

Stern Review on the Economics of Climate Change

Evidence submitted by BAA plc 9 December 2005

1. Introduction

BAA is the world's leading airports operator. In the UK, BAA owns, develops and operates seven airports: Heathrow, Gatwick, Stansted, Southampton, Edinburgh, Glasgow and Aberdeen. Overseas we either manage contracts at, or have interests in, airports in the USA, Australia and Italy.

BAA has two main interests in climate change policy.

First, we are a major player in the aviation industry and have taken a proactive role in the debate over addressing aviation's impacts on climate.

Second, we are one of the UK's top 20 industrial consumers of energy. We have set a target to reduce our CO₂ emissions from energy use by 15% over 1990 levels by 2010 and have a thorough carbon management strategy to deliver that. Since January 2005, we have also registered three combustion plants at our airports to participate in the EU Emissions Trading Scheme (ETS).

We divide our evidence into the three sections:

- Section 2 provides an overview of BAA's approach to sustainable development and climate change.
- Section 3 discusses aviation's impacts on climate change and the costs and benefits of different policy responses.
- Section 4 discusses our emissions from our own energy.

2. BAA's approach to sustainable development & climate change

BAA's approach to sustainable development

BAA is committed to continuing to understand and improve our performance with respect to sustainable development. Like many companies we work within the UK Government's framework. The Government aims to pursue sustainable development in an integrated way through a sustainable, innovative and productive economy that delivers high levels of employment; through a just society that promotes social inclusion, sustainable communities and personal wellbeing; and in ways that protect and enhance the physical and natural environment, and use resources and energy as efficiently as possible.

BAA believes that responsible air transport and airport growth should take place only where it is in accordance with the integrated approach above. BAA also accepts that there are certain known environmental limits, such as the earth's capacity to handle greenhouse gases.

However, in keeping with the emphasis placed by a sustainable development framework on policy integration, BAA believes the debate on aviation needs to recognise both the realities of environmental limits and aviation's socio-economic benefits. Economically, aviation plays a

crucial role in promoting the high-knowledge and high-value-added industries and it also underpins the world's largest industry – tourism. Socially, air travel is a facilitator – for people to visit friends and family scattered around the world, to learn, and to visit parts of the world inaccessible to their parents or grandparents. Sustainable development rightly places emphasis on improving quality of life for all. In this context, the fact that aviation is now accessible to most people, at least in the more prosperous countries, is both significant and welcome.

BAA's approach to climate change

The long-term goal of policy-makers is to stabilise greenhouse gas emissions at a level that will prevent dangerous climate change. We support that goal and the delivery of targets adopted by Governments within the framework of the Kyoto Protocol. We also note that the EU's publicly stated objective of:

“...a long-term objective of a maximum global temperature increase of 2° Celsius over pre-industrial levels... In the longer term this is likely to require a global reduction in emissions of greenhouse gases by 70% as compared to 1990, as identified by the Intergovernmental Panel on Climate Change (IPCC)”¹

We believe that an open emissions trading scheme represents the most economically efficient and environmentally effective way of industry addressing the impacts of its emissions. Industrial climate change impacts are most effectively dealt with by harnessing market mechanisms and corporate self-interest, where possible, since these are powerful drivers and are likely to produce faster, better results than blunt regulation. Unlike a tax, for example, where the level needed to achieve the environmental objective is unclear, trading ensures that the environmental objective is delivered through its overall cap on emissions, with the market determining the cost of carbon necessary to meet the agreed target.

3. Aviation's impact on climate change

3.1. The nature of aviation's impact

Aviation has a small, but significant and growing impact on climate change, and BAA believes that this impact needs to be addressed. We believe that emissions trading is the best mechanism currently available to policy makers to deal with our industry's emissions, which is why BAA has taken a leadership role within EU aviation in pressing for this.

The Intergovernmental Panel on Climate Change estimated that aviation was responsible for approximately 3.5% of total human climate change impact in 1992. In the UK in 2000, aviation was responsible for around 11% of the total climate impact (the higher percentage reflecting the UK's important role as an aviation hub). However, while aviation's current climate impact is significant, it is nevertheless still smaller than the climate impact arising from other sectors of the economy, such as power generation (29% of UK's total climate impact in 2000).

