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“Alchemy Economics – the UK government’s conjuring trick to justify airport expansion”

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Alchemy Economics – the UK government’s conjuring trick to justify airport expansion

SUMMARY

The UK government uses a complicated set of models to work out its policy on airports. One forecasts how many future passengers there will be and allocates them around different airports. Another works out the economic benefits of letting more people fly by expanding particular airports.

But any model is only as good as the numbers fed into it. WWF-UK acquired the model used by the government to work out the benefits of a third runway, and we asked an independent expert to re-run it, making a few changes – only counting benefits to UK passengers (in line with Treasury guidance), not counting taxes as a benefit (since someone has to pay them), and doubling the cost of carbon so that it falls more in line with the recommendations of the *Stern Review on the Economics of Climate Change*.

The result: the £5 billion benefit claimed by the government became a £5 billion loss.

We also calculated how many passengers there would be in the UK in 2030 if the government was serious about switching people to trains, promoting videoconferencing, and – most important of all – if it used a realistic price for oil.

The result: there would not be enough passengers in 2030 to justify expanding any of the UK’s airports – they can cope at the size they are today.

This research not only suggests that the benefits claimed for the proposed Heathrow expansion are far from certain and may indeed be non-existent, but also that there may be no need for expansion of any UK airport. However, a full re-run of government models would be required to estimate the economic consequences of the changed assumptions.

UNDERSTANDING THE GOVERNMENT’S APPROACH

The expansion of the UK’s airports set out in the *Future of Air Transport White Paper (2003)* is predicated on a model that forecasts air passenger numbers for the UK as a whole, using various government assumptions about future oil prices, airline fares, disposable income and so forth.

When this model is run using those assumptions, it predicts that there will be some 490 million passengers in 2030, compared with 240 million today. It then works out how that extra demand will be allocated between airports in the UK; this information in turn is fed into SCAB (Spreadsheet Costs and Benefits) databases for each airport which work out the economic value of allowing the notional additional passengers to fly, by expanding the airport where demand exceeds current capacity.

Using these models and databases, the government has worked out the economic benefits of expanding Heathrow and routinely cites them to justify the undoubted environmental costs in terms of climate change emissions, noise and air pollution, and the costs of building the runway. The benefits are presented as a given: the consultation document *Adding Capacity at Heathrow Airport* states, without inviting comment, that a third runway would generate net benefits of around £5 billion after the costs (largely construction and climate change) have been deducted.

PART 1 – CHANGES TO HEATHROW ECONOMIC MODELLING

Any analysis depends on the assumptions that lie behind it, and WWF-UK believes that a number of government assumptions are questionable. We therefore obtained from the Department for Transport (DfT) the SCAB database for Heathrow and commissioned transport consultants MTRU to re-run the calculations, using a series of different but reasonable assumptions.

We tested three changes to the Heathrow calculations:

- **Counting only benefits to UK users of the airport.** Treasury guidance states that benefits to UK and non-UK residents should be calculated separately in project appraisal, and that a project should not go ahead if it has a net cost to the UK.¹
- **Not counting extra tax revenues from Air Passenger Duty (APD) as a benefit.** To do so is bad economic practice, since taxes impose a cost on those who pay them equal to the benefit to those who collect them. From an overall point of view, therefore, they are neutral.
- **Doubling the assumed cost of climate change emissions** from £70 per tonne of carbon to £140 per tonne. This figure was used for the government's own sensitivity test until 2007, and is lower than the price recommended by the *Stern Review on the Economics of Climate Change* for achieving the carbon cuts needed to avoid dangerous climate change. Some peer reviewers of the government's work have suggested that £1,000 per tonne would be a reasonable upper estimate, so £140 per tonne is fairly conservative.

We found that each of these factors substantially reduced the benefit of building a runway; all combinations of two of them registered a loss rather than a benefit; and all three together generated a loss roughly equal to the claimed benefit:

SCAB economic costs and benefits: Heathrow third runway

	Net benefit – all users, £m	Net benefit – UK users only, £m
DfT base	5449.54	2,632.85
APD removed	2,354.35	-462.34
Carbon price doubled	610.56	-2,206.13
Both the above	-2,484.63	-5,301.32

These figures also assume that a second runway is built at Stansted. We have quoted them for easy comparison with the government's published figures, even though we are opposed to any expansion of airports (including runway construction) anywhere in the UK. We therefore obtained from DfT the spreadsheet database for Heathrow where no second runway is built at Stansted. This pushes up the assumed benefits of a third runway at Heathrow, since there are more notional passengers otherwise unable to fly. But applying our altered assumptions still reduced the benefits ultimately to a loss:

SCAB economic costs and benefits: Heathrow third runway, no Stansted second runway

	Net benefit – all users, £m	Net benefit – UK users only, £m
DfT base	9,053.68	4,469.43
APD removed	5,901.31	1,317.05
Carbon price doubled	3,602.25	-982.01
Both the above	449.87	-4,134.38

¹ *Treasury Green Book*, HM Treasury 2003, Section 5.25 and footnote 4.

