Transportation & Logistics
Climate Change Services

Ready for take-off?*

The inclusion of aircraft operators in the EU Emissions Trading Scheme

*connectedthinking

PRICEWATERHOUSECOOPERS

Contents

Methodology

This report draws upon the results of PricewaterhouseCoopers' summer 2007 survey of aircraft operators; twenty operators from varying business segments and a broad distribution of countries, including two non-EU-based operators, provided responses.

The results of the survey suggest some of the key concerns and challenges facing aircraft operators in the near future, but should be taken as primarily illustrative.

In describing the requirements that aircraft operators may need to meet, we have at times chosen to present the European Commission's proposal in terms such as "will" and "shall". Many of the specific provisions of the proposed directive are currently the subject of ongoing and vigorous debate. Final parameters of the proposed emissions plan may have changed since press time and can be found on the European Commission and IETA websites.

The initial reach of the EU Emissions Trading Scheme (EU ETS) was limited to the CO_2 emissions of stationary sources. Recently the European Commission has put forward a proposal to extend the reach of the scheme by targeting the CO_2 emissions of aircraft as well. This report examines some of the challenges such a scheme will pose aircraft operators and takes a look at the industry's present readiness to meet the resultant monitoring and reporting obligations and strategic and operational challenges, based on a survey among leading aircraft operators executed in the summer of 2007.

The EU ETS is the world's largest emissions trading regime, generating tens of billion EUR of new assets and liabilities. Views on the impact of the scheme vary widely in the aviation industry, in part because of uncertainties about probable allocations and the difficulty of ensuring a level playing field. Most observers agree the impact will be substantial.

Although the proposed directive has not yet been adopted by the European Parliament and Council of Ministers, planning for the EU ETS should nonetheless be underway at aircraft operators, both strategically and at a more detailed level – changes will be required across the full range of activities in the organisation. Our research indicates that European aircraft operators are still far from being fully prepared, although the year beginning 1. January 2008 may mark an important benchmarking period for the allocation of emissions credits.

Aircraft operators need to treat their inclusion in the EU ETS as a strategic business issue rather than merely a matter of environmental compliance. Our survey suggests that many of the companies responding have begun the process of considering the issues raised by the new scheme, but still need to take further action. We hope that this report will provide them and others with a useful frame of reference to inform their own thinking going forward.

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Report Highlights

Global consensus around the need to reduce carbon (and other greenhouse gas) emissions continues to grow. In Europe, the European Union Emissions Trading Scheme (EU ETS) to cap and curb emissions has been in place since 2005. The current scheme covers stationary facilities in a number of industries, but the European Commission has proposed expanding the initiative to include aircraft operators beginning in 2011. Preparatory phases may begin as early as 1. January 2008. Debates over the legislation are likely to continue until – and through – implementation.

The quality of information technology and internal control systems will impact data accuracy, so companies need to ensure these systems are ready to cope

The approach to carbon regulation adopted by the EU is a market based approach, so companies under the scheme will either need to cut their own emissions, trade emissions in the new European market, or invest in emission reduction projects internationally. Aircraft operators looking to reduce emissions face fairly limited abatement options, especially over the short-term, so they will need to integrate carbon thinking into long-term planning and get savvy about trading and investment options in the short-term. In a survey of a selection of major aircraft operators, we asked how they were coping with these new challenges, and what they saw as the issues and concerns for the future.

We learned that operators are not yet ready for take-off of the new system. Many industry players are still waiting for the legislative process to produce binding rules. Experience shows, early preparation pays off. The time-frame between the final adoption of the legislation and the obligations faced by companies is likely to be very tight; indeed, some phases, such as initial monitoring for benchmarking, may already be retroactive. Companies need to act immediately to ensure they will be able to adhere to the scheme's requirements when adopted.

The integration of aircraft operators into the EU ETS will require a change in thinking and processes throughout the organisation. Of course, there will be operational implications and a need to demonstrate compliance, and companies will need to buy and sell allowances to close off short or long positions. But the implications are more fundamental than that. Carbon thinking will need to span the full range of activities within the organisation. Based on our survey, it seems that many operators perceive the issue primarily as environmental. Our experience suggests significant advantages can be gained by viewing emissions more holistically.

The integration of aircraft operators will require a change in thinking and processes throughout the organisation. Most aircraft operators are not yet ready for take-off of the new system

While nearly half of aircraft operators expect that the EU ETS will impact their costs quite a lot, only 1 out of 4 of them have already assessed the business impact on their own organisation.

There is still work to be done at the process level. Most aircraft operators are confident in the quality and verifiability of their allocation and emissions data, and 80 percent already report the tonne-kilometer data which will be required for allocation, although only around 40 percent currently monitor and report emissions data. The quality of information systems and internal control will have a strong impact on data accuracy. Most of the data necessary for compliance with the EU ETS should be generable from automated systems, yet nearly half of respondents could not answer a question dealing with the level of automation at their company. Of those who did respond, 1 out of 3 reported that their systems are not very automated and most aircraft operators were concerned about the full readiness of the IT systems.

Participation in the EU ETS also raises accounting and tax issues. Our survey suggests that most respondents have not yet addressed these areas, which should not be left unattended.

Serious issues have been raised about whether or not the EU ETS will really ensure a level playing field between aircraft operators based in different Member States and those based outside of the EU. Our respondents echoed these concerns.They were generally also in favour of sector wide initiatives, such as joint initiatives on monitoring and reporting to avoid unnecessary operational cost. Most would also favour a global aviation emission trading scheme to avoid unfair competition.

Given that the legislation is still evolving, aircraft operators could benefit from being more pro-active now, while they still have the opportunity to participate in the debate and influence the final shape of the EU ETS and other initiatives.

Industry Background

Despite the heavy impact of security threats from terrorist attacks and epidemics, the air traffic market continues to grow. Business air travel and air freight transportation are increasing, and the fast economic growth in Asia and the Middle East are spurring additional air traffic, both passenger and freight. The ICAO forecasts that the aviation industry will grow at an average annual rate of approximately 4.6% globally until 2025. Strongly emerging markets like China and India, but also the Middle East with its multi-billion dollar mega-hub-projects, bring great opportunities for the aviation industry. The liberalisation of regional markets such as the European Union also presents some opportunities for growth, albeit at a slower pace than in Asia Pacific.

The ICAO forecasts that the aviation industry will grow at an average annual rate of approximately 4.6% globally until 2025

The picture for the industry is not completely rosy, however. In the mature markets of the US, nearly all of the major passenger aircraft operators have been struggling financially, with many only recently emerging from bankruptcy proceedings. New markets are often heavily regulated; in many cases access to routes is still controlled by government entities and agreements may take a long time to achieve.

Another factor of concern is the ever-increasing demand for oil, which puts upward pressure on kerosene prices; aircraft operators who are not sufficiently prepared for kerosene price increases (for example, through the use of fuel hedges) may find profitability targets threatened.

Modernisation of the existing air traffic control network is seen as a priority by many industry observers, and could help to reduce the compliance cost of the EU ETS. Initiatives include the planned Open Skies Agreement between the EU and the US and the Single European Sky project. Single European Sky's aims include restructuring European airspace as a function of air traffic flows, rather than according to national borders; creating additional capacity; and increasing the overall efficiency of the air traffic management system. While increased efficiency could help achieve emissions reductions, creating more open skies could also help spur further growth in the industry, thus contributing to the generation of additional emissions.

New technologies may also help improve fuel efficiencies, and thus reduce emissions, over the long term. More efficient and lower emission jet fuels are under development, such as projects at the US's Princeton University. Industry observers anticipate that these won't reach the market for another 20 years, so any impact will likely be felt after 2025, although the Virgin Group has announced the intention of testing the use of biofuels for aircraft as soon as next year, and Air New Zealand also plans to test a combination of kerosene and biofuel in 2008. Other research focuses on developing innovative new materials to help reduce weight in aircraft, such as wing materials recently presented by the University of Delft.

Policy Background

Evolving global climate change policies

Recent reports by the Intergovernmental Panel on Climate Change (IPCC), championed by co-Nobel Price winner Al Gore, have stressed the urgency of rapid and decisive action to slow down climate change. In 2006 the former chief economist of the World Bank, Sir Nicholas Stern, underlined in a report to the British government that "our actions over the coming decades could create risks of major disruption to economic and social activity, later in this century and in the next, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century" (Stern Review, p. 572).

Governments around the world are responding by introducing compliance measures that limit CO_2 emissions, most notably by agreeing to the targets within the Kyoto Protocol. Developed nations committed to reducing aggregate emissions of six key greenhouse gases (with CO_2 being the most important gas) by at least 5 per cent (as an average) using 1990 as a threshold. In addition, countries such as the US and Australia, who have not ratified the agreement and do not currently plan to do so, are discussing proposals to reduce emissions levels by developing national or regional emissions trading schemes.

The EU's ratification of the Kyoto Protocol requires total emissions of greenhouse gases to fall to 92% of their 1990 levels in the period between 2008 and 2012. By 2020, the EU is looking for Member States to achieve additional reductions that would represent at least a 20% cut in emissions from the 1990 level regardless, and possibly a 30% cut if others around the globe agree. Reaching this goal will not be easy, and several policy measures have been put in place to achieve the desired reductions, most notably the EU ETS.

Carbon Neutral Flying

The Climate Neutral Group operates GreenSeat, a greenhouse gas compensation system for air travellers. Air travellers can "green their seats" by contributing financially to investments in renewable energy and tree planting projects.

In May 2007, Eindhoven Airport instituted a "Flying Naturally" campaign to encourage passengers to go climate neutral. Passengers will be encouraged to find out the financial value of the greenhouses gases released by their flight and asked to pay the costs involved in offsetting the climate change impact of the GHGs. The airport is working with Green Seat to implement the programme. Eindhoven Airport also announced a target to compensate 100% of the greenhouse gases released by its own business operations.

