

KEY POLICY ISSUE

NOVEMBER 2007

CARBON OFFSETTING AND AVIATION

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Introduction

Aviation is in the front line of growing public awareness of the impact of man's activity on the climate and concern over the measures that will need to be taken to avoid irreversible change to the climate. It is not surprising that a new activity has emerged, that of offsetting carbon emissions by stimulating activity in activities that reduce greenhouse gas emissions, in particular of carbon dioxide (CO₂). It is not so long ago that the suggestion of buying 'negative carbon dioxide' would have seemed almost incredible; no longer is that the case. A growing market is emerging globally in this 'non-commodity' and much of the activity is addressed to balancing the climate impact of aircraft emissions. A leading UK supplier of carbon offsets claims to have offset more than 1 million tonnes of CO₂, roughly equivalent to the amount generated through 400,000 passengers' return trips from Europe to New York.

Economic measures

Market-based options for combating climate change include charges, taxes and trading. Charges are essentially hypothecated taxes where the revenue is recycled into mitigation of the harm that is taxed. Such measures are generally not popular with governments although some examples, such as the landfill tax in the UK, have arguably proved effective. Taxes are generally unpopular with industry and the public as they are associated with money 'disappearing' into the general exchequer with no real linkage to the harm that is being taxed.

While a number of organisations have espoused price increases as the main way in which to address aviation's climate impact (for example Anderson et al., 2007), one of the biggest gaps in considering such measures is the lack of evidence from the market place on the effectiveness of price increases. A recent Ipsos MORI (2007) survey in the UK has suggested that a price increase of £100-£124 would discourage 25% of short-haul leisure travellers whereas a similar percentage increase for long haul of £500 - £620 would discourage 60%. However, such surveys are notoriously difficult to relate to what actually happens in the market. Price rises give some certainty over costs but contain significant uncertainty surrounding their environmental effects.

This is in contrast to trading systems, where the cost has the greatest uncertainty. Perhaps the simplest model is to set a cap on allowed emissions, as in the European Emissions Trading System (EUETS). Allowances are allocated within the cap and a market develops between those emitting less than their allowance and those that emit more. Clearly there is motivation in such a system to achieve environmental benefit. The EU ETS will soon enter a second phase in which caps, set at a more stringent level than in the first phase, are likely to lead to significant reductions in CO₂ emissions. There are proposals within Europe for incorporation of aviation in the EU ETS within a few years. However, a number of hurdles remain to be overcome, including the method of allocation of permits to the industry and how to address flights from within the EU to and from non-EU destinations. Not least, there is a problem with emissions trading in that many non-European states have shown a distinct lack of appetite for such a measure, reflected by recent difficulties within ICAO.

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Carbon Offsets

Offsets are different to such regulatory market measures in that they are voluntary and in many cases can be implemented quickly. The principle of offsetting also seems to be well understood by the public, as evidenced by the relatively high take up of optional schemes when offered in an appropriate way. The difficulties lie in uncertainty of the nature of the offer, often related to the questions of additionality and verification, and in the variety of the offers that are available.

Organisations marketing offsets have (often unfairly) been likened to vacuum cleaner salesmen or 'snake oil' merchants. Any salesman, whether of vacuum cleaners or offsets has a duty to explain his product to potential purchasers. Any purchaser of any goods risks appearing foolish if he buys a product without examining the proposition. Thus, while there may have been some misrepresentation of offsets, and some poorly validated schemes for example in tree-planting, such practice is not likely to flourish in the face of growing government and media interest in the sector.

It is probably true to say that the vast majority of those in the business are there for the right reason, namely that they wish to do something positive to help reduce man's impact on the climate. That it 'feels right' is not enough justification on its own but it certainly helps. Another criticism is made that relatively little money ends up with the projects. But, in a simple analogy, there are a number of layers involved in bringing a can of beans to the market and the transaction costs for sales of small quantities of offsets are high. A competitive market is developing which should help to ensure that projects do receive an appropriate share of money invested.

What has been true is that relatively few organisations promoting offsets have laid sufficient emphasis on advice and encouragement to individuals and companies on how to reduce their carbon footprint before offsetting. This has led to accusations that offsets are merely a way to assuage guilt.

Standards

Against this there is a range of standards:

- Certified Emission Reductions (CERs) are those linked to the Kyoto Protocol and approved through the Clean Development Mechanism process endorsed by the UNFCCC. This would appear to give a guarantee of quality.
- EUAs (EU Allowances) are emission credits that are traded within the EU ETS and, by purchase and removal from the registry, offer another opportunity to reduce overall CO₂ emissions.
- Verified (or Voluntary) Emissions Reductions (VERs) are projects where verification is independent, often close in process to that of the UNFCCC.

The framework for a general Voluntary Carbon Standard was approved by a group of international organisations in July 2007. VERs are generally smaller in terms of credits generated and it is argued that, because of this, they cannot bear the full cost of the Kyoto-linked certification process. There is also a Gold Standard for CERs and VERs where these deliver other social and economic benefits.

