

Emissions Trading and Aviation



An introductory briefing

1 History

Using tradable rights as a means of pollution control was first suggested in 1968 by the Canadian economist John Dales, and the first emissions trading programmes were implemented in the United States following the Clean Air Act amendments of 1977. In the ensuing years, several other emissions trading programmes were implemented in the United States. Provisions for international emissions trading for greenhouse gases were then included in the 1997 Kyoto Protocol. Since then, interest in emissions trading has spread, leading to implementation of several programmes for greenhouse gases and conventional pollutants.

2 What is emissions trading?

A properly designed emissions trading programme is a form of environmental regulation that allows a group of sources to reach a specified emissions target at lower cost. It is a form of economic instrument whereby pollution levels are capped and emissions controlled through financial incentives and penalties rather than directly with regulations (law).

Consider two companies, A and B, both of which emit significant quantities of a given pollutant. Their emissions may damage the climate, and the relevant authorities may decide that emissions should be reduced by a given amount, say by 10 per cent. At first glance, the solution seems simple: both A and B cut their emissions by 10 per cent. But in the real world, this may impose very different burdens on the two companies. For example, company A may, by the nature of its activities, be able to reduce its emissions by 10 per cent or even more at relatively low cost. Company B, on the other hand, may find this a difficult and costly process. It is this potential difference in reduction cost between A and B that creates a market opportunity. It works as follows.

Once the authority has decided how much of the pollutant is allowed to be emitted in a given area or region in a given time, it divides this quantity into a number of emission rights that are distributed among the various sources of the pollutant. It is here that the market comes into play.

Company A can reduce its emissions by the required amount at a relatively low cost and can then make further affordable reductions. For company B, the cost of reductions is far greater, and it would welcome a way of avoiding some of the outlay. Company A may agree to make those additional reductions instead of company B, provided company B is prepared to pay for them at a price that is above the cost to A but below what it would cost company B. In this situation, emissions are cut, overall, by the required amount, company B saves money, company A earns a profit for its additional reductions and the total cost is reduced. In this simplified model of a trading system, it makes no difference whether the cuts are made at company A or company B: it is the overall amount that counts.

For a successful emissions trading scheme, a number of criteria must be met. A limit must be set on emissions and this must be lower than the 'business-as-usual' emissions of the sources participating in the programme. The participants must face divergent clean-up costs so that there will be cost savings from trading. The number of participating sources must be sufficiently large to constitute a competitive market. Accurate monitoring of actual emissions and reductions by each participant is

essential. There must be effective enforcement to ensure that each participant holds enough emission entitlements to cover its actual emissions. And when emissions have local impacts, provision must be made to protect local air quality by preventing shifts in the location of emission sources from having adverse environmental consequences.

In theory, emissions trading allows specified emission limits to be met as effectively as with conventional regulations but at lower cost to the participating sources. Sources have the flexibility to determine the least cost emission reduction strategies for their specific facility, and sources that are able to reduce their emissions at relatively low cost implement larger reductions.

3 Greenhouse gases and climate change

Emissions trading can, in principle, be used to control any form of emission to land, sea or air. In practice, it has been used almost entirely for airborne emissions. Some schemes have been introduced to control local air pollution, but interest is increasingly focused on the emission of greenhouse gases which cause global warming. Emissions trading has been adopted as one of the primary tools to reduce greenhouse gases under the Kyoto protocol.

DEFRA (Department for Environment, Food and Rural Affairs) makes the following comments:

Emissions trading is emerging as a key instrument in the drive to reduce greenhouse gas emissions. The rationale behind emission trading is to ensure that the emission reductions take place where the cost of the reduction is lowest, thus lowering the overall costs of combating climate change.

Emissions trading is particularly suited to the emissions of greenhouse gases, the gases responsible for global warming, which have the same effect wherever they are emitted. This allows the Government to regulate the amount of emissions produced in aggregate by setting the overall cap for the scheme but gives companies the flexibility of determining how and where the emissions reductions will be achieved. By allowing participants the flexibility to trade allowances the overall emissions reductions are achieved in the most cost-effective way possible.

Participating companies are allocated allowances, each allowance representing a tonne of the relevant emission, in this case carbon dioxide equivalent. Emissions trading allows companies to emit in excess of their allocation of allowances by purchasing allowances from the market. Similarly, a company that emits less than its allocation of allowances can sell its surplus allowances. In contrast to regulation which imposes emission limit values on particular facilities, emissions trading gives companies the flexibility to meet emission reduction targets according to their own strategy; for example by reducing emissions on site or by buying allowances from other companies who have excess allowances. The environmental outcome is not affected because the amount of allowances allocated is fixed.

4 Emissions trading and aviation

International aviation has been omitted from the Kyoto agreement, but domestic aviation is included in participating countries' national allowances. The argument most commonly cited for excluding international aviation is the difficulty of allocating emissions to countries from what is, by definition, an international source. While there may be some justification for this view, it is hard to believe that a scheme could not be worked out if there was the will. A simple halving of the emissions between the countries at each end of a flight would be a simple and fair method of allocation.

The real reason for excluding international aviation is almost certainly that most governments just don't want to include it. Many governments, the UK to an extent included, seem to believe that aviation should not have to bear the same responsibilities or costs as other sectors of the economy.

There is however an EU emissions trading scheme for certain sectors being introduced and the it has been proposed that this should be extended to include intra-EU aviation.

DEFRA says the following:

(<http://www.defra.gov.uk/environment/climatechange/trading/eu/aviation/index.htm>):

Attention has become increasingly focused on the growing contribution of air transport to climate change. Forecasts have suggested that by 2030 aviation could contribute up to about a quarter of the UK's total contribution to global warming.