3.2. The role of emissions trading

Governments at the Johannesburg Sustainable Development Summit recognised that the priority of meeting key human development needs (such as clean water, food, and sanitation) will rightly use up a significant proportion of the earth's environmental capacity. The remaining capacity is available within developed and developing nations for use by other activities, including industry.

¹ Article 2, the 6th EU Community Environment Action Programme, adopted in co-decision in 2002.

Governments will determine what amount of the available environmental capacity is allocated to industrial activities, including aviation, but we believe that the market best determines how to reallocate these allowances between industries. In the EU, Governments have chosen emissions trading as the best market allocation mechanism.

We believe that there is a powerful case for aviation to take up some of the environmental capacity available to industrial activities, because of the significant economic and social benefits that aviation generates. We recognise that aviation will need to take up more than its allocated share of this capacity, given society's growing demands for air transport, and given the absence of short-term technological solutions which will allow a breakthrough in reducing to CO₂ emissions.

Participation in an emissions trading regime will allow aviation to purchase the necessary additional allowances from other sectors to enable the industry both to continue to grow *and* meet its emissions obligations. So while aviation may not be able to cut its own emissions directly, emissions trading will enable it to fund emissions reductions elsewhere.

The long-term goal is for aviation's emissions to be addressed through a global policy solution. However, reaching agreement at an international level will take time so we support regional action at a European level as an interim step. We therefore strongly support the UK Government's objective of including intra-EU air services in the EU ETS by 2008 or as soon as possible thereafter, and we are pleased that the European Commission is engaging seriously and constructively on delivering this. This will help to bring aviation within the club of climate-responsible industries.

Emissions trading will impose additional costs on aviation which will probably lead to higher air fares. However, these costs will be lower than the costs imposed by alternative policy measures, thereby benefiting leisure and business consumers of air transport services. During 2003, BAA convened a major project on emissions trading. Under the guidance of a steering group representing business, government and non-governmental organisations, expert consultants Oxera researched the impact of a range of policy scenarios. Their analysis demonstrates that emissions trading can be a 'win-win', delivering more for the environment at greatly reduced costs to industry².

The exact cost to the industry of joining the ETS will depend on a range of factors including:

- The extent to which the costs can be or are passed on to the passenger.
- Whether the design of the scheme includes only CO₂ or also addresses aviation's 'total climate change impact'.
- Whether the scheme applies to intra-EU or international aviation.
- The level of the cap.
- How emissions permits are allocated to the aviation industry.

BAA believes that the suggested alternatives to emissions trading for aviation would impose higher costs for lower environmental return. Policy approaches for aviation which aim to cut emissions by reducing demand, through the mechanism of taxes and charges, are not well

² *Assessment of the Financial Impact on Airlines of Integration into the EU Greenhouse Gas Emissions Trading Scheme*, Oxford Economic Research Associates, October 2003, is available to download from the BAA website. Visit www.baa.com/corporateresponsibility, selecting 'Our Environment', 'Climate', 'Strategy' and 'Emissions Trading Stakeholder Dialogue' from the left-hand menu.

targeted, as the revenues which are raised from such charges flow to Government rather than directly to addressing the impacts. Moreover, when it becomes clear that such taxes are not having the desired environmental effect, pressure is brought to bear on politicians to impose ever higher costs through escalating taxation.

3.3. Aviation's upper atmosphere effects on climate

BAA recognises that aviation's impacts on the climate are complex, and that emissions trading is not necessarily the appropriate solution for all impacts. There are four key climate effects resulting from aviation: emissions of CO₂ and oxides of nitrogen (NO_x), the creation of condensation trails (contrails) and the potential impact of contrails on cirrus cloud. The IPCC has estimated that aviation's total climate impact resulting from these effects is some 2.7 times that due to CO₂ alone. There is a range of uncertainty around this estimate, and the latest research has revised the estimate of radiative forcing down to 1.9 times the impact of CO₂ emissions, plus the impact of contrails on cirrus clouds, which continues to very uncertain.

BAA believes that emissions trading is the right policy measure to deal with CO₂ emissions, since there is currently no prospect of a breakthrough technological alternative to burning fossil fuel.