In September 2007, NetJets Europe, Europe's largest private jet companies, announced a comprehensive programme to address climate change. The company has set an ambitious goal to be 100% carbon neutral by 2012. Most of the initiative's emissions neutralising will be achieved via carbon offsetting; the company will be including carbon offsetting in their pricing as of 1. October 2007. Other measures to be taken by NetJets Europe include investing in new, fuel-efficient aircraft and supporting academic projects to develop low-emissions jet fuels.

In July 2007, KLM Royal Dutch Airlines announced an agreement with the Dutch wing of the World Wildlife Fund (WWF) to achieve CO_2-neutral growth in comparison with 2007. KLM plans to compensate for around 4 million tonnes of CO_2 within a four-year period (KLM's emissions in 2006 were over 9 million tonnes of CO_2, including subsidiairies). On behalf of KLM, the WWF will be investing in sustainable energy projects.The airline is also strengthening its committment to modernise its fleet and reduce fuel consumption.

The Qantas Group recently launched a Carbon Offset Program that gives its passengers the opportunity to voluntarily offset their flight emissions. As part of the program launch, the company committed to offset the carbon emissions of all its 950 Qantas, Qantaslink and Jetstar flights on the first day of the Program's operation. Qantas has funded the planting and maintaining of 90,000 Australian native eucalyptus trees around the nation as part of this initiative. Qantas will now also offset emissions generated by its own ground operations as well as staff work travel.

Other airlines which offer similar programmes include Lufthansa, Swiss and Easyjet, and the number is likely to grow. TUIfly will introduce a similar program by November 2007.

Emission trading in the EU

The EU ETS is a CO_2 cap and trade scheme that now covers more than 10,000 installations in a number of energy-intensive industrial sectors in 25 Member States and will be expanded with more installations and two new Member States, Romania and Bulgaria. It is the first multi-national trading scheme of its kind and is designed to help the EU reach the afore-mentioned targets. Allowances were determined by national government allocations across the EU (initially based on historic CO_2 emissions but the scheme might be extended to cover the other five greenhouse gases). These are freely tradable on the open market, with the objective of incentivising lower cost emissions abatement. A three year first phase, from 2005 to 2007, was designed to embed the scheme ahead of full implementation, scheduled to coincide with the Kyoto target period of 2008–2012.

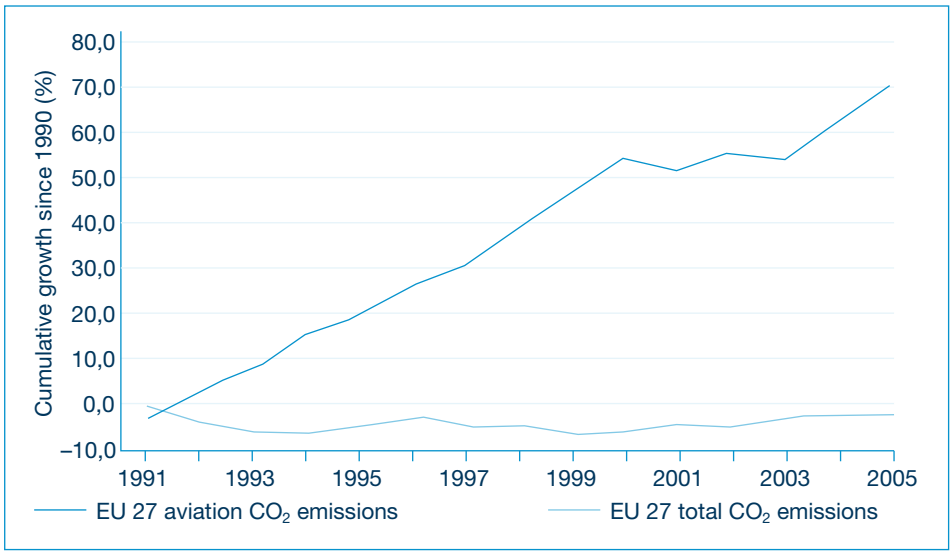
Each country established a national registry of allowences and developed the necessary legal codes to administer the system. At the EU level, a pan-European hub was established to ensure smooth link between national registries for intra-European transactions. Initial allowances were distributed for free, although some governments auctioned limited percentages.

Expanding the EU ETS to include aircraft operators

The European Commission is seriously considering extending the scope of the scheme in terms of gases and sectors. A draft directive to include aircraft operators in the existing EU ETS has already been proposed and is now under debate.

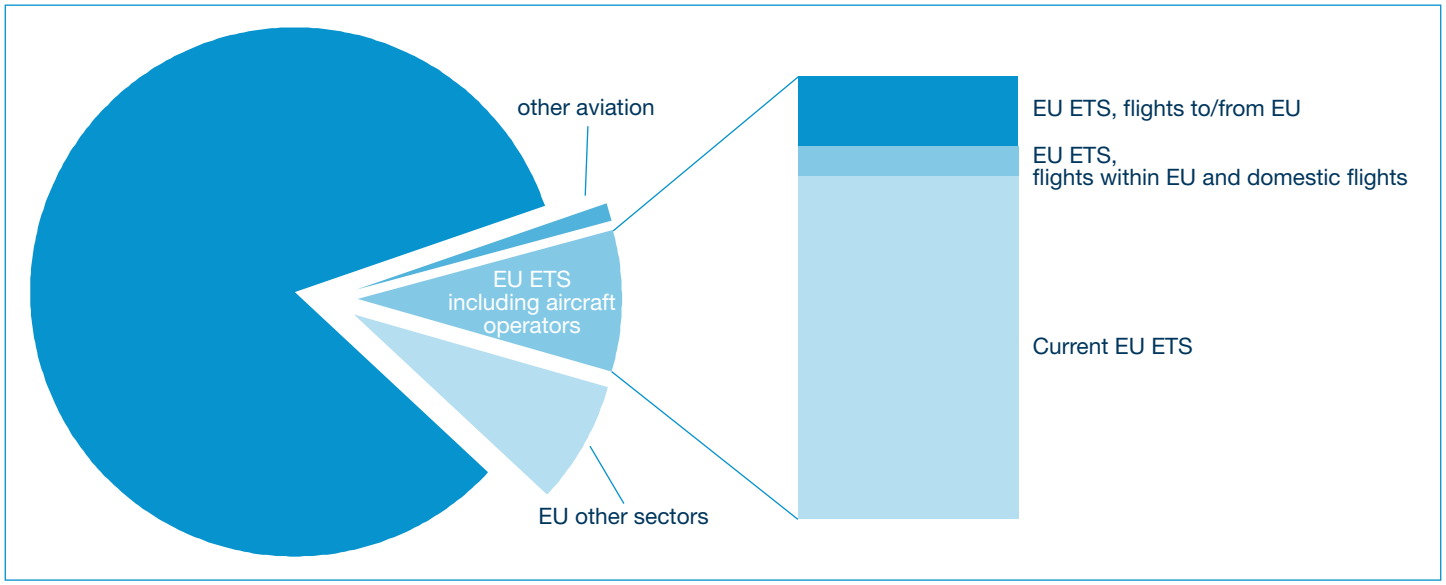
Why add aircraft operators? Current figures suggest the sector's share of CO_2 emissions in the EU to be around 3%. At first glance, aircraft operators seem to be making only a modest contribution to overall emissions. Closer examination, however, reveals that emissions have been sharply increasing in recent years due to strong growth in air traffic. Emissions from international aviation nearly doubled between 1990 and 2005, and the sector is expected to continue to grow. Even with some increased efficiencies, the sector's strong future growth has the potential to offset emission reductions gained in other industries (see Figure 1).

Figure 1: Development of EU-27 Greenhouse Gas Emissions, 1990–2005



Source: United Nations Framework on Climate Change

Figure 2: Aircraft operators' share of global emissions, within and outside of the EU



Sources: European Commission, Eurocontrol, International Energy Agency, United Nations Framework Convention on Climate Change

In Europe, aircraft operators make up a small but significant – and growing – portion of emissions. If all flights to/from the EU are included, aircraft operators will account for over one-fifth of the emissions covered by the EU ETS (see Figure 2). Including these flights also effectively extends the reach of the EU ETS to some emissions outside of Europe, and covers a fairly large share of global aviation emissions.

In addition, the impact of the aviation sector on climate change is held by some to be substantially greater than CO_2 emissions alone would suggest, due to the emission of nitrogen oxide (NO_x) and other climate-altering effects of air traffic such as the impact of emissions on the formation of cirrus clouds. While exact impacts are disputed, some figures suggest aviation's impact to be at least double that of ground-based emissions.

Many industry players are already voluntarily looking to reduce emissions, particularly as fuel is one of the major cost inputs for air traffic. Nonetheless, they warn that meeting the proposed emissions reduction targets could have a crippling effect on the industry. A study by Ernst & Young and York Aviation, commissioned by the industry, asserts that reductions will cost the industry around 45 billion EUR from 2011–2020, reducing profits by 40 billion EUR and potentially weakening the financial stability of a number of operators. Industry supporters cite the sector's key role in facilitating economic growth, particularly in developing countries. In an increasingly global economic community, air traffic provides the only worldwide passenger transportation network. According to industry sources, its global economic impact is estimated at US$ 2,960 billion (equivalent to 8% of world Gross Domestic Product [GDP]) while generating a total of 29 million jobs globally. Destabilising the industry's financial stability could thus have a negative effect on the European economy as a whole.

Not everyone agrees, though. Consultancy CE Delft, commissioned by the European Commission Directorate General, Environment, and non-governmental organisations (NGOs) like the WWF and the Climate Action Network (CAN) provide different perspectives.

