

# Measures to Curb the Climate Change Impacts of Aviation

## Position Paper – June 2005

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# Overview

European environmental groups demand a package of measures to curb the full climate change impact of aviation

## **Background: aviation is a major contributor to climate change and a privileged and sheltered sector**

- The contribution of aviation to climate change is substantial – 5 to 10 per cent in the EU – and growing rapidly;
- Aviation is by far the most greenhouse-gas intensive transport mode;
- International aviation is not subject to Kyoto or other climate commitments;
- Aviation still enjoys historic tax privileges that primarily benefit the well-off;
- Aviation increases the EU's oil import burden by some EUR 15 billion per year;
- EU aviation is a sheltered sector. Just like road transport, it cannot be imported or exported. Therefore, non-discriminatory policy instruments can be used without harming the competitiveness of the EU industry.

## **Climate policy for aviation: seven 'golden rules'**

On this basis, we can define seven golden rules for climate policy for aviation. It should:

1. incorporate environmental objectives in line with current (Kyoto -8% by 2010 from 1990) and future (i.e. -30% in EU by 2020 from 1990) EU climate targets;
2. recognise that aviation is a sheltered sector, and hence be more ambitious than climate policy for 'exposed' sectors;
3. cover the full climate impact of aviation, as CO<sub>2</sub> accounts for just 25-50%;
4. encompass the widest possible geographical scope. Namely: emissions in EU airspace plus the remaining emissions from flights departing the EU to third countries;
5. comply with the 'polluter pays' principle (i.e. all emissions should be paid for) and thereby help to create 'double dividends' whereby revenues can be used to reduce labour taxes or boost innovation;
6. help to correct historic tax exemptions;
7. significantly reduce the EU's oil dependence.

## **Conclusions: a comprehensive policy-mix**

- A package of measures at EU and national level will be required to tackle all impacts of aviation on the climate and fulfil the 'golden rules' (above);
- En-route emission charges as well as kerosene taxation and emissions trading can have a role to play as cost-effective instruments to internalise CO<sub>2</sub> and / or NO<sub>x</sub> emissions
- Implementation of EU-wide measures is of particular importance, and these should be guided by the above principles and rules
- Airport NO<sub>x</sub> charges are a necessary complementary instrument;
- The VAT exemption needs to be ended immediately, for example with a ticket tax;
- An overhaul of Air Traffic Management is needed to tackle formation of contrails and cirrus clouds;

# Full position paper

## 1) A sheltered and privileged sector

### **A significant and fast-growing source of climate change ...**

Aviation contributes to climate change in a number of ways. Aircraft emit carbon dioxide (CO<sub>2</sub>) and nitrous oxide (NO<sub>x</sub>), they cause vapour trails and influence the formation of cirrus clouds, all of which increase the natural greenhouse effect. A 1999 report by the international scientific body IPCC<sup>1</sup> states that these combine on average to a climate impact of 2.7 times the impact of the CO<sub>2</sub> emissions alone. More recent assessments confirm that the total climatic impact is two to four times that of CO<sub>2</sub> alone, depending on the still relatively uncertain climatic impact of aviation-induced cirrus clouds. In addition, the share of aviation in total EU man-made climate change is substantial and adds some 5 to 10 per cent in 2000, again depending on cirrus clouds. While the science on the quantification of some of these impacts is still improving, emissions are steadily rising at a pace just below that of air travel itself, at around 3 and 4 per cent per year respectively.

### **... which is the worst climate choice of all transport modes ...**

Studies on the topic show that aviation is the worst choice of transport modes when it comes to climate change. Per passenger kilometre, aircraft score is about three times worse than cars. Per tonne kilometre of freight, aircraft score about an order of magnitude worse than lorries.

### **... that is not covered by, or subject to, any climate commitment ...**

Despite these manifold and growing impacts on the climate, international aviation is not covered by the obligations of the Kyoto Protocol, due to disagreement on how to share responsibility for international aviation between countries. It has, therefore, also so far been untouched by policies meant to help achieve Kyoto targets.

### **... that raises the EU's oil import bill by EUR 15 billion ...**

European aviation is responsible for consumption of over 1 million barrels of oil per day, which is some 15 per cent of the total oil demand by transport. At today's prices (some EUR 40 per barrel), this demand raises the EU's annual oil import bill by some EUR 15 billion per year, which is, for example, some 40% of what the EU spends on development aid. From an energy dependence point of view, oil is the 'worst' of fossil fuels. By 2020, the EU will import 86% of its oil, and supply is increasingly concentrated in a small amount of countries. In addition, aviation is the 'worst' sector in terms of oil dependence, as virtually everyone agrees that suitable alternatives to kerosene-powered aircraft are not in sight for the next 50 years.

