

ROYAL COMMISSION STUDY ON THE ENVIRONMENTAL EFFECTS OF AIR TRANSPORT

Comments from British Air Transport Association

BATA welcomes the opportunity to submit information to the Royal Commission Study on the Environmental Effects of Air Transport. BATA represents UK-registered airlines, both scheduled and charter. Our members produce 95% of UK airline output.

The Commission is focussing on the effects of aircraft in flight rather than those associated with airport development and take-offs and landings and our response concentrates on the relevant issues. We assume that noise is not part this consultation. However it should be borne in mind that there are trade-offs to be made between the environmental effects in flight and those near the ground. For example, some measures which reduce noise increase fuel consumption.

General Comments

We do not believe that the previous policy of successive governments can be described as “predict and provide”. If that had been the case the current congestion in SE England would not have occurred. One particular consequence is that Heathrow’s position as leading European hub has been overtaken by Paris, Frankfurt and Amsterdam and it will slip further down the league before any new runway can be provided.

Responses to specific questions

1. What are the principal environmental impacts of aircraft in flight? How firm is the scientific understanding of these impacts?

The main environmental impacts of aircraft in flight result from the emissions of engine exhaust gases. The IPCC (Intergovernmental Panel on Climate Change) has summarised the scientific understanding (“Aviation and the Global Atmosphere”, 1999). However, there is considerable doubt about the effects in the upper atmosphere of some emissions, particularly water vapour and nitrogen oxides. More recent work has broadly confirmed the findings of the IPCC report; with the roles of nitrogen oxide emissions from aircraft and line shaped contrails having been found to be smaller than previous estimates (European Commission, 2001, “European research in the stratosphere 1996 – 2000”).

A much better understanding is needed in order to optimise the environmental performance of engines and aircraft. To this end, British Airways and Virgin Atlantic are working with Cambridge University and the Greener by Design group exploring the possibilities of atmospheric sampling using equipment that could be fitted on their aircraft when operating normal commercial flights, in order to produce a more accurate picture of upper atmosphere impacts.

2. What technological improvements are foreseeable which could reduce the environmental impacts of flight? How much reduction might they achieve, and with what certainty can this be predicted?

A number of technological options have been outlined in a report from Greener by Design (Air Travel - Greener by Design The Technology Challenge, 2000) although not all the options identified in the report are necessarily endorsed by all the participants. With respect to emissions the options include lean burn and staged combustion which could lead to a significant reduction in emissions of nitrogen oxides. However, we should point out that any new technology has to be proved to be practicable and airworthy before the introduction of any new standards.

A reduction in fuel burn by between 8 and 18% could be achieved by improvements in Europe's air traffic control system (IPCC 1999).

3. Do particular possible alternative fuels (e.g. hydrogen) or aircraft types (e.g. supersonic, near sonic or wing/body designs) offer particular benefits or problems?

The beneficial impact of hydrogen fuel on climate change could be considerable although the impact of water vapour in the upper atmosphere is still not well understood and it would make little sense to change direction towards hydrogen until this uncertainty is resolved. There are other implications, such as the relatively high energy input in production, delivery and storage which may negate the benefits at the point of consumption. It is not expected that hydrogen could be considered as a viable fuel for use in bulk until well beyond the White Paper's 30 year horizon.

Some aircraft designs, such as the blended wing, would seem to offer improvements in efficiency but the manufacturers are in a better position to answer this question.

4. How effective are current pressures to develop appropriate methods directed towards reducing environmental damage from air travel, either through technology or through demand management?

The fuel efficiency of aviation has increased by some 70% over the last 40 years through improvements in airframe design, engine technology and rising load factors (IPCC, 1999). Fuel accounts for 10 to 20% of the operating costs of airlines so there is continuing economic pressure to improve efficiency apart from environmental concerns.

The drive for efficiency has had the perverse effect of increasing nitrogen oxides emissions which has led to more attention being paid recently to work on potential nitrogen oxides reduction measures. Considerable improvements are likely to be delivered through engine technology, although these will take some time to penetrate aircraft fleets. It should be remembered that there is still considerable uncertainty about the effect of nitrogen oxides at cruise altitudes and research on this should be a priority.

Emissions of carbon dioxide are directly related to fuel burn. Aviation is a global industry and impact on climate requires a global approach. There is a need for greater impetus from both governments and the industry to reinforce the efforts of ICAO to develop a global approach to managing the impact of aviation on climate. We believe that global open emissions trading as the best way forward for the industry. This is supported by ICAO (ICAO Resolution A33-7, 2001) and other groups such as IPPR (Institute for Public Policy Research, Plane Trading, 2000) and Greener by Design (Air Travel - Greener by Design, 2002). The trading system should be open to other industries and linked to sinks and offsets.

5. Would projected growth in air travel and transport outweigh conceivable technological gains?

We believe that technological options are available that can reduce nitrogen oxides emissions at a greater rate than the growth in air travel. This will contribute to meeting local air quality standards in the UK and reduce the contribution of aircraft nitrogen oxides emissions to global warming, subject to confirmation of the impact.

However with carbon dioxide it is clear that improvements in efficiency will not on their own be enough to reduce emissions. This is why we believe that open emissions trading is the most effective route, at least the medium term.

6. Is international action needed to constrain growth with the purpose of preventing environmental damage? How might demand be managed for both passengers and freight movements?

We do not believe that international action is necessary to constrain growth and we do not believe that demand management is appropriate. Action to constrain growth would increase the cost of air travel, which would be socially divisive since poorer consumers, and poorer countries, would be the first to be excluded.

Aviation is an essential part of the world's communication and trade networks and brings huge benefits in terms of business, political, cultural and leisure exchanges. It makes an important contribution to many economies, not least in many developing countries through tourism and freight.

7. To what extent would fiscal measures such as a tax on fuels or tickets secure any technological and market changes needed? Could such measures only be applied at international rather than regional (e.g. European Union) level?

We believe that calls for a tax on fuel should be resisted. There is no evidence that a tax on fuel is an effective way of delivering environmental benefits. Air Passenger Duty, imposed as a surrogate fuel tax, has not produced any environmental benefit and, it could be argued, has been counter-productive by reducing the funds available to airlines for investment in measures to improve environmental performance.

While the tax-free status of aviation fuel has often been challenged, no comparison has yet been made of the total burden of taxes and charges imposed by governments

and public authorities on other transport modes. For example, train passengers do not pay a Train Passenger Duty; and only aviation pays for its own regulation, security and the provision and use of its infrastructure.

As far as we are aware, there is no ticket tax on any public transport mode in the UK and we see no reason to single out aviation for such treatment.

In principle, we are not against charges where the money is retained in the industry to support incentives or investment in new technology. For example, differential noise charges are applied to provide penalties and incentives for aircraft with different noise performance standards.

If any charges or taxes are levied at all, it should be at an international level through ICAO otherwise there will be competitive distortions in the market place. Furthermore, a locally applied fuel tax would result in the “tankering” of fuel from tax free areas to taxed areas and so increase fuel consumption.

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