Carbon neutral shipping
Deutsche Post World Net/DHL, the worldwide No.1 in logistics, has taken an active approach to sustainability. The company has developed a line of carbon-neutral shipping products, GoGreen. Business or private customers using GoGreen shipping are assured that their package will be either be shipped using DHL's growing fleet of alternative fuel and advanced technology vehicles, or transport-related CO_2 emissions are offset by a combination of internal and external initiatives. Developed and Piloted in 2005, the programme was extended to business and private customers in 2006, and continues to expand.

In August 2007, TNT, an integrated mail and express delivery services provider, announced its strategy to improve transparency on the company's carbon footprint, drastically reduce CO_2 emissions from its operations and stimulate its 159,000 employees to do the same in their private lives. TNT's programme is called "Planet Me".

Meeting emissions reductions targets will be challenging for the industry. The IETA has estimated that by 2022 the industry would need to reduce emissions by more than half compared to a business as usual scenario in order to maintain the 2004–2006 average. Their calculation is based on a 3% rate of growth, so if the stronger growth forecast by other organisations is achieved, the impact may be even greater.

Practical considerations

In the European Commission proposal for a Directive on including aircraft operators in the EU ETS, the European Commission integrates aircraft operators as far as possible into the existing EU ETS, rather than developing a separate emission trading scheme for the industry. While some features of the EU ETS will be adapted to match the needs of aircraft operators, the core terminology and methdology will be similar or the same. This includes key concepts such as the use of allowances, trading, monitoring and reporting and verification of emission reports. New and separate allowances will be created for aircraft operators which will not be tradeable with allowances in the existing EU ETS. As aircraft operators will, however, be able to purchase allowances from the existing scheme, the integration of aircraft operators may effectively increase demand in the existing EU ETS.

Some key differences to the existing scheme include the use of benchmarking on the EU level as the allowance allocation method, the use of the emissions level in the period 2004–2006 rather than 1990 (or 2000–2002 in the case of Germany) to determine the total cap for the sector, and a central, rather than member state-based, allocation system. In addition, there is no new entrants reserve in the proposal, creating huge competitive disadvantages for potential new entrants. Please see Table 1 for an overview of design elements of the new scheme. More specific provisions of the proposal are also discussed in more detail in our section on Getting Ready.

Many aspects of the directive for aircraft operators have profited by the application of lessons learned in the existing scheme. Experience has shown compliance control to be an area where firm guidance is desirable, but in this particular instance, specific provisions are not yet foreseen for aircraft operators. This issue may still be addressed by the European Commission.

Table 1: Selected design paramaters of the proposed directive for including aircraft operators in the EU ETS

Design parameters	Existing EU ETS[1]	Current Proposal
Scope: sectors	EU stationary installations[2]	in, to and from EU
Scope: gases	CO_2	CO_2
Starting date	1. January 2005	1. Jan. 2011 (EU), 1. Jan. 2012 (to/from EU)
Relevant to Kyoto commitments	Yes	No
Baseline period	1990–2002[3]	2004–2006 average
Reduction to baseline period	8%[4]	0% (same for all operators)
Allocation method	Grandfathering	Benchmarking
Allowance allocation	National Allocation Plans (NAPs) – EC approval	EC
Early action reward	Up to Member State	Yes (benchmarking)
Verifiers involved in allocation	No[5]	Yes
Auctioning	≦10%	Average of NAPs in EU ETS
Use of EU ETS allowances	Yes	Yes: but not vice versa
Use of CERs and ERUs	Up to Member State	Average of NAPs in EU ETS
New entrants reserve	Up to Member State	No
(Validated) Monitoring Plan required	Yes	No
Number Competent Authorities	Per installation	One per AOC holder
Harmonised compliance by competent authorities	Limited	Unclear
Harmonized verification guidelines	No	Yes
Harmonized accredition of verifiers	No	Yes
Use of external sources for checking data	No	Likely (Eurocontrol)

[1] Directive 2003/87/EC and Decision 2007/589/EC
[2] Energy activities, Production and processing of ferrous metals, Mineral industry and Other activities (pulp and paper production)
[3] Differs per Member State
[4] 8% is the average EU Kyoto-commitment, which differs by Member State and operator
[5] Baseline verifications were performed in some countries in the first trading period. And for the second period, verified emission data were available for those operators who were in the scheme in the first period.

Source: European Commission, PricewaterhouseCoopers, Ready for take-off, 2007

Aircraft operators will be able to buy allowances from other sectors for use to cover their emissions, but will not be able to sell allowances to the other sectors, although trading with other aircraft operators will be permitted. Aircraft operators will also be able to use project credits from the Joint implementation and Clean Development Mechanism projects (JI/CDM).

Debate over the proposal continues

The inclusion of aircraft operators in the EU ETS has been the source of vigorous debate. Many industry observers believe that while regulation of the industry is probably necessary, it should be undertaken at the global level, preferably under the auspices of the ICAO. The Kyoto Protocal designated the ICAO as the responsible body for determining emissions targets for the aviation industry. The European Commission agrees that there is a need for a global trading scheme for aviation, but, driven by a sense of urgency, has chosen to move forward with a European scheme in the absence of a concrete proposal from the ICAO. Delegates at the 36th Assembly of the ICAO in September 2007 were unable to agree on any meaningful emissions reduction targets, although they did create a new Group on International Aviation and Climate Change with a mandate to recommend an aggressive programme of action. The ICAO also reiterated their position that mutual agreement is required before third country aircraft operators can be included in an aviation Emissions Trading System.

How to determine the actual cap on emissions (EU or national), who to apply it to (airlines or Member States) and the logistics of the distribution of allowances have also been the subject of lengthy discussions. The EU's current proposal responds to industry concerns about the need for a pan-European level playing field by centralising the actual cap and allowance distribution process and applying it to airlines rather than Member States. Discussions continue around the precise level of the cap; the Parliament's Environment Committee has proposed capping at 75% of the 2004–2006 levels, rather than the currently included 100%, and others have suggested adjusting the cap above 100% to account for growth.

Auctioning has been another hot topic. The proposed directive provides that a small percentage of allowances be auctioned, corresponding to the average percentage proposed by the Member States including auctioning in their National Allocation Plans for stationary installations. Some NGOs have called for 100% auctioning, and the Enviroment Committee has proposed auctioning 50% of allowances. Both the cap and extent to which allowances will be auctioned will have a substantial impact on the overall cost of compliance for aircraft operators.

Discussion also focused around how to take other greenhouse gases which also contribute to global warming into account, including Nitrogen oxides (NO_x) and aircraft's condensation trails. As already noted, some experts believe that the overall climate impact of aviation emissions is substantially greater than CO_2 emissions alone would indicate. Indeed, some critics argue that the inclusion of aircraft operator's CO_2 emissions in the EU ETS does not go far enough to mitigate the increase in emissions concurrent with the industry's strong growth. In October 2007 the Environment Committee recommended adding a multiplier factor of 2 to carbon emissions to account for some of these additional impacts.

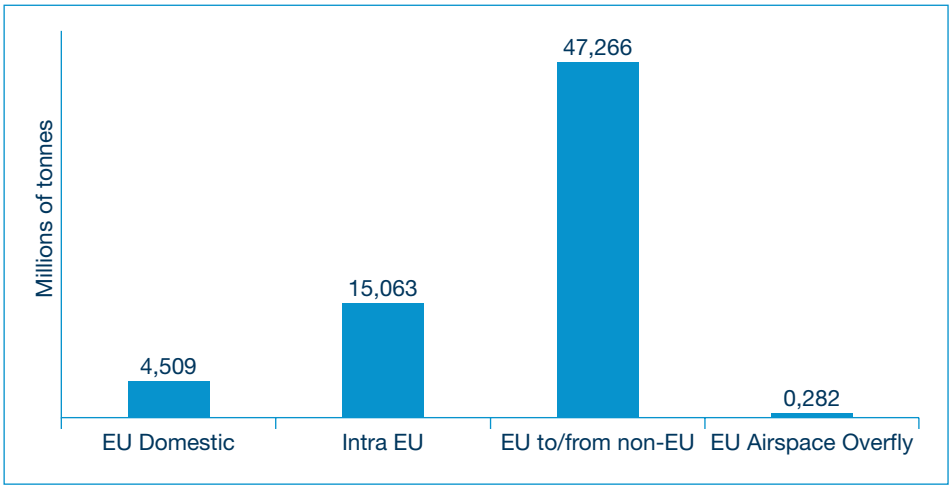
The European Parliament has endorsed the idea of instituting other measures, such as taxes on kerosene, VAT, etc. to account for these impacts. The European Commission and Member States view the EU ETS as part of a coherent set of measures to fight greenhouse gas emissions, rather than the only solution. The industry strongly opposes any additional regulation. Some observers argue such measures would divert funds necessary for purchasing new aircraft and optimising operations with the goal of reducing fuel consumption and the resultant CO_2 gases.

Some countries are already looking at such measures, though. In the Netherlands, a tax of EUR 11.25 per person for departing flights under 2500 kms and EUR 45 for longer flights will be imposed to the airport as from July 2008. Consumer protests in the UK, including demonstrations at Heathrow and strong opposition to the expansion of Stansted airport, have led to proposals to raise taxes on airline fuel and an increase in the Air Passenger Duty (APD) in February 2007.

Key provisions of the proposal for aircraft operators include exclusions of certain types of flights and guidelines for administration and monitoring. Flights by state aircraft, flights under visual flight rules, circular flights, flights for testing navigation equipment or for training purposes, rescue flights, and flights by aircraft with a maximum take-off weight of less than 5,700 kg will be excluded. The exclusion of government flights has been criticised by some observers, and the exact weight limit for which aircraft should be excluded has also been a disputed point.