Offers of offsets can be for credits that have already been delivered or for future credits. Some offers include a guarantee of replacement from another project if something goes wrong. There is a strong case for supervision of the voluntary offset market, possibly through a 'kite-marked' Code of Practice but every effort should be made to keep it simple, in order to allow investment in smaller projects. There is also need for clarity on the application of Value Added Tax (VAT) to offsets, particularly within Europe, where, apparently, some organisations offering offsets feel obliged to charge VAT and others do not.

Additionality and Verification

One of the key issues for offsets is that they should be 'additional'. In other words, they are not 'business as usual' actions that would have taken place anyway. This is a hugely difficult concept to determine. In countries expanding their energy base as rapidly such as India and China, some might argue that projects such as wind turbines might very well not actually be additional, despite being given clearance through the UN approved process.

Another difficult area is verification where, for example, quantification of the CO₂ reductions achieved by substitution of low energy alternatives, such as renewable sources, requires careful consideration of the displaced energy consumed. For example, the fossil fuel mix for electricity generation varies from country to country and may vary from location to location. Thus it is often not possible to compare energy savings on an apple for apple basis.

Aviation and Carbon Offsets

So what is the role of the carbon offset industry? This should be viewed against a background where the aviation industry may well be able to draw a road map leading, at some time in the future at least, to a position where actual emissions are at least matched by measures taken to reduce them. These measures (see for example, Air Travel - Greener by Design (2005)), could include:

- incremental and, subsequently, potential radical improvements in technology with respect to greenhouse gas emissions from aircraft;
- operational measures with a focus on ATC improvements;
- possibly introducing scheduling changes such as optimal sector lengths for fuel consumption or flying lower should it prove necessary to do so to avoid cirrus and contrail formation;
- further improvements in weight management and load factors;
- possible use of biofuels as kerosene extenders or, in the longer term, as full replacements, within quantities compatible with social and environmental impacts.

Emissions trading can clearly play a substantial role. However, it may well turn out to be that the real problem for aviation is not the future emissions but the carbon dioxide that has been emitted and is being emitted while changes are implemented that will take decades to work through. Thus the immediacy of offsetting may have real benefits.

There are risks associated with offsets, in addition to those already mentioned. While methods of approving forestry schemes are under development, some such schemes may be weak. Non-delivery of 'futures' is also an issue, double counting is another. With the number of offset offers increasing almost daily it will be necessary for those promoting offset schemes to make clear what their offer covers and for individuals and firms to make sure they know what they are offsetting and how.

It is perhaps surprising that airlines have not come together to generate a common scheme, for example in the UK where several airlines now offer offsets but see it as a marketing tool rather than a solution to an industry problem. It is not yet clear whether such an approach will be accepted as a genuine attempt to address the issue rather than part of the individual airline livery. Offsetting has, however, been included in the overall strategy of the UK aviation industry (Sustainable Aviation, 2005). There is also a role for IATA to develop a more global approach.

Summary

Voluntary measures to control environmental impacts have not had a good record. For example, some parts of the European automobile industry will almost certainly miss a target for reductions in emissions of CO₂ by 2008. Offsetting may be different, in that implementation is largely an individual decision such as taking up an option offered by a company with a CO₂-rich product such as flying. People may well feel that they still want to fly even after taking appropriate measures to reduce their personal footprint and offsetting may well be part of the answer on a long term basis.

All of the evidence to date, admittedly circumstantial, is that people are attracted by projects which resonate with them, possibly related to the locations they fly to. These are more likely to be VERs than CERS because of the nature of the projects. There must be a virtually unlimited potential for appropriate projects and to develop skills in economic efficient and ethical verification and marketing of these projects. Increasingly there will probably be a need to include assessment of the other impacts of such projects.

There is clearly the potential to develop an international market in offsets. This could run well ahead of emissions trading given the difficulties currently being experienced with the EU ETS. The growing evidence of the serious potential impact of man-made climate action and the scale of the reductions in greenhouse gas emissions that may be required mean that it is incumbent on us all to take action now and not to wait for a regulatory framework that may take years to achieve.

REFERENCES

Air Travel – Greener by Design, 2005. Mitigating the Environmental Impact of Aviation: Opportunities and Priorities. London, Royal Aeronautical Society.

Anderson, K., Bows, A. and Footitt, A., 2007. Aviation in a low carbon EU. Tyndall Centre, University of Manchester, 2007.

CfiT, 2007. Advice to Government from the Commission for Integrated Transport. London, Commission for Integrated Transport.

Ipsos MORI, 2007. Public Attitudes towards Aviation and Climate Change: Survey. London, Commission for Integrated Transport.

Sustainable Aviation, 2005. A strategy towards sustainable development of UK aviation. London, Sustainable Aviation.

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