

## **Will ICAO States at last deliver a meaningful global agreement on mitigating international aviation emissions?**

*Mon 2 Sept 2013 – Later this month the triennial ICAO Assembly will address mitigation of greenhouse gas (GHG) emissions from international air transport for the sixth time since the Kyoto Protocol was adopted, the fifth time since the publication of the IPCC Special Report on Aviation and the Global Atmosphere, and the third time since the Kyoto Protocol came into force. The not inconsiderable technological and operational improvements over the past 16 years since its adoption have proved nowhere near sufficient to reduce aviation emissions in absolute terms – or even to maintain them at current levels – but ICAO States have been unable to achieve consensus on the additional mitigation measures necessary. Can we finally expect a comprehensive global agreement to realise Kyoto’s “through ICAO” mandate? **Chris Lyle** outlines the context, the key issues, and the prospects for an end game.*

In accordance with Article 2.2 of the Kyoto Protocol, Annex I Parties (developed countries) are required to pursue limitation or reduction of GHGs from international aviation through ICAO. In practice, not just the 38 ratifying UNFCCC Annex I States but all 191 contracting States of ICAO are involved in this process, a primary reason being that aviation’s Chicago Convention includes provisions calling for uniform application by a country to the aircraft of all States.

ICAO continues to do a formidable job for its contracting States with the Kyoto mandate: in technical, operational and infrastructure improvements; in propounding and disseminating the action plans of States; and in promoting the evolution of sustainable alternative fuels. However, because of the growth in traffic, aviation emissions are projected to continue to outpace the resulting emissions reductions by significant margins for the foreseeable future. The gap is envisaged to be filled through market-based measures (MBMs) in order to achieve ICAO’s aspirational goal of “keeping the global net carbon emissions from international civil aviation from 2020 at the same level” (CNG2020).

The 2010 Assembly generated cautious