One of the hottest points of contention centered around whether or not to include international flights and non-European aircraft operators in the scheme. Flights to and from Europe by non-European aircraft operators contribute around three-quarters of fuel consumption and thus emissions, so not including them would undermine the extent to which the plan would achieve any substantive reductions (see Figure 3).

Figure 3: Estimated fuel burn (2004)



Source: EUROCONTROL

In addition, European aircraft operators expressed strong concerns that including non-European aircraft operators would be vital to maintaining competitiveness, and the current proposal does include all flights to and from Europe. This provision may pose serious legal challenges should the directive be approved. Other governments, as well as the ICAO, have taken the position that it violates the Chicago Convention of 1944, which bars countries from taxing aircraft fuels. The Chicago Convention also explicitly prohibits discriminatory treatment of aircraft and their operators. The European Commission maintains that the proposal is valid under international law and can be expected to defend its position, however the US continues to oppose any regulation of US airlines by non-US bodies and has announced the intention of challenging the EU directive if approved.

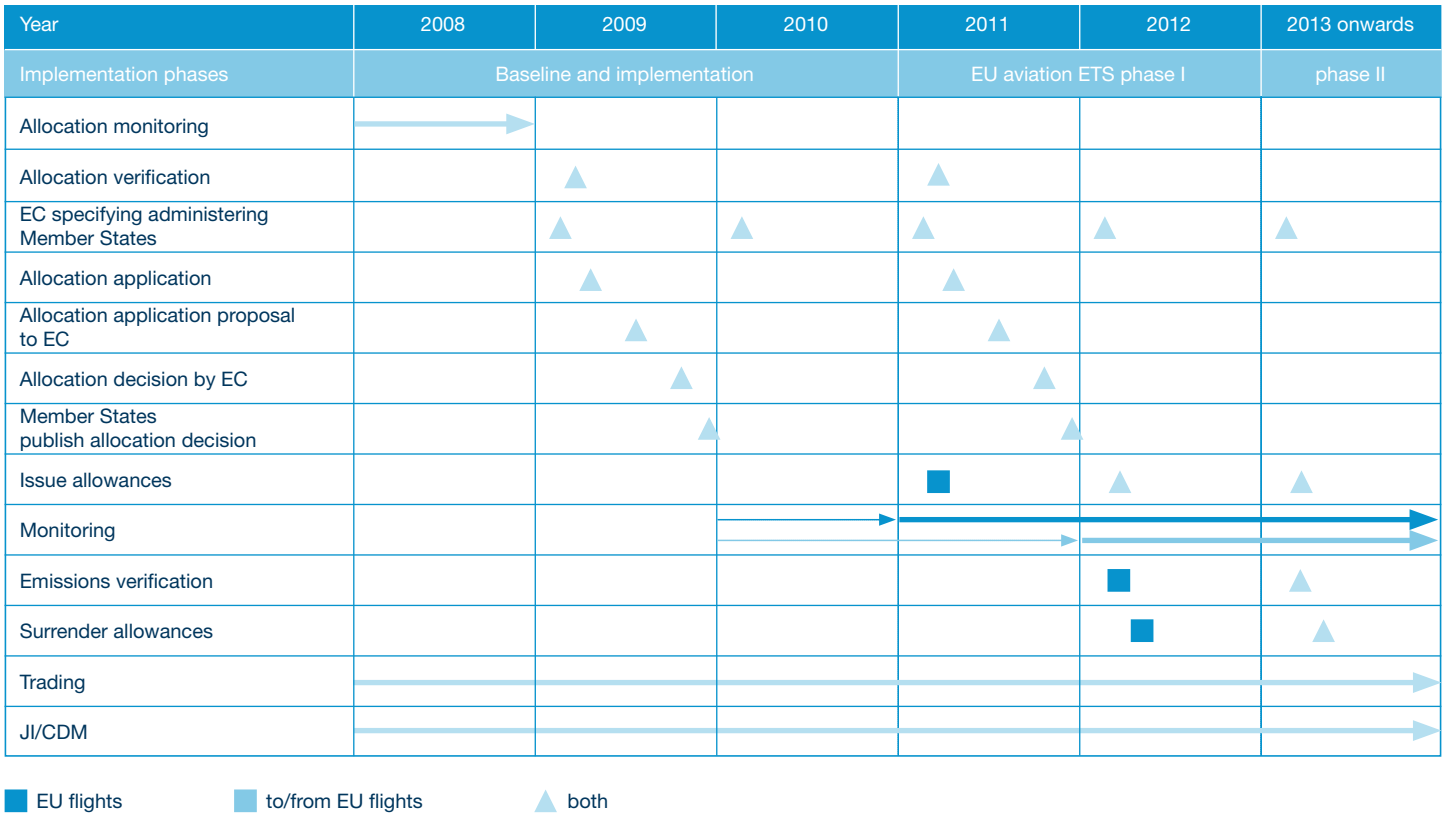
Finally, the timeline for the implementation of the scheme has caused additional dissension, with proposals ranging from 2010 for all aircraft operators, to 2013, only for flights within the EU. The current directive provides for a start date of 2011 for EU-based and 2012 for non-EU based operators.

Proposed timing

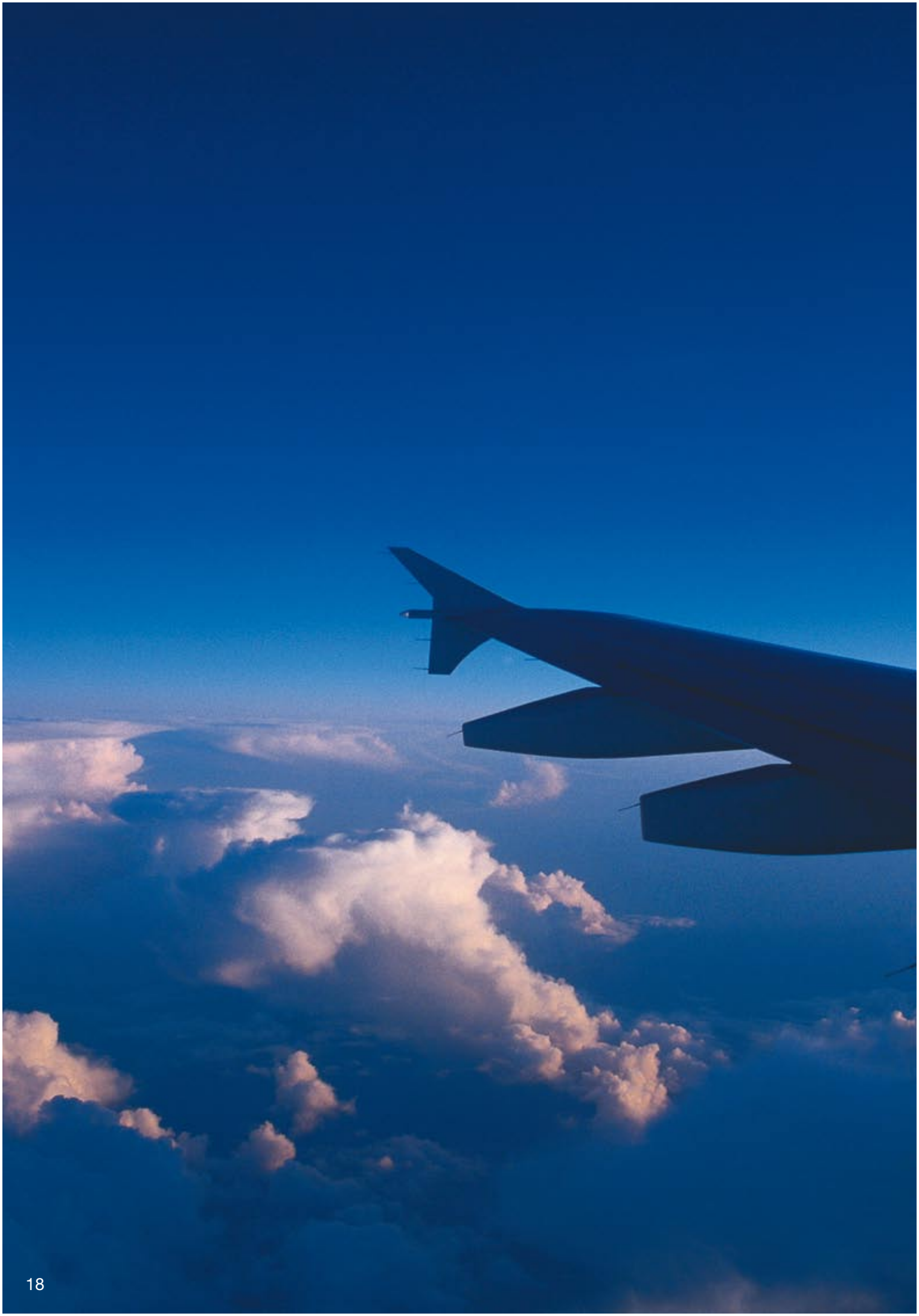
The timetable set by EU legislators for incorporating aircraft operators into the EU ETS is demanding, both for regulators and for companies. As noted, in contrast to the incumbent design of the EU ETS, allowances for aircraft operators will be allocated at the central EU level rather than at the Member State level. Member State governments will continue to play a bridging role in the allocation and reporting cycles. A number of questions remain regarding how the centralised system will work in practice. Competent authorities at the Member State and regional level still need to develop and implement consistent approaches, within the same time-frame, to ensure a level playing field for aircraft operators. The operators we surveyed are almost unanimously concerned that a level playing field won't be achieved within the EU, and all see no, or too little, enforcement of competing non-EU aircraft operators as a serious risk.

