



STRATEGIC AVIATION SPECIAL INTEREST GROUP
of the Local Government Association

ITEM 4: DfT CONSULTATION ON 'EMISSIONS COST ASSESSMENT' (ECA)

Summary

- 1 This report provides details of the Department for Transport's (DfT) emissions costs assessment (ECA), and a draft response from SASIG to the DfT's current consultation on the ECA.
- 2 A Technical Officers Group meeting has been held at which preliminary comments were made. It was felt that the SASIG response should consist of some over-arching comments as opposed to being limited to the questions posed in the consultation document.
- 3 The ECA is a tool to assess the extent to which income from Air Passenger Duty (APD) and duty on aviation gasoline (avgas) cover the cost of carbon emissions from aviation.
- 4 The methodology provides a simple equation in which the central plank is APD, and which supports capacity expansion whenever a positive figure is the result of the assessment. The consultation document uses 2005 figures under a range of scenarios, the results of which indicate that the recent doubling of APD leads to aviation meeting its climate change costs.
- 5 The ECA is intended to aid Ministerial consideration of development of the aviation industry when the three yearly reviews of national policy are undertaken. It is not intended to help judge individual airport proposals.
- 6 The DfT deserve credit for having followed up on the commitment in the 2006 White Paper Progress Report to produce an emissions cost assessment. However, more work needs to be done to yield an improved methodology.
- 7 In addition, the DfT should be encouraged to:
 - (i) produce tools for assessing the full range of aviation's environmental impacts, and
 - (ii) make those tools appropriate for use by Local Planning Authorities.
- 8 Following comments from SASIG, views will be submitted to the DfT in accordance with the closing date of 30 October.

Recommendation

That comment be provided on the draft SASIG response in order that the final response can be submitted by 30 October.

Introduction

- 9 The 2006 Air Transport White Paper Progress Report included a commitment from the government to develop an emissions cost assessment (ECA) to inform Ministers' decisions on major increases in aviation capacity.
- 10 The assessment tool was to address climate change emissions from aviation and a proposed methodology is now being consulted on.
- 11 The DfT have clarified the following points:
 - Ministers wanted a document which was not airport- or development-specific;
 - the ECA does not close off the debate but should provide an authoritative basis for discussion;
 - the ECA will be taken into account in future policy decisions;
 - it is not a simple 'on/off switch', i.e. a negative figure does not lead to tax increases, and a positive figure does not lead to a tax reduction;
 - the ECA does not take account of growth, it cannot be forecast, and anything forward-looking is speculative; and
 - recognition that there is a range of uncertainty.
- 12 The proposed ECA formula consists of aircraft fuel uplifted (based on the UK's annual Greenhouse Gas Inventory CO₂ emissions estimates for aviation), multiplied by a factor of 1.9 to take account of radiative forcing (the non-CO₂ emissions from aviation plus the increased impact of pollutants emitted at high altitudes), multiplied by the social cost of carbon as published by the Government¹.
- 13 This cumulative figure is to be compared with the sum of the annual Air Passenger Duty (APD) collected and the annual aviation gasoline (avgas) duty receipts for the relevant year.
- 14 The DfT propose that the ECA results be interpreted such that a positive figure indicates that the climate change costs are covered, and vice versa, a negative figure indicates that the climate change costs are not covered.

ECA methodology considerations

FORECASTING / TRENDS ANALYSIS

- 15 The "future decision-making" purpose of the ECA relates solely to informing the three-yearly national policy progress reports. The ECA is intended to give Ministers a new tool for evaluating that progress and considering the way forward.
- 16 The proposed ECA methodology is not constructed such that it is appropriate for either trends analysis or forecasting. For instance, radiative forcing is only valid retrospectively, and can only be used for a clearly specified timeframe; the figures involved also change depending upon the timeframe in question. The costs inputted to the ECA are also retrospective and do not necessarily relate to future situations.

¹ <http://www.defra.gov.uk/environment/climatechange/research/carboncost/scc.htm>

- 17 Adjustments may be made to the ECA as matters such as offsetting and the European emissions trading scheme develop. Any such modifications mean the tool is not suitable for trends analysis. A constant thread needs to be built in to the formula in order for the baseline calculation to be repeated over time, as has been done for the air quality assessments in the 'Project for the Sustainable Development of Heathrow'.