### **... that still enjoys obsolete and socially unjustified financial support.**

In addition, aviation still enjoys a string of historic privileges that stem from a time when governments were intent on supporting the development of the fledgling aviation sector in general, and their 'flag carriers' in particular. Fuel is exempt from taxation in the EU (in contrast to petrol for road transport). International tickets are exempt from value-added tax

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<sup>1</sup> The Intergovernmental Panel on Climate Change (IPCC) ([www.ipcc.ch](http://www.ipcc.ch)) was established in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environment Program (UNEP) to gather the state of knowledge on climate change.

(VAT). Duty-free sales still thrive on flights from and to the EU. Airports regularly get direct and indirect financial support from governments for their expansion plans. And finally, aircraft manufacturers have received dozens of billions in direct and indirect subsidies, despite a 1992 agreement that intended to seriously reduce these state aids.

All this direct and indirect financial support eventually benefits the airlines and their customers. Socio-economic data show that these people, air passengers, fall in the higher income categories. Removing the subsidies can therefore not be characterised as an anti-social measure – as the revenue of such a move can be spent to the benefit of the poor.

**Aviation is a ‘sheltered’ sector: well-crafted EU action will not harm EU industry**

Many people argue that issues of competitiveness prevent ‘unilateral’ (e.g. EU-level) action on aviation in the field of climate change policies and the reduction of financial support to airlines and their customers. Available studies, however, show that well-designed instruments, i.e. instruments that do not discriminate between carriers on the same routes, do not lead to significant economic distortions and do not significantly harm the competitiveness of EU airlines. The reason for this is easily explained: aviation is a ‘sheltered’ sector just like, for example, road transport. Aviation CANNOT be exported or imported: the route Paris-London will always stay Paris-London. This is in contrast to the situation of ‘exposed’ sectors that are characterised by the production of energy-intensive and export-sensitive products. In contrast, products like aluminium, cement, paper, iron and the like are energy-intensive and CAN be imported. These sectors are ‘exposed’ sectors and strong climate policies can indeed harm the competitive position of these industries and give rise to re-location (although the extent to this will indeed happen is often overstated). Aviation is not such a sector, which implies that climate policies should match those of other sheltered sectors, not those of ‘exposed’ sectors.

## 2) Seven 'golden rules' for climate policy for aviation

### **Finally, there is a prospect for action**

In 2005, dealing with the climate impacts of aviation has finally landed squarely on the EU's political agenda. The UK is making climate change a priority issue for its presidencies of the EU and the G8 and recognises the need to include aviation. France and Germany have raised the possibility of kerosene taxes. And Europe is under pressure to show that its opposition to a US-led move to stall any progress in the UN's aviation body ICAO was not an empty fight. At the ICAO's general assembly last October, the EU retained the right to unilateral introduction of economic instruments on air travel, and now it must follow-up.

### **Environmental groups welcome that the new Commission has taken up the task of developing a sound climate policy for aviation**

The Commission kick-started a debate earlier this year with the release of a stakeholder consultation on aviation and climate. It is scheduled to release a Communication this summer on which instrument to choose to regulate the climate impact of air travel and it could draft legislation soon after.

With this position paper the undersigned organisations want to publicise their views on essential design features of an environmentally sound EU aviation climate policy and the instruments it could employ.

On the basis of the analysis in the previous paragraphs, we can define seven golden rules for a suitable climate policy for aviation.

### **Principle 1: efforts by aviation in line with other EU targets**

Aviation can no longer be excluded from climate change mitigation efforts and needs to face up to and stop its growing impacts. The environmental objective set for aviation must be in line with current (Kyoto -8% by 2010 from 1990) and future (e.g. minus 30% in EU by 2020 from 1990) EU climate targets. Other sectors must reduce their own contribution and cannot compensate growth in aviation in the long run. From 2012 onwards, emissions from international aviation must be included in any future international climate treaty framework.

### **Principle 2: strong policies designed for a 'sheltered' sector**

As we described earlier, aviation is a 'sheltered' sector in which strong climate policies can be implemented without significant negative impacts on the competitiveness of EU carriers, since it can be introduced in a non-discriminatory sense, i.e. apply to all carriers offering flights on specific routes. It can, therefore, bear much higher carbon prices than other, more exposed, sectors.

### **Principle 3: the full range of climate impacts from aviation must be accounted for**

Climate policy for aviation should obviously account for all climatic impacts of the sector, and not just the impacts of CO<sub>2</sub> alone. For maximum effectiveness, ideally different instruments should be used for different impacts. As long as such a package is not in place, environmental integrity could be ensured with multipliers on CO<sub>2</sub> emissions.

### **Principle 4: policies should have the widest geographic scope possible**

Aviation's climate impacts must be regulated within the EU to the greatest extent possible. The scope of measures should include all flights in EU airspace, plus the remaining emissions from flights departing from EU territory to destinations outside the EU.

