28	29	29	0	Domestic	28	29	29	0
Short-haul	179	230	220	-10	Short-haul	226	241	238	-3	Short-haul	226	241	238	-3
Long-haul	42	94	86	-8	Long-haul	107	130	130	0	Long-haul	107	130	130	0
Total	249	353	335	-18	Total	361	400	397	-3	Total	361	400	397	-3
SFU Forecasts table					SFU Forecasts table					SFU Forecasts table				
Daily Destinations					Daily Destinations					Daily Destinations				
Short-haul	40	86	74	-12	Domestic	26	27	27	0	Domestic	26	27	27	0
Long-haul	6	23	21	-2	Short-haul	105	132	137	5	Short-haul	105	132	137	5
Domestic	25	27	26	-1	Long-haul	61	82	87	5	Long-haul	61	82	87	5
Total	71	136	121	-15	Total	192	241	251	10	Total	192	241	251	10
Less than daily Destinations					Less than daily Destinations					Less than daily Destinations				
Domestic	?	?	?	?	Domestic	?	?	?	?	Domestic	?	?	?	?
Short-haul	?	?	?	?	Short-haul	?	?	?	?	Short-haul	?	?	?	?
Long-haul	?	?	?	?	Long-haul	?	?	?	?	Long-haul	?	?	?	?
Total	?	?	?	?	Total	?	?	?	?	Total	?	?	?	?

Prepared by P Willan Richmond Heathrow Campaign

Note: Destinations at more than one airport cannot be added. Some destinations are served by more than one airport. ?: Commission has not published this information