The proposed timeline is summarized in Figure 4. The draft legislation will not receive a first reading in the European Parliament until November 2007, and the final shape of the directive may differ substantially from the current proposal. Nonetheless all operators, even those who will first be covered by the scheme in 2012, should be ready to take action as soon as 1. January 2008, when the proposed baseline period for the allocation benchmark begins. This means an initial strategy must be developed without any firm guidance from allocation verifiers or the authorities that will need to ensure compliance. Operators will in essence be aiming for a moving target.

Figure 4: Indicative timeline for the inclusion of aircraft operators in the EU ETS



Source: European Commission, PricewaterhouseCoopers, Ready for take-off, 2007



Consequences and Industry Viewpoints

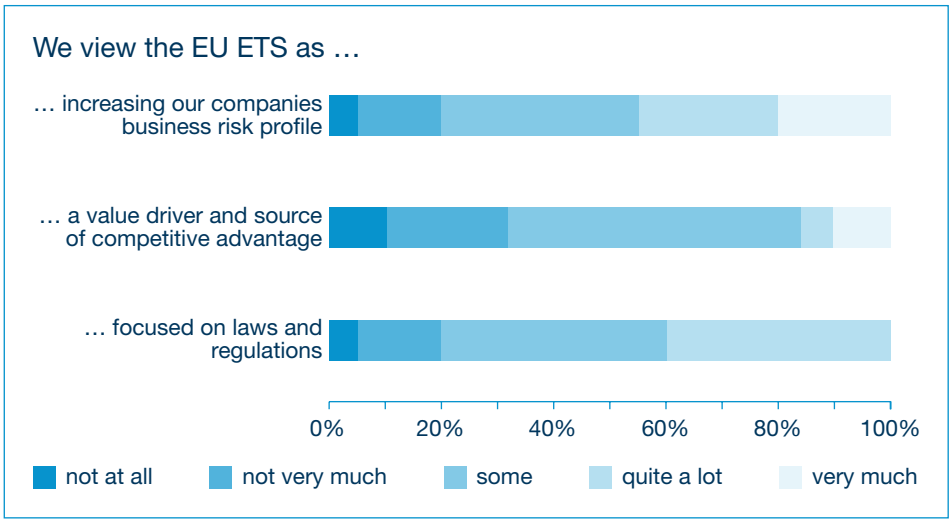
Aircraft operators need to prepare for take-off to deliver effective climate change strategies, to manage new risks and to create or preserve value in a changing environmental context. Although there are some good examples of aircraft operators integrating the consequences of climate change into their business strategy, many are still following the debate from too far a distance.

All the aircraft operators we surveyed believe emissions trading will impact their costs, but less than 1 out of 4 have carried out an assessment of the business impact on their own company.

The results of our survey show that all responding aircraft operators believe emissions trading will impact their costs, while only a small percentage expect to be able to pass costs through to passengers or shippers. Forty-five percent also believe the impending regulation will have a major impact on their business risk profile.

Nevertheless, less than one out of four aircraft operators have already carried out a meaningful assessment of the business impact of climate change and the EU ETS. Emissions trading is most often seen a matter of laws and regulations. Aircraft operators believe to a lesser extent that emissions trading can be a value driver and source of competitive advantage (see Figure 5).

Figure 5: Views on the impact of emissions trading



Source: PricewaterhouseCoopers, Ready for take-off, 2007

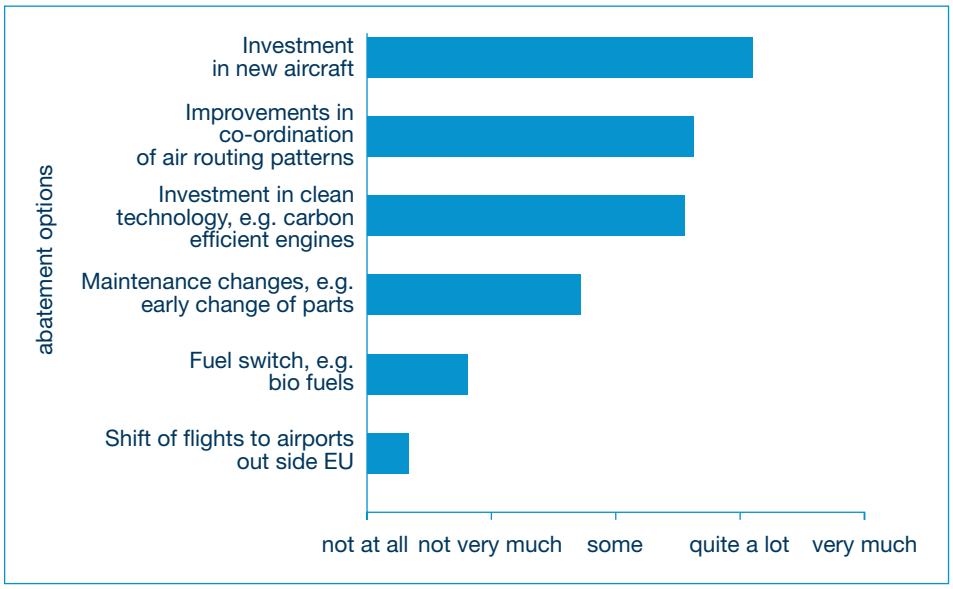
Many companies are holding off on decisive action on emissions reductions and implementing measures for meeting EU ETS requirements until more detailed information is available on specific legal requirements. While this approach is understandable, early action has a number of benefits. Companies who are better prepared are less likely to encounter costly hurdles once the legislation is in place. At present it seems likely that the European Commission proposal to allocate allowances based on benchmarking will be approved, so early movers stand to gain a bigger piece of the pie. In addition, the regulatory environment is not the only driver pushing for a pro-active approach to emissions reduction – the investment community and consumers are also looking to companies to take the lead in heading off climate change.

Aircraft operators report being fairly constrained in how they can achieve emissions abatements (see Figure 6). The top three strategies reported for abatements are investments in new aircraft, investments in new technology and more efficient planning, however capital investments can only be made on a long time-frame, and efficient planning may have limitations in the extent to which reductions can realistically be achieved. Investment in new aircraft can potentially bring the greatest benefits in reducing fuel consumption, but requires a lengthy lead-time for procurement and construction.

Almost all responding aircraft operators are already considering emissions trading impacts in their investment decisions, at least to some extent, with investments in new aircraft or new technologies receiving the most interest. Those who act smarter or faster here may have a bigger return on their investment. Robust route and passenger planning tools may also provide tangible benefits in complying with emissions regulations.

Aircraft operators see their options for emissions abatements as fairly limited, so companies will need to get smart about their strategy for obtaining the necessary allowances

Figure 6: Views on viable abatement options



Source: PricewaterhouseCoopers, Ready for take-off, 2007

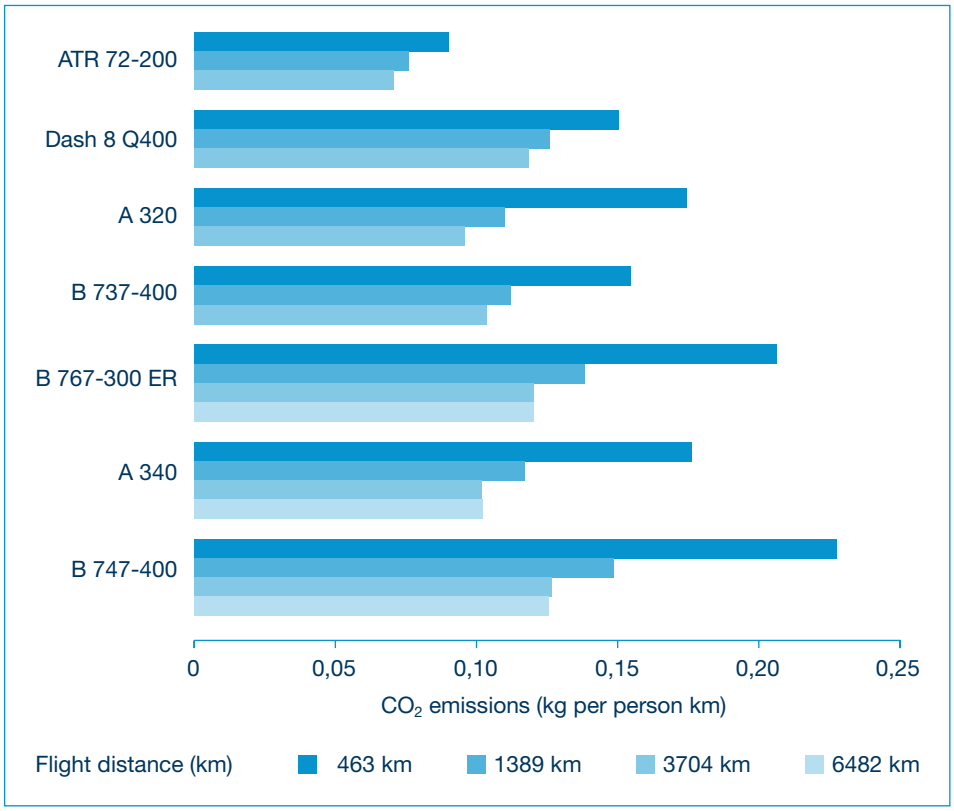
Given anticipated growth in the sector, companies will almost certainly need to purchase additional emission reduction credits from other industrial sectors in Europe or reduction projects around the world. Aircraft operators may need to get smart about evaluating and committing to involvement in projects such as the the Joint Implementation and Clean Development Mechanism projects (JI/CDM), a process we describe in more detail later in this section.

The centralised allocation method should make managing the overall portfolio of allowances fairly straightforward for aircraft operators, in contrast to companies with stationary facilities which may receive allocations from several different Member States.