The Government believes that the best way of ensuring that aviation contributes towards the goal of climate stabilisation would be through a well-designed emissions trading regime. We would like to see aviation joining the EU ETS (Emissions trading scheme) from 2008, or as soon as possible thereafter.

The Government has made taking forward the work programme for the inclusion of intra-EU air services into the EU Emissions Trading Scheme a top priority for the UK Presidency of the EU (July-December 2005).

It should however be pointed out that, off the record, the government admits that it does expect to make much progress during its presidency and that there is no chance of achieving the 2008 target.

5 Problems with emissions trading

While the theoretical justification for emissions trading may look impressive, in practice there are some significant difficulties with emissions trading schemes:

- They are complex and difficult to monitor and administer
- Their effectiveness is entirely dependent on the targets or 'caps' that are set. These are often determined more by 'politicking' and lobbying than by impartial determination of what is required.
- The price that has to be paid for permits to emit is unpredictable, being dependent on a volatile market. This is in contrast to other measures such as taxes, where the costs (if not always the environmental outcomes) are clear and unequivocal.
- There are social considerations such as the ability of those with money, say the aviation industry, being able to buy up permits to pollute, while those without money, eg pensioners trying to keep their homes warm, cannot afford the price.
- The price of permits may bear little relationship to the total 'external costs' imposed by the emissions, such that emissions trading may not be consistent with the 'Polluter Pays Principle'.

6 Potential problems with inclusion of aviation in the EU ETS

There are a number of particular concerns about the plan to include aviation in the EU ETS scheme. An emissions trading scheme would do nothing to tackle the present fiscal inequity whereby air travellers, unlike car users, pay no fuel tax and no VAT. Indeed, because of this hidden subsidy, airlines would probably have the resources to buy sufficient credits to enable them to continue to expand, thus increasing their contribution to climate change. Furthermore, while the main greenhouse gas emitted by surface sources is carbon dioxide (CO₂), aviation cause as much if not

more from other gases emitted at altitude, especially water vapour and nitrogen oxides. Thus the greenhouse gas effect or 'radiative forcing' is much greater than would be expected on the basis of CO₂ alone. The EU ETS is based on CO₂ and it is not clear if and how these other important gases would be included. The aviation industry is lobbying to have these other gases ignored.

Many of our concerns are mirrored by Environmental Audit Select Committee of the House of Commons, which said:

We are astonished at the lack of essential research to underpin the incorporation of aviation in the EU Emissions Trading System (ETS). In view of the timescales involved in developing and ratifying EU directives, we suspect it may soon be too late to achieve the Government's professed intention of incorporating aviation in the second phase of the EU ETS from 2008. It is unclear if any consensus exists among EU member states on incorporating aviation ...; and whether the political will exists to resolve the complex and contentious issues It is not even clear to what extent, and at what level, any of these issues are even being discussed.

Perhaps the most serious concern of all is that the government is concentrating on emissions trading to the virtual exclusion of all else. Other economic instruments, such as a tax on fuel, VAT on tickets, on-route emissions charges, etc, have many advantages that emission trading does not. As well as being simpler, they can be used to address the various impacts of aviation other than climate change. And beyond economic instruments, government policies on planning, infrastructure, and enterprise, for example, can play an important part in achieving environmental goals

7 The position of the aviation industry and government on emissions trading

Some airlines, like RyanAir, seem to oppose all environmental regulation. Others, however, support the concept of emissions trading, considering it preferable to fuel taxes, emissions charges or physical restrictions, and have given their attention to arguing for a scheme with minimal impact. Many airlines, for example, want the scheme to cover only CO₂ and support a system of 'grandfathering' for permit allocation, which would allow permits to be obtained free of charge based on historical emissions levels.

The UK government appears to be receptive to these demands.

8 Non-governmental organisations' position

Many NGOs are concerned that the UK government is putting all its eggs into the emissions trading basket. There is no apparent contingency plan for tackling aviation emissions if the emissions trading scheme falls through or is ineffective. The government has dozens of staff dealing with emissions trading, but no-one working on alternative instruments which might be more effective, more practical and simpler. And there remain many environmental impacts other than climate change which the EU emissions trading scheme will not be able to tackle, such as noise, local air pollution and sterilisation of land.

The AEF's position on emissions trading is as follows:

The AEF recommends that en route emissions charge is introduced immediately to address the impact of aviation greenhouse gas emissions on climate. An emissions trading scheme will only be supported if it is proven to be environmentally effective and continues to encourage the sector to make real reductions in its emissions. Part of the assessment of the environmental effectiveness of any potential scheme will be compliance with the following conditions, either in its design or in a supporting climate strategy:

1. The scheme adopts a stringent cap, and/or sectoral allocation, consistent with states responsibilities under the Kyoto Protocol or any other subsequent agreement under the UNFCCC;
2. The trading scheme (or wider policy) is based on the total radiative forcing potential from all aviation emissions, not just CO₂;
3. Permits are auctioned as opposed to grandfathered, or are combined with an environmental charge to account fully for externalities;
4. The system is transparent and all emissions reductions can be independently verified.

If these conditions are not an integral part of a trading scheme then other measures must be put in place in parallel. A phased programme of introduction is not acceptable. For instance, if permits are not fully auctioned then an emissions charge (or other economic instrument with the objective of capturing externalities) must be levied. Similarly, if the scheme does not include other greenhouse gases and is not based on total radiative forcing potential then other instruments (economic or regulatory) will be necessary to deal with these issues more effectively.

References

United Nations Environment Programme (UNEP), 'A guide to emissions trading'

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