**Principle 5: double dividend: polluter pays, society benefits**

No matter what the policy instrument, all emissions should be paid for by the polluter. This strengthens the incentive to invest in cleaner technology and reduce emissions. An important advantage of economic instruments for environmental policy is that they are able to generate revenues, that can be used to lower 'bad' taxes such as those on labour or invested to create additional environmental benefits. This is the classical 'double dividend' argument and it should be exploited in full in this case.

**Principle 6: end obsolete privileges**

Climate change policies should also contribute to ending the historic, obsolete and anti-social tax privileges the aviation industry currently enjoys. Climate change and fair taxation objectives go hand in hand. Obviously, again 'bad' taxes such as those on labour can be reduced in parallel – the aim is not to increase taxation but to increase the fairness and efficiency of the taxation system.

**Principle 7: reduce oil dependence**

Finally, climate change policies for aviation should seriously reduce the EU's dependence on oil. This is a sheer economic necessity in the light of the expected rapid growth of consumption of the sector and high oil prices.

### 3) A policy mix to meet the ‘golden rules’

Designing one single policy that can adequately address all the climate impacts of aviation will be difficult – a package of measures will be needed to fulfil the principles and rules outlined above. EU-wide measures are a priority, but should be supplemented by national policies.

#### **EU-wide measures promise the greatest environmental benefit**

Charges, taxes and trading can all be implemented at EU level. All three could cover the direct emissions output (CO<sub>2</sub> and NO<sub>x</sub>) and could also be extended to account for the full climate impact of aviation. Any primary policy tool will need to meet essential design criteria to ensure and maximise its environmental benefit (ambitious targets, paying for all emissions, strong sanctions regime).

#### **En-route emission charges: a powerful option**

En-route emission charges are a potentially powerful tool. They can be levied on different types of emissions, they can be applied at quite a broad geographical scale (e.g. EU airspace) and they can be decided upon under qualified majority voting, just like, for example, the Eurovignette Directive for lorry charging. Furthermore, they overcome the “tankering” problem (untaxed extra fuel being bought and flown into the EU from outside) associated with kerosene taxation. En-route emissions charging is, in administrative terms, relatively straightforward as it can be relatively easily be integrated into EUROCONTROL’s air navigation charges.

#### **Kerosene taxation can have significant climate benefits**

Kerosene taxation is possible at EU level<sup>2</sup> and can lead to significant emission reductions, where implemented properly. On a national level, these are already being put in place, e.g. in the Netherlands.

#### **Cap-and-trade for aviation: a special design**

A cap and trade system for aviation has the advantage of providing absolute limits on the emissions from the sector. In the EU, an emissions trading system (ETS) for stationary sources of CO<sub>2</sub> has recently been put in place, that aviation could be linked to or integrated into. However, as long as emissions from aviation are outside the Kyoto Protocol framework, an exchange of emission allowances between aviation and the current ETS faces barriers that will require a specific design (such as a one-way gateway). Starting with an ET system for aviation alone would be a way to gain important experience towards this end. A unique trading scheme for aviation without links to other credit systems to start with will make it easier to design specific rules necessary to guarantee its environmental integrity, such as the auctioning of all emissions allowances and central target-setting.

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<sup>2</sup> A kerosene tax on intra-EU flights is legally possible. As a recent European Commission paper (‘New sources of financing for development’, April 2005) correctly points out, ‘a kerosene tax on intra-Community and domestic flights could be implemented by making it mandatory while allowing for the possibility to exempt all carriers on specific routes where non-EU carriers operate and benefit from exemptions under unchanged Air Service Agreements’. Ongoing renegotiation of ASAs would then gradually allow for the taxation of third country carriers on intra-EU flights’. Fortunately, the aviation market is not yet very open and non-EU carriers only execute a small share (less than 5 per cent) of intra-EU flights.

### **Ticket taxes to make up for VAT exemption**

There is no justification to keep the privileges that the aviation industry has enjoyed for decades, including the exemptions from VAT and from fuel taxes. Introducing ticket taxes may turn out to be easier than the factual introduction of VAT on international air tickets, and the purpose is more or less identical. There is unlimited policy freedom in this area – some Member States have already introduced such taxes.

### **Airport NO<sub>x</sub> charges: a necessary complement**

A string of European airports in Sweden, Switzerland and the UK already operate landing and take off charges on the basis of the NO<sub>x</sub> emissions of aircraft, in an attempt to improve air quality around the airport. However, such charges are also very likely to have an impact on NO<sub>x</sub> emissions at higher altitudes, and can therefore be a very useful complement to instruments that insufficiently capture NO<sub>x</sub> emissions.

### **Avoid contrails and cirrus clouds with Air Traffic Management overhaul**

Contrail formation and thereby cirrus cloud build-up can largely be avoided by making aircraft fly at altitudes and flight paths where meteorological circumstances are more favourable. Often minor changes are enough to avoid most of the impacts. Restructuring the system of air traffic management to better take into account these impacts is therefore urgently needed.

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