Integrating aircraft operators into the EU ETS will add a new layer of complexity into companies' risk evaluation frameworks. Long before the scheme is actually implemented, companies will need to manage the risk associated with uncertainties around allocations and market arrangements. They should also be factoring in the implications for investment in aircraft, route planning and M&A activity, as well as equipping themselves for the ongoing risks that they will face in connection with trading, compliance, monitoring and settlement.

Emission allowance trading will pose direct consequences for the strategic positioning of individual companies. Specific emission levels vary widely between aircraft (see Figure 7), so aircraft operators flying more modern fleets may have a substantial advantage. In addition, specific emissions are often proportionally higher on short distances, so aircraft operators flying a greater number of short-haul flights may find themselves more greatly impacted. Occupancy rates will also have a substantial impact, as they impact fuel use and emissions levels. Passenger carriers who are able to achieve higher occupancy rates and freight carriers with greater loads may have an advantage over competitors.

Figure 7: The relative CO_2 emissions of selected passenger aircraft at different flight distances



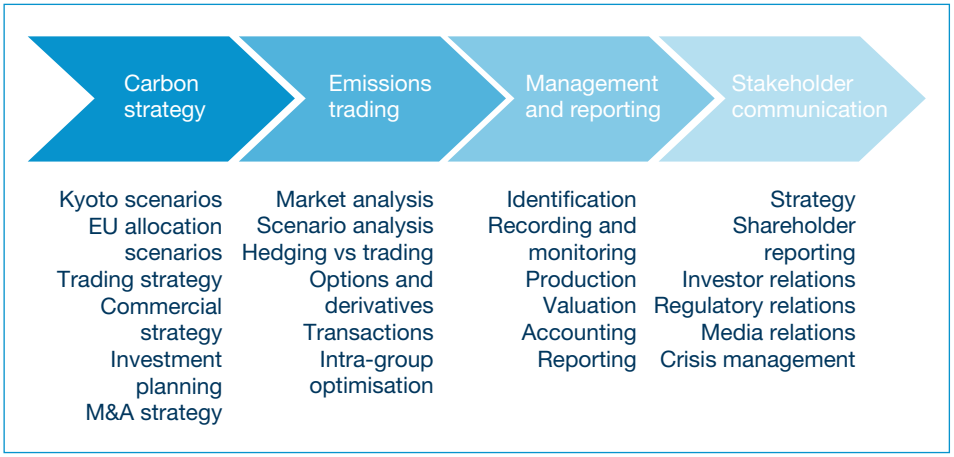
Source: EMEP/CORINAIR, Airbus, ATR, Boeing, Bombardier

In the discussion which follows, we examine in closer detail some of the practical changes that will be necessary inside aircraft operators to cope with the challenges posed by emissions reporting.

Set a strategic lead

Early planning and preparation, both strategically and operationally, can help companies get a jump-start on managing their participation in the emissions trading scheme. Two thirds of the companies surveyed reported that their strategic planning is not at all ready. While this hesitancy to act is understandable in the face of the still unclear legislative requirements, a programme of emissions reductions and a robust strategy to manage them will almost certainly be necessary. Corporate climate change strategy needs to draw on skills across the company, with a convergence between environmental, financial and legal disciplines. As the deadline for emissions allowance trading draws near, aircraft operators should ensure that they align their approach to carbon trading with other key processes in the company (see Figure 8).

Figure 8: Embedding the key processes within the company



Source: PricewaterhouseCoopers, Emission critical, 2004

Make the value connection

The European Commission's proposal is still under dicussion, but aircraft operators can already begin implementing measures for many of these elements, running scenario analysis and clarifying their overall value strategy.

Because emissions allowances and compliance is determined at the company level based on data from many parts of the organisation, and because of the impact of global climate change policies, impact assessments will need to be performed for individual subsidiaries with an AOC especially when in different states, as well as at the group level. Each subsidiary will have additional costs or profits as a result of emissions trading, with potential implications on tax obligations, dividend policy and investments. Some routes or subsidiaries may be unprofitable as a result of emissions trading. Companies need to consider what options they have with such stranded assets. In addition, co-sharing agreements and routing arrangements may need to be re-evaluated.

Determine your trading strategy

Emissions allowances are both a right, to emit a tonne of CO_2, and an obligation, since allowances have to be delivered back to the relevant government as and when it is used to cover emissions. Emission allowances can therefore be held by companies for three purposes:

- for compliance, to cover actual emissions
- for hedging, to manage market price risk between emission and delivery
- for trading, to generate profits from future price movements by buying and selling allowances, credits and related derivatives

Clarity over the balance of ambition between managing allowances for compliance purposes and managing for trading profits will be vital for aircraft operators.

Nearly half of the aircraft operators that we surveyed have not yet investigated the trading market to any significant extent, and less than 10% consider themselves to be very active in trading.

Irrespective of trading ambition, most aircraft operators will have to enter the marketplace to purchase emission allowances in cases where they foresee shortfalls in the abatements needed to reduce emissions to the level covered by their allocated allowances. Critical questions face aircraft operators. Do they have a clear assessment of the market that will guide buy and sell decisions? How far should they use derivatives and engage in arbitrage? Nearly half of the aircraft operators that we surveyed have not yet investigated the trading market to any significant extent, and less than 10% consider themselves to be very active in trading. Options and strategies will likely vary a great deal between different sectors of the industry, with smaller aircraft operators seeing fewer options than larger aircraft operators.

Companies will need to manage – and integrate – both a compliance function and a trading function. Management will need to assess internal capabilities and skills in order to determine whether to develop trading alone or in partnership with specialist external trading operations.

Companies will need to ensure that they establish rigorous emissions trading procedures. Different operational functions will need to be involved in order to ensure synergy and separation of roles and to provide effective handling and monitoring of deals.

Understand the concept and the requirements

Aircraft operators need to gain a thorough understanding of emissions trading concepts and requirements as the first step to developing a trading, compliance and verification strategy. Unfortunately some aspects of complianceand verification continue to be unclear, due to on-going legislative debates. And indeed, the aircraft operators we surveyed generally reported being insufficiently informed about the upcoming regulations.

We should note here that most of the companies surveyed are large operators with sufficient overhead to cover collection and reporting costs, but they may underestimate the challenges which will inevitably arise when the scheme is implemented. While it may appear that dealing with only one administering Member State should be relatively straightforward, this will only be the case if companies have consolidated and centralised information systems in place, which many may not. Experience shows that operators tend to be optimistic upfront and only find out about possible gaps when the verifier comes in.

The large majority of the surveyed operators view favourably the possibility of sector-wide initiatives to reduce the burden of monitoring, reporting, and verification. While no concrete sector initiatives have yet been proposed, some options might be coordinated, cooperative use of Eurocontrol data, or a joint IT system to collect and verify data. Given that the directive is still under discussion, the industry may also still have an opportunity to influence final policy, particularly through collective efforts such as lobbying by industry associations.

Our survey indicates that, with the exception of the environmental and regulatory affairs manager and strategic planning & investment manager, none of the disciplines which will be involved with emissions trading and compliance have been informed to more than “some” extent, most are not very active, and only a few report satisfactory readiness. While much is still uncertain, the clock is ticking. As noted, aircraft operators stand to gain in the long run by working together with European and local authorities and verifiers to set workable standards.

Investor relation management

The value implications and opportunities of emissions allowance trading will require careful explanation to shareholders. The respondents to our survey show some awareness of this need; most report that their investor relationship & public affairs functions already have some knowledge of emissions trading; nonetheless, progress will still need to be made in this area. Aircraft operators should integrate the implications of emissions allowance trading with their assessment of how they can create value in a changing transportation market.

Aircraft operators stand to gain in the long run by working together with European and local authorities and verifiers to set workable standards

The EU ETS has already led to a sharpened focus on investment and credit risk arising from CO_2 emissions. Ratings agencies have become alert to the potential credit-negative risks of the scheme. Similarly, investment bank analysts have been busy running the rule over the impact of the EU directive on individual companies. Carbon risk is fast becoming part of the currency of analyst and investor scenario planning and dialogue. The onus is on companies to communicate that they have fully evaluated the impact of the directive on their operations and developed an effective strategy to maximize value in these new conditions. The Carbon Disclosure Project is a prominent example of how companies are being encouraged to make their emissions data public. This is likely to be a first step towards investor specific disclosure of fully carbon risk, including assurance according to generally accepted standards.

The Carbon Disclosure Project
In order to identify the implications of climate change for shareholder value and commercial operations, the Carbon Disclosure Project encourages companies worldwide to be transparent about their relative GHG positions. The project has become the world's largest repository of corporate greenhouse gas emissions data. The project provides a coordinating secretariat for institutional investors with a combined $41 trillion of assets under management. On their behalf it seeks information on the business risks and opportunities presented by climate change and greenhouse gas emissions data from the world's largest companies (2,400 in 2007). Thirty-some aviation companies were approached to participate in the project, two-thirds of which either completed the survey or provided some information.
www.cdproject.net

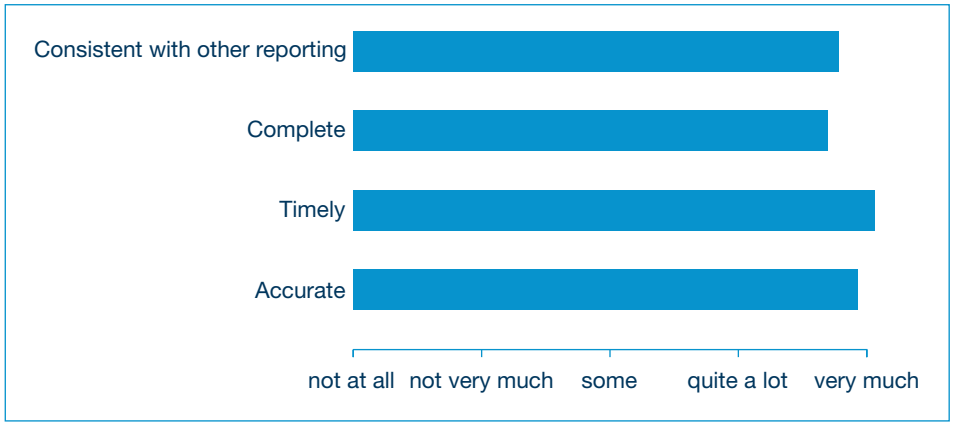
Investors will need to understand a company's assessment of their best transition route. What will be the company's investment strategy? Will emissions management be part of the company's value proposition? Does the company expect to use trading purely for emissions compliance purposes or does the company intend to go beyond that and pursue a more dynamic trading strategy? How will the company manage stranded assets?