INPUTS

- 18 Use of the **amount of fuel uplifted** is a reasonable input to the formula, however this does not take account of the return leg to the UK. The formula assumes the industry is paying its costs at foreign origins, which it obviously does not. Simply considering the departing leg of UK flights may lead to a disproportionate amount of fuel being uplifted abroad.
- 19 No account has been made of the impact of long-haul flights from the UK with more than one leg where refuelling will be required. The DfT have stated that they do not intend to include an uprating factor to address this unless consultees provide clear evidence that it would have a significant effect on the overall outcome of an ECA.
- 20 In 2002, the Government produced a value for the **social cost of carbon** of £70 per tonne of carbon (£70/tC) in 2000 prices. This work is currently being reviewed and revised guidance will be published. In the ECA consultation document, the DfT have illustrated a range of values using 2005 figures (£45/tC, £84/tC & £163/tC).
- 21 The Government have considerably altered their approach to **air passenger duty** (APD) since the 2003 White Paper, which stated, "The Government recognises that because of its blunt nature, Air Passenger Duty is not the ideal measure for tackling the environmental impacts of aviation" (pg. 41, par. 3.43). The 2006 Progress Report did not develop upon this as it simply mentioned that APD was to be doubled from February 2007.
- 22 The change of personnel in the Treasury however seems to have brought a change of approach. John Healey, Financial Secretary up to the end of April 2007, maintained the position that APD was not an environmental tax. However, with the arrival of Angela Eagle in May 2007 the position shifted: "To put it on record, air passenger duty is a way of pricing aviation's carbon emissions, and of helping to ensure that the industry pays the costs that it imposes on society at large with its pollution."
- 23 This latter position has been reiterated by the DfT at a stakeholder meeting held at the beginning of September – APD is a cost which the aviation industry has to meet in addition to its operational costs, and can thus be regarded as an 'externality', thereby providing a reasonable proxy for society's expectations of aviation meeting its external costs.
- 24 On the basis that APD is only levied on commercial passenger flights, this sector could be said to be subsidising the cost of emissions from other aviation sectors.
- 25 APD is the main plank on which the ECA has been based. The reasons why this is an inappropriate use of APD are:

- there are several categories of flights & passengers which are exempt from APD (cargo flights, general aviation, some routes from remote communities, transit passengers, transfer passengers);
- APD is not hypothecated and therefore the sums collected as APD cannot be directly translated into carbon savings; and
- the public do not regard APD as an environmental tax, hence their decisions about their air travel are not informed by APD.

UNCERTAINTY

- 26 The input information has considerable uncertainty associated with it. These uncertainties are compounded when used in the ECA, ultimately jeopardising the value of the results obtained.
- 27 A study produced by the Intergovernmental Panel on Climate Change (IPCC) in 1999 put the 'radiative forcing index' (RFI) at 2.7 times that of aviation's CO₂ emissions. This assessment did not however take account of any effect from cirrus cloud formation, and was based on a 1992 fleet.
- 28 An updated study² has been carried out based on a 2000 fleet, but still excluding any effect from cirrus cloud formation. This study suggested an RFI of 1.9, based upon better scientific understanding, which mostly reduced the contrail radiative forcing.
- 29 On the basis that an RFI of 1.9 constitutes the best scientific understanding available at present this seems a reasonable figure to use. However, this should be kept under review as scientific understanding progresses.
- 30 There are considerable variations in the social cost of carbon depending on which emissions and concentration trajectory the world is on. The social cost of carbon therefore inevitably introduces uncertainty into the ECA.

OUTPUTS

- 31 The table below is from page 29 of the consultation document. It shows a range of values which essentially indicate that doubling APD leads to aviation's carbon emission costs being met.
- 32 The scenarios that have been used are poorly considered and thus not sufficiently informative to provide confidence in the tool. The factors in the ECA formula have simply been halved or doubled, whereas thorough sensitivity testing should have been carried out, addressing the range of uncertainty associated with each factor.

