

**SUBMISSION TO THE AIRPORTS COMMISSION IN RESPONSE TO CONSULTATIONS  
ON SHORTLISTED OPTIONS****CONTENTS****1 DEMAND AND CAPACITY**

The Airports Commission projected growth in demand is too low. With a structural reduction in the price of oil and demand rising around the world there is going to be a boom in aviation. This will overwhelm the Airports Commission projections and leave the UK seriously disadvantaged by a lack of capacity, even with two extended runways at Heathrow. The UK's competitors are already building purpose-designed 6-runway hubs. The Airports Commission shortlisted solution of adding or extending runways at Heathrow, one new runway by 2030, two by 2050 condemns the UK to being constrained by a long term lack of capacity. The case for a new 5 or 6 runway hub in the Thames Estuary needs to be re-opened.

**2 EFFICIENCY**

The UK is fortunate in having a large passenger catchment on the intersection of the primary intercontinental great-circle axes of long haul aviation, between North America-Europe-The Middle East and The Far East-Europe-South America. With this advantage the UK can lead world aviation by developing new, purpose-designed hub capacity with the shortest travel times, minimum connection times, most efficient energy consumption and lowest carbon audit; air-side, land-side and for the surface access. The scale and efficiency of the required new capacity can only be provided by a purpose-designed, new-build hub in the Thames Estuary.

### **3 PASSENGER CATCHMENT**

A world hub requires a large passenger catchment that combines surface access networks and short haul networks to generate long haul demand. The UK has a large short haul catchment and being an island has an exceptionally large surface access catchment, with a high propensity to fly. A new hub in the Thames Estuary will generate a larger surface access catchment and a larger short haul passenger network than any of the Airport Commission's shortlisted options.

### **4 COMPARATIVE PROXIMITY**

The "comparative proximity" of an airport takes account of the full travel times both to the airport **and** within the airport, so that overall journey times may be compared to determine which airport will in practice be closer to its passengers and have the largest catchment.

The travel times, energy efficiency and carbon audit of a new hub will determine the extent of its passenger catchment. Travel times include not just the times of the surface access and short haul journeys to and from the airport but also the transfer and transit times within the airport. A new-build hub is purpose-designed to provide minimum transfer and transit connection times within the airport, from train-to-plane and plane-to-plane. In this way travel time is saved on each journey when compared with a less efficient system such as Heathrow. The time saved by passengers within the airport can be put to travelling further on the surface access or longer on short haul flights to the airport so that a purpose-designed hub with minimum connection times will command a larger surface access catchment and a larger short haul network.

The Airports Commission assumed that Heathrow would be more convenient for the UK passenger catchment than a new hub in the Thames Estuary and hence the number of passengers Heathrow can command would be greater than the number commanded by an Inner Thames Estuary (ITE) airport. As the existing passenger catchment has evolved around Heathrow since WW2 this assumption may not be surprising but it overlooks the purpose-designed, new-build comparative proximity advantage of the ITE. Once this is taken into account the size of the UK passenger catchment for the ITE substantially exceeds that of Heathrow.

## **5 AIR-RAIL SUBSTITUTION**

The capacity and catchment of a hub can be increased and the carbon audit reduced by using air-rail substitution for some short haul journeys. The comparative proximity of the ITE and its location close to HS1 enables it to develop a higher proportion of air-rail substitution across the UK and a wider catchment across Europe to Paris, Brussels and Amsterdam than any of the Airports Commission shortlisted options. Heathrow to the west of London with slower connection times cannot hope to compete in this wider market for air-rail substitution. The ITE will have a much higher air-rail substitution capacity and catchment with correspondingly lower carbon audit than an extended Heathrow.

## **6 COMPARATIVE PRODUCTIVITY**

The Heathrow Hub proposal is presented as straightforward but the procurement, with Heathrow already operating at maximum capacity, will be challenging. Like cones on motorways there's going to be congestion and disruption. The productivity of Heathrow extended to become Heathrow Hub compared with that of the ITE can be expressed in the form of graphs that plot the combined operational capacity of the two airports in terms of millions of passengers per annum (mppa) achieved each year from 2015 to the opening of the

new capacity. The graph showing Heathrow's capacity from now until the opening of the Heathrow Hub will be relatively depressed as the construction works will constrain the ability of Heathrow to grow, while the graph for the ITE will benefit from marginal but useful short term increases in capacity at Heathrow while the new, estuary capacity is being developed. So at the time when Heathrow Hub would open the productivity of the ITE graph will already be higher. When the new capacity is available at Heathrow Hub or the ITE, their mppa graphs will experience a step change increase, with the increase for the ITE being considerably higher. However the loss of productivity at Heathrow while procuring Heathrow Hub, even if opened earlier than the estuary solution, is never regained and once the new capacity is available at the ITE the graph pulls way ahead to assume an unassailable lead in terms of overall productivity.

## **7 RESILIENCE**

With Heathrow already operating at 98% capacity there is no resilience in the system. Quite minor incidents can have substantial knock-on effects taking days to clear. This problem will be compounded during works to extend the runways and continue once the new capacity opens as one extended runway will soon fill to capacity and require works to commence on extending the second runway, which when complete will also soon be expected to operate at close to its peak capacity. The Airports Commission shortlisted options for Heathrow guarantee that it will continue to operate at or close to maximum capacity and will consequently continue to lack resilience for the foreseeable future.