Investors must be able to see a clear rationale for the management of the company's portfolio of assets and its trading position. This should, in turn, be part of a wider strategic approach to climate change. It is not just about getting it right, but also about communicating that they are getting it right.

Manage your allowance process

Under the proposed directive, aircraft operators under the scheme will be required to monitor and report tonne-kilometre data for 2008 and have it independently verified. Three out of four respondents already report this kind of data for other reasons and they generally are fairly confident that internal data management systems are capable of delivering the requested data accurately, completely, and within the necessary time-frame (see Figure 9). And more then half of the operators are quite a lot or very much confident to report tonne-kilometre data in different geographical scopes and to differentiate into all intra-EU flights and all arriving and departing flights.

Figure 9: Levels of confidence in allocation data



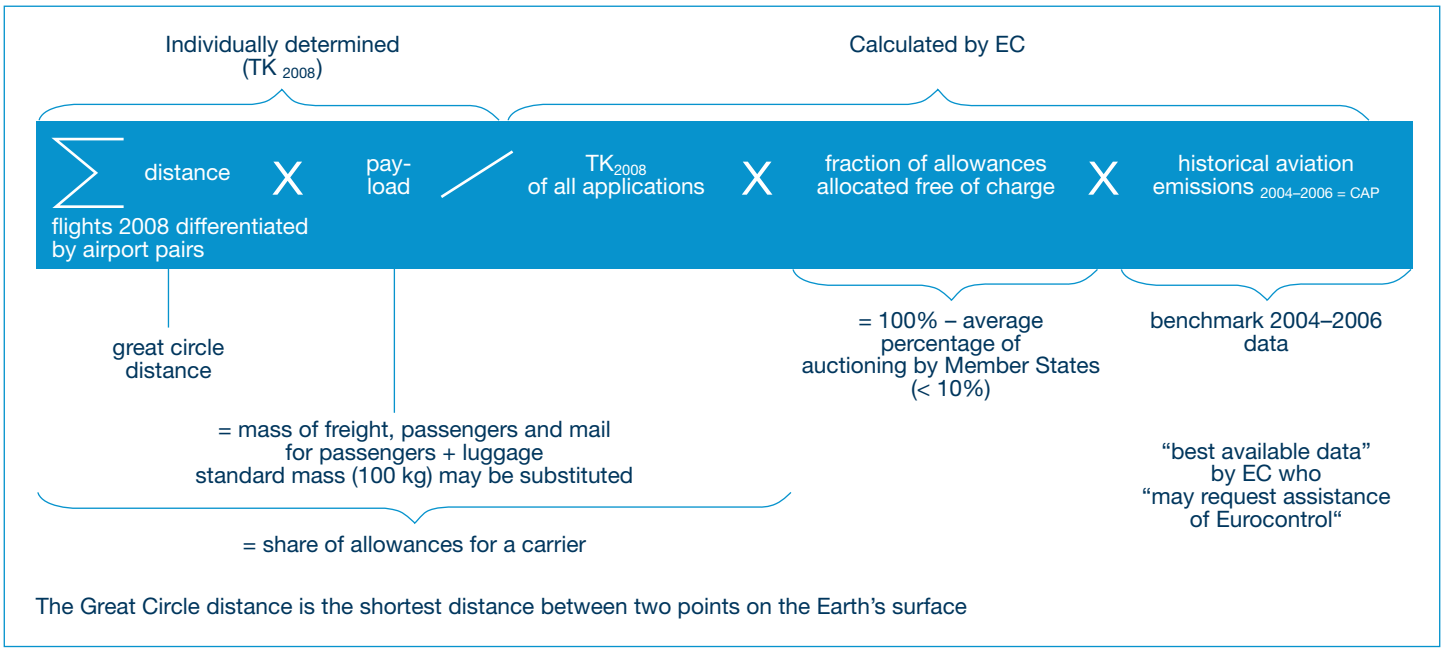
Source: PricewaterhouseCoopers, Ready for take-off, 2007

The aircraft operators responding to our survey are generally in favour of a scheme which rewards early action to reduce CO_2 emissions. Early action means aircraft operators have already taken measures to reduce emissions (such as flying fuel efficient aircraft). The Commission's proposal acknowledges that allocation on the basis of historical emissions data (grandfathering) would favour aircraft operators who have postponed such measures and therefore proposes benchmarking for allocation (see Figure 10). Allowances will be allocated for free on the basis of historical emissions of 2004 to 2006 minus a small part to be auctioned, although there is still debate on both the base year and the share of allowances to be auctioned.

Moreover, as the administering Member State will only be known as of 1. February 2009, and allocation monitoring is set to start on 1. January 2008, operators will not know for certain the exact local requirements and interpretations of possible contentious issues when they need to begin reporting data.

Although there is still uncertainty on how exactly the tonne-kilometer data needs to be monitored and reported and how their competitors will be treated in other Member States, aircraft operators nonetheless need to take as much control of this process as they can. Operators can already look to be involved in setting standards, perform trial reporting and ask auditors to verify currently reported data. While the amount of allowances may be abstract, in the final analysis they will translate into real money and could make a substantial impact on the bottom line. Purchasing the required allowances to cover the amount of CO_2 generated on a flight from London to Tokyo would cost approximately EUR 30 per passenger, on a flight from Rome to Copenhagen the cost would be around EUR 6 per passenger, based on full auctioning and a current price of ca. EUR 20/allowance. The actual cost per passenger could vary widely according to the market value of allowances and the extent to which they are auctioned, as well as occupancy rates.

Figure 10: Proposed allocation formula for aircraft operators in the EU ETS



Source: European Commission, PricewaterhouseCoopers, Ready for take-off, 2007

The changing role of Competent Authorities

Competent authorities under the current scheme typically check on both the verification and emissions report and perform inspection and enforcement activities to ensure compliance with validated Monitoring Plans for allocation and emissions monitoring.This procedure may be required for aircraft operators as well, although the current proposal ignores the issue. Requiring a Monitoring Plan for both allocation and emissions data, based on specific guidance before the start of the scheme to provide for the necessary transparency and consistency, would be preferable. Disregarding this point could potentially lead to prolonged debates between verifiers and operators. In extreme cases, undue differences in the interpretation of the guidelines could arise.

In addition, it is not yet clear whether multiple Competent Authorities will be allowed. Experience has shown that the use of multiple Competent Authorities within individual Member States can make the compliance processes more complex and time-consuming, and consistency issues may arise.

In the current scheme there is increased attention to inspection & enforcement, and sanctioning, as part of a state level oversight of the functioning of the private market bodies dealing with emissions assurance, i.e. operators, verifiers and accreditation bodies. Continuing in this direction would be advisable as the scheme expands.

The European Commission may develop an additional tool to ensure the reliability of the data reported, by providing the verifiers and/or competent authorities with Eurocontrol data, which should cover a large part of the information needed.

The plan for aircraft operators as proposed includes non-EU aircraft operators. Ensuring suitable control over entities based outside the EU will pose substantial challenges, which, if not adequately addressed, could potentially endanger the level playing field for aircraft operators in the EU.

Prepare for reliable emissions monitoring & reporting

As in the current Emission Trading Directive, the expansion of the EU emission trading system (EU ETS) to include aircraft operators will require operators to monitor their emissions, to compile an annual emissions report and to have it independently verified. Aircraft operators will be obligated to provide this information for the first time for the calendar year 2010, one year ahead of the start of the scheme. Although this initial monitoring will not lead to surrender of allowances, the availability of the data is designed to make the work of the aircraft operator, verifier and competent authority easier in the first year of the scheme's operation. The monitoring, reporting and verification process for the other industries has been regulated by the European Commission's Monitoring and Reporting Guidelines (MRG). Specific guidelines are currently under development for aircraft operators and should not be expected before the end of 2008 i.e. after aircraft operators need to have already implemented their allocation procedures, which should be consistent with these guidelines.

Emissions are determined by fuel use and an emission factor. This fuel use needs to be determined for each flight separately, involving a vast amount of data which may prove hard to collect. The respondents to the survey did not anticipate that data collection will have more than some impact in influencing reliability, although there are some specific examples of difficult situations, eg when paid for in cash or with code sharing.

Monitoring and reporting requirements are likely to take the lion's share of the resource pool that companies are willing to dedicate to EU ETS compliance. Today, only 2 out of 5 of the respondents already report emissions data. These companies would do well to share their experiences and challenges to help in establishing workable standards for monitoring, reporting and verification. As noted previously, most operators are fairly confident that allocation data can be reported and verified (see Figure 9), however given that more than half are not yet reporting data, some of this confidence may fail to reflect the difficulties which may arise when actually managing a comprehensive programme of data collection, reporting, and verification.

Survey respondents also rated their internal control function as an important factor influencing the quality of reporting. Companies need to define a proper data flow and, on the basis of a risk assessment, should identify proper controls to mitigate the risk of (material) misstated data. In the current EU ETS this process is documented in the company's Monitoring Plan, which needs approval by the Competent Authority, so as to ensure that operators act consistently. At present there is no specific provision for this process in the MRG proposed for aircraft operators. Whether or not this will be a requirement, aircraft operators should nonetheless take care to develop appropriate internal control systems and ensure that they are transparent for verifiers.