² 'Aviation radiative forcing in 2000: An update on IPCC (1999)', Meteorologische Zeitschrift 14: 555-561 – available at <http://www.ingentaconnect.com/content/schweiz/mz/2005/00000014/00000004/art00013>

Table 1 from ECA consultation document, 'Summary of Results'

Scenario	Climate change costs in 2005 (£bn)	Actual 2005		Illustrative 2005 if APD rates had been doubled	
		APD and AVGAS duty revenues in 2005 (£bn)	Net coverage of climate change costs (£bn) ¹	AVGAS duty and APD revenues in 2005 (£bn) - APD doubled	Net coverage of climate change costs (£bn) ^{1,2}
Central case: RFI = 1.9; carbon cost £84/tC	1.6	0.9	(0.7)	1.8	0.2
Scenario 2: RFI = 1; carbon cost £84/tC	0.9	0.9	0.04	1.8	0.9
Scenario 3: RFI = 4; carbon cost £84/tC	3.4	0.9	(2.5)	1.8	(1.6)
Scenario 4: RFI = 1.9; carbon cost £163/tC	3.2	0.9	(2.3)	1.8	(1.4)
Scenario 5: RFI = 1.9; carbon cost £45/tC	0.9	0.9	(0.03)	1.8	0.9

Draft SASIG response to the DfT

- 33 The remainder of this report constitutes the draft SASIG response to be submitted to the DfT.

INTRODUCTION

- 34 SASIG has 56 local authorities in membership across England representing more than 14 million people – 28% of the national population. The full SASIG membership were consulted on the consultation response.
- 35 SASIG is pleased that the DfT have been able to present their work on the ECA, following up on this commitment from the 2006 White Paper Progress Report.

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- 36 SASIG has commented on the proposed methodology, highlighted some areas for clarification, and suggested where more work may be needed.
- 37 SASIG would like to encourage the DfT to:
 - (i) produce tools for assessing the full range of aviation's environmental impacts, and
 - (ii) make those tools appropriate for use by Local Planning Authorities.

PROPOSED METHODOLOGY

- 38 The proposed ECA methodology uses inputs which have considerable uncertainties attached; these uncertainties are compounded by the proposed methodology, and thus undermine the robustness of the ECA.
- 39 Thorough sensitivity testing needs to be incorporated into the methodology, to better address these uncertainties.
- 40 The methodology must be updated as scientific understanding and the evidence base develop.
- 41 Air passenger duty (APD) is not an appropriate element to be used as a comparator. This is due to a number of factors:
- there are several categories of flights & passengers which are exempt from APD (cargo flights, general aviation, some routes from remote communities, transit passengers, transfer passengers) thus APD is not fully representative of 'aviation';
 - APD is not hypothecated and therefore the sums collected as APD cannot be directly translated into carbon savings; and
 - the public do not regard APD as an environmental tax, hence their decisions about their air travel are not informed by APD.

ADOPTION OF SIMILAR TOOLS BY OTHER COUNTRIES

- 42 Clarification is required as to whether or not the UK Government would be looking to other countries to take on similar schemes. Is this being regarded as solely a UK-based assessment, as Europe-wide, or on a global basis?

FURTHER CONSIDERATIONS

- 43 Will the ECA be used to produce a national figure that will then be disaggregated in an attempt to relate data to individual airports, Local Authorities or regions?
- 44 How do the Government see the ECA interacting with the EU emissions trading scheme and with carbon offsetting schemes?
- 45 Does the Department for Transport intend to use the ECA as part of the process for translating the Air Transport White Paper into a national policy statement – one of the main elements in the proposed development consent regime which was consulted on recently ('Planning for a Sustainable Future' White Paper). This would not be desirable, due to the need for an improved methodology for the ECA, and a rigorous assessment of the appropriateness of ECA for this purpose.
- 46 The list of stakeholders that have been consulted differs from the expected list, most notably in terms of the omission of the majority of English local authorities. Would the DfT clarify their selection of consultees?

CONCLUSIONS

- 47 The ECA is intended to address a portion of the full external costs of aviation, i.e. carbon emissions. This means that work must continue towards effective assessment tools for aviation's *full* external costs – all other climate change

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emissions (NO_x, particulates, contrails, cirrus formation), noise, air pollution, and surface access (resources and congestion).

- 48 These tools should be made appropriate for use by Local Planning Authorities as there is considerable value in such assessments being made at the local level.

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