In terms of non-CO₂ impacts, there are other measures that may be more appropriate than emissions trading, and there is wide agreement that further research is needed in order fully to understand the scale and nature of these non-CO₂ impacts, especially in relation to contrails and the impact of aviation on cirrus clouds.

Technological development will have a critical role to play in addressing aviation's non-CO₂ impacts. Manufacturers have already delivered significant improvements and will continue to do so with each new generation of aircraft. For example, the European manufacturing industry has set itself the goal of producing aircraft by 2020 that emit 80% less NO_x than those which came into service in 2000.

In relation both to NO_x and contrails, it might be possible in the long-term to reduce impacts through advanced air traffic management, ie routing aircraft to avoid climate-sensitive parts of the sky, where contrails would otherwise be produced. Eurocontrol is currently conducting a joint project with the European Space Agency to assess the feasibility of this. In addition, the EU's SESAME project is setting out a technological roadmap to support the proposed Single European Sky, and BAA believes that this project should include an assessment of how ATM improvements can deliver environmental benefits. However, we acknowledge that this remains a complex area with many uncertainties.

We have stated that it may be possible to integrate non-CO₂ impacts into the EU ETS in the future, but we believe that this could only be done if each impact is separately and directly integrated. It would be counter-productive simply to apply a CO₂ multiplier to account for aviation's non-CO₂ impacts (whereby aviation would have to acquire, say, two permits for every unit of CO₂ emitted) as this risks encouraging an undue focus on reducing CO₂ emissions, at the expense of increasing NO_x emissions, where there are known technological trade-offs. There is also the issue that the metric used to measure NO_x and contrail/cirrus cloud impacts (radiative forcing) is not compatible with the metric used in the EU ETS (Global Warming Potential).

4. BAA's emissions as an industrial energy consumer

Our aim is to reduce absolute CO₂ emissions from our energy consumption by 15% by 2010, compared to 1990 levels. This objective is particularly challenging in the face of passenger numbers rising substantially over the same period and represents a step change in targets from the company's previous commitment of a 5% reduction on 1990 levels.

There is currently a compelling case for BAA to address our direct carbon emissions through prudent capital investment in energy saving technology. Over the past three years, for example, BAA's CO₂ growth has been virtually zero despite significant passenger growth and the introduction of new facilities.

The introduction of the EU Emissions Trading Scheme has also played an important role. During a recent review of our carbon management strategy in 2003, the prospect of the introduction of an ETS that would affect our combustion plants was an important driver to establishing our own long-term carbon reduction target. In operation, the scheme has created an important financial incentive for us to reduce our emissions, and we anticipate that it will continue to do so in future.

It is inevitable that the implementation of such a complex international scheme will entail practical challenges. Our own experience has highlighted a number of areas where we feel that the workings of the ETS could be improved. These include the resource implications of administering the scheme, the treatment of new entrants and the need to ensure equitable treatment of industries in different Member States. However, these practical challenges can be overcome. They do not alter our fundamental view that trading is the most economically efficient and environmentally effective way of industry addressing its climate impacts.

Overall, we believe that we are on course to meet our company's 2010 reduction target , although it will still require significant investment and behaviour change.

However, by 2010 we will have picked many of the "low hanging fruit". We are planning for growth in airport infrastructure beyond 2010 and need to consider our long-term investments to contribute to UK carbon reduction targets as well as to maintain and improve our financial position. As such, it is vital that Government sends long-term policy signals over the likely emissions reduction trajectories to put UK society on a path to deliver the 60% emissions reduction which is the long-term goal.

We strongly encourage the government to set a target some distance in the future. That will enable businesses to plan ahead and consider their actions and options over the longer term. If capital expenditure is required this can be planned around the long term development of the business.

Moreover, organisations and their supply chains will need to consider the business and political case for more radical solutions and think about answers to some challenging questions, such as:

- Low carbon buildings – is there a life cycle cost benefit for radical energy efficiency technology given the likely cost of energy in ten years' time?
- How much energy can be generated locally using economic sources such as onshore wind, ground source heating/cooling or biomass?
- Will expensive technologies such as solar PV become more economic in ten years' time?