When considering reporting issues, companies may wish to take a comprehensive approach. Climate change is hot, but the public is demanding transparency in all non-financial performance. Unlike other non-financial reporting, emissions data is regulated and subject to regulated verification. Companies who look to streamline their overall non-financial data reporting could achieve some competitive advantage and increased transparency. Our survey shows integration of emissions reporting with other reporting processes is still in its infancy.

Focus on efficiency and speed

In contrast to companies participating in the EU ETS for stationary installations, our surveyed aircraft operators expect their future EU ETS reporting obligations to have relatively little overlap with other reporting. Aircraft operators are, however, still quite concerned about excessive bureaucracy. Most aircraft operators favour a sector-based approach to monitoring, reporting and verification.

One possibility may be linking Eurcontrol data with internal systems, which could make it easier for operators to report and for authorities to run checks on reported data. The aircraft operators who responded to our survey consider their IT function as the most important factor influencing the quality of reporting, with internal control systems following as a close second. Much of the information needed for allocation and emissions monitoring is in automated information systems, most likely to a much greater extent than in the other sectors already participating in the emissions trading scheme.

Nevertheless, survey respondents perceive the level of automation to be only moderate or of unknown quality. None of the respondents were confident that their IT department is ready for emissions trading, so there is clearly work to be done in this area. It may also make sense for companies to incorporate emissions trading into their internal control systems.

Respondents consider their IT function to be the most important factor influencing the quality of reporting – but none were already confident that IT is ready for emissions trading

Some Member States are already implementing automated workflow systems for easy and reliable reporting for the other sectors. The aircraft operators may benefit from exploring options to use IT extensively right from the start, and should look to influence the final draft of the regulation in order to prevent rules that may hinder easy reporting. To benefit in full, internal systems need to be made able to deliver on time in the right formats. They also need to be sophisticated enough to recognise and exclude flights which are currently excluded from the scheme (i.e., circular flights, flights under the designated weight limit, etc.)

Talk to a verifier early in the process

The aircraft operators will have to contract a reliable verifier to provide an opinion on the reported emissions and to attest the installation's compliance with the implementation of their monitoring system with EU monitoring guidelines. In the existing scheme, verifiers can rely on a monitoring plan validated by the Competent Authority. The exact parameters necessary to state compliance are less clear for aircraft operators, so verifiers may need to exert additional effort and be subject to greater liability.

Verification is essential to ensure the environmental integrity of the scheme, to instil confidence in the scheme and to ensure the efficient functioning of the market.

The surveyed aircraft operators are modestly optimistic about the verifiability of their data (see Figure 11). Although most companies with stationary installations were also fairly confident about the verifiability of the data prior to the start of the EU ETS, difficulties often arose in practice, so companies would do well to consider verification processes thoroughly.

Figure 11: Levels of confidence in verifiability of emissions data

Source: PricewaterhouseCoopers, Ready for take-off, 2007

Understand the M&A and investment implications

Benchmarking as an allocation method may impact M&A decisions, as aircraft operators with inefficient aircraft will be less attractive due to the higher cost to be in compliance with the EU ETS. Transported goods and passengers in the baseline period 2008 will determine future allowances and are thus a value driver for the company. Carbon assessment therefore needs to be a core component of M&A strategy and processes. Is the full carbon risk or opportunity of the asset understood and factored into the company's deal calculations? Has the market factored carbon into values – of the potential purchaser as well as the target? Are there synergies? Do due diligence processes look at carbon?

Similarly, is carbon assessment an integral part of all capital investment decisions? Because of the lead time on investment decisions and the long term nature of the industry, these issues should already be being addressed. Do the staff working in these areas understand the implications of emissions trading? Is their work integrated into a broader carbon strategy?

Maximise special project allowances (JI/CDM)

According to the proposed directive, aircraft operators will also be able to use project credits – so-called Emission Reduction Units (ERUs) from Joint Implementation (JI) projects and Certified Emission Reductions (CERs) from Clean Development Mechanisms (CDM) projects – up to a harmonised limit equivalent to the average of the limits prescribed by Member States in their national allocation plans for other sectors in the Community scheme. JI and CDM are a part of the Kyoto Protocol arrangements that will allow companies to use the credits arising from emission reduction investments in developing (CDM) or developed (JI) countries to be offset against their emission obligations under the EU Directive.

The lead-in time for JI/CDM projects means that companies face a race against time to make the most of this aspect of climate change policies. Three to seven years is a typical period from identification and licensing of JI/CDM projects to becoming operational and delivering the first certification of emission reductions (ERs). The JI/CDM route requires careful management by companies. The approval process at both the initial stage and for issuing certificates is complex. Companies also need to be confident that they have the risk strategies in place to address both overall geo-political risk and the more specific risks that flow from the requirements on host countries to comply with the Kyoto Protocol obligations in regulating CDM/JI projects. The construction of contracts, in particular framing legal arrangements for buyer versus seller liability, will require careful scrutiny. Finally, of course, there is the fundamental challenge of securing finance. The nature of JI/CDM initiatives requires a special dialogue with banks and other sources of finance.

Get financial reporting right

Operators will also need to be savvy about addressing accounting concerns. Systems must be in place to trigger appropriate events when EU ETS allowances (EUAs) are allocated, tranferred internally, surrendered or purchased – so well in advance of the scheme's start-date. Although our survey respondents report that their accounting/finance functions are somewhat informed about the EU ETS, fewer are already actively preparing, and almost none of the operators responding considered their accounting/finance function to be ready to deal with the implications of the EU ETS.

Operators do not yet consider their accounting/finance function to be ready to deal with the implications of the EU ETS

Since the implementation of the EU ETS, a range of accounting approaches for EU ETS allowances (EUAs) has been emerging. For example, allowances may be recognised at fair value or nil value when received, and may or may not be revalued, while the obligation for emissions may be recognised at market price, or as the carrying value for allowances already granted/purchased, with the balance at the prevailing market price or at contract prices.[1] Individual companies will need to assess carefully which approach is most appropriate.

At present, there is no guidance in place for accounting for ERUs from JI-Projects and CERs from CDM-Projects. Further, additional challenges for the industry may results from EUA/CER-swap, forward, or other transactions involving derivatives. Precise treatment of these transactions will depend upon an individual company's application of IAS 39.

The initial guidance for accounting for emissions, IFRIC 3, was withdrawn in June 2005, opening up opportunities for organisations affected by the EU ETS scheme to re-assess their accounting approaches. However, looking forward, the IASB has stated that work on a project to address the underlying accounting for emissions trading schemes in a more comprehensive way than originally envisaged by the IFRC is due towards the end of 2007. By the time aircraft operators need to integrate emissions trading into their accounting approach, more firm guidance may be available, however companies need to be pro-active about monitoring the state of the debate.

Get on top of the tax issues

Taxation will add another layer of complexity into the planning of emissions allowance trading. If not dealt with correctly, the tax consequences are, potentially, considerable. These are compounded by the degree of uncertainty on the exact tax treatment of different emission allowance trading situations. Even when detailed guidance is forthcoming from governments, this will be subject to a high degree of evolution. Less than 30% of the respondents to our survey report that tax officers are actively involved with emissions planning, and even fewer have prepared a tax strategy.

The main areas of uncertainty include the tax-deductibility of fines, which remains unclear and differs by Member State, the tax treatment of granted certificates, tax accounting and provisions and possible mismatches between the treatment of allowances and provision for statutory reporting purposes and their treatment for tax purposes, and the exact VAT treatment, which will depend on how the transaction is regarded.

[1] PricewaterhouseCoopers recently undertook a survey jointly with the International Emissions Trading Association (IETA) to evaluate how companies are currently accounting for allowances (2007). The survey identified six main approaches. For results of the survey and detailed information around accounting treatments with respect to emission trading schemes, please visit our website: www.pwc.com/energy.

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Jeroen Kruijd
Moritz Nill
Elizabeth Montgomery (editorial)

Acknowledgements

The authors would like to thank very much the respondents to the survey that underpins this report. For confidentiality reasons we are not able to mention their names.

Special thanks to these senior experts for reviewing the draft of the report:

- Niels Ladefoged, European Commission Directorate General, Environment (EC)
- Michele Beltrachi, International Emissions Trading Association (IETA)
- Sara Harrison, UK Department for Transport
- Raphael von Heereman, TUIfly
- Sue Lockey, Association of European Airlines (AEA)
- Jasper Faber, CE Delft

Thanks also to the many members of the PricewaterhouseCoopers network who assisted in the preparation and review of this report. Ian Milborrow and Johnson Imode provided valuable input on content issues. We would also like to thank Raphael Heiner and Charles van den Berg for their contributions to specific sections on financial reporting and tax, and Joris Laseur and Johannes Scholz for the survey analysis and providing some of the graphs used in the report.

Pictures on pages 4-5, 8, 15, 18, 22: ccvision.de

Are you talking to the right people?

With emission trading specialists in 40 countries worldwide, PricewaterhouseCoopers is the biggest and most talked-to climate change practice. We advise on corporate strategy and public policy in relation to climate change, carbon markets and offsets. PwC is a leading independent carbon verifier, with a network of accreditated verifiers in all EU Member States. We act as verifier for more than 300 companies in different sectors across Europe, applying the rigour and approach used in financial audits to deliver a consistent high standard of work to our clients. PwC works with both buyers and sellers of carbon credits in all the main carbon markets, offering a full range of transaction services, including financial advice, tax structuring, auctions and carbon due diligence. PwC also has a global network of specialists in the taxation of emissions trading throughout Europe.

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