PART 2 – CHANGES TO PASSENGER FORECASTS

The case for the benefits of airport expansion is based on a forecast that there will be more passengers than the UK's airports can currently handle. The fact that these notional additional passengers want to fly means there is an economic value to their trips, as they would otherwise spend their money on something else. Expanding airports allows trips to occur, and economic value to be realised, that otherwise would be prevented – *if the forecast demand exceeds capacity*. This is the basis of the economic benefits assumed for expanding Heathrow and other airports.

Although the UK government's forecasting model to estimate future passenger numbers was not available for this report, it was possible to estimate changes in demand with publicly-available data, including earlier re-runs and sensitivity tests.

We tested four changes to the passenger forecasts:

- **A doubling of the oil price assumed in 2030**, from \$53 a barrel to \$106. The government's forecasts assume that oil costs \$60 a barrel today; that this will fall to \$53 by 2012 and then remain at that level indefinitely. But at the time of writing (May 2008), oil costs \$125 and with some industry experts forecasting imminent prices of \$200 a barrel, \$106 a barrel in 20 years' time is clearly a conservative assumption.
- **Slower GDP growth as a knock-on result of higher oil prices**. Government assumptions are for growth of 2-2.5%. We tested a reduction in this rate of 0.25%. International Monetary Fund short-term estimates are 0.5% lower than those used by government,² so again our assumption is conservative.
- **Policies that encourage a switch of short-haul passengers to rail**. Several million passengers make air journeys of under 500km every year. Fast train links over similar distances on mainland Europe have seen a substantial shift to rail, and this appears to be happening already with the upgraded Eurostar links from the UK to Brussels and Paris. We tested the assumption that improved rail competition reduces air travel by 1% a year.
- **Policies that encourage use of videoconferencing to reduce business flights**. Recent research by WWF-UK showed that FTSE 350 companies expect on average a fall of 3% in business flying, and over the next 10 years foresee further reductions by the use of videoconferencing.³ We tested the assumption of a reduction in business travel of 1% a year, while noting that government intervention – for instance by introducing tax incentives for videoconferencing – could increase this effect.

The effects of these changed assumptions, singly and in combination, are set out below:

Summary impacts of demand reduction factors in 2030

	Million passengers	% reduction
DfT base forecast (unconstrained)	490	
Oil price impact on fares	417	15%
Slower GDP growth + oil price impact	384	22%
Improved rail competition	446	9%
Enhanced videoconferencing package	480	4%
Oil + rail + videoconferencing	364	26%
Oil + GDP + rail + videoconferencing	352	30%

² *Regional economic outlook: Europe*, International Monetary Fund, April 2008.
<http://www.imf.org/External/Pubs/FT/REO/2008/EUR/ENG/ereo0408.pdf>

³ *Travelling Light: why the UK's biggest companies are seeking alternatives to flying*. WWF-UK, May 2008, see www.wwf.org.uk/travellinglight

The current capacity of the UK's airports is around 425 million passengers. A realistic oil price alone is enough to reduce demand below this figure, and the likely knock-on effect on GDP reduces it even further. This factor by itself raises serious questions about the need for airport expansion.

Policies to promote alternatives, such as rail travel and videoconferencing, also have a material effect on demand. The environmental benefits of these options (including a reduction in carbon emissions) are likely to be substantial – tentatively estimated at several billion pounds for rail and £800 million for videoconferencing. Furthermore, the videoconferencing option produces considerable savings of time to business people. Utilising the values for business time that government currently uses to estimate the benefits of reduced delays at airports, this could be counted as a benefit.

CONCLUSIONS

The UK government presents the benefits of airport expansion generally, and of Heathrow expansion in particular, as a given. Yet its own environmental advisers have recently questioned whether such a consensus really exists, and have called for an independent review of the costs and benefits of government policies.⁴

The work summarised here shows that by changing some very simple assumptions – using a realistic price for oil, or a higher price for carbon, or giving proper treatment to tax revenues – the economic case for expansion can be turned on its head.

Expanding the UK's airports means building long-lived, carbon-intensive infrastructure that numerous commentators believe is incompatible with the government's climate change targets – even more so if it accepts the need for an overall cut of 80% by 2050, which leading experts are calling for. The economic case for taking such a risk is fragile in the extreme. If the government is not prepared to abandon its plans for airport expansion, it must at least now launch a full independent review of its airports policy.

⁴ *Breaking the holding pattern: a new approach to aviation policy-making in the UK*, Sustainable Development Commission / Institute for Public Policy Research, May 2008. http://www.sd-commission.org.uk/publications/downloads/Breaking_the_holding_pattern_report.pdf



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