A 5 or 6 runway ITE will have much greater capacity than Heathrow Hub and much greater resilience. If one runway of the Airports Commission shortlisted options is shut down due to an oil spill, surface damage or debris on the runway the UK hub capacity immediately reverts to being no greater than Heathrow today. If the ITE or one of the emerging 6-runway hubs like Istanbul had one runway down their operations would barely notice the difference as demand is switched to the other runways while the recovery is underway.

## 8 ATTRIBUTABLE COST PER PASSENGER

For the Airports Commission to draw a fair cost comparison between the various airport proposals it is not their overall cost but the attributable cost per passenger that is important since this takes account of the cost and capacity of a proposal while providing a measure of the ability of passengers to meet these costs and of the aviation industry to raise the funds to develop the proposals. The overall attributable cost for each proposal is the sum of the following costs:-

- **Airport Cost:** the cost of the new passenger aviation infrastructure provided within the airport perimeter
- **Surface Access Cost:** the cost estimated from the proportion of new surface access capacity that is used for serving the airport, applied to the overall cost of the new surface access provided.
- **Air-Rail Substitution Cost:** the cost estimated from the proportion of new high-speed rail capacity used for air-rail substitution services, applied to the overall cost of the new high-speed lines.
- **Compensation Cost:** the cost of
  - acquiring the land and buildings required for the new aviation infrastructure
  - addressing the loss of heritage and other cultural assets
  - remediation of the environmental impacts
  - altering existing aviation infrastructure as a result of the proposal
  - noise compensation for the subsequent airport operations

Once the full attributable cost of each scheme has been estimated the Airports Commission also needs to assess the full capacity of each proposal, including the uplift from 24-hour operations (approximately 15%) and the contribution of air-rail substitution (up to say 25mppa). The resultant peak capacities of the airport proposals submitted to the Airports Commission vary considerably. So long as each proposal provides at least the minimum required uplift in capacity by 2030 and 2050 the useful comparison to be drawn between them is not their full attributable cost but their attributable cost per passenger. For the cost

comparisons to be useful the same cost parameters should apply to all schemes, setting the net present value (NPV) base date at say 2015 and applying the same risk and optimism bias to the component costs. The projected growth in aviation demand applies more or less equally to all the southeast airport proposals and the programme for their development is similar so that the Airports Commission chosen dates of 2030 for opening new capacity and 2050 for a second phase of capacity can be applied fairly to all proposals. Accordingly a useful and fair comparison of the various proposals would tabulate the 2015NPVs of the costs and capacities achieved for each proposal by 2030 and the additional 2015NPV costs and capacities achieved by each proposal from 2030 to 2050.

Set out below is an example of the table that the Airports Commission should prepare for each of their shortlisted options and for the updated ITE so that they can make an informed decision. Only on this basis can a useful judgement be drawn:-

<b>AIRPORT PROPOSAL</b>		<b>ATTRIBUTABLE COST</b>	
		<b>2030</b>	<b>2050</b>
<b>Component Costs</b>			
Airport Cost		.....	.....
Surface Access Cost		.....	.....
Air-Rail Substitution Cost		.....	.....
Compensation Cost		.....	.....
<b>Total Cost (C)</b>	<b>£bn</b>	.....	.....
Airport capacity	(mppa)	.....	.....
Air-rail Substitution	(mppa)	.....	.....
<b>Total capacity (P)</b>	<b>(mppa)</b>	.....	.....
<b>£ Cost per Passenger (C/P)</b>		.....	.....

## **9 METROTIDAL TUNNEL AND THAMES REACH AIRPORT (MTTRA)**

While work has been underway on the Airports Commission shortlisted options the MTTRA proposals have also been advancing, to eliminate the risk and uncertainties the Airports Commission perceived in the ITE proposals last year and to quantify the wider benefits:-

- the surface access proposals resolve the issues noted by the Airports Commission
- the overriding public interest requirement for the ITE is provided by:-
  - the greater capacity and resilience of the ITE over Heathrow
  - the larger passenger catchment of the ITE than Heathrow
  - the much lower noise and NOX impacts of the ITE than Heathrow
  - the much lower impact on property of the ITE than Heathrow
  - integration of the next generation of London's flood defences
  - integration of a new Lower Thames Tunnel and Tidal Power
  - integration with the green-growth of London to the East
  - the wider agglomeration benefits
- the integrated flood defence proposals protect a larger area of sensitive habitats upstream than the area lost through development of the airport, so there is a significant reduction in the area required for environmental remediation
- quantification of the flood defence benefits
- quantification of the tidal power output
- quantification of the environmental remediation

## **10 COMPETITION**

The continued constraints on capacity at Heathrow as a result of the Airports Commission shortlisted options will limit competition and favour those who already have controlling stakes. The unconstrained capacity of the ITE will allow for competition and encourage an efficient and open, green-growth aviation market, enabling the UK to reclaim a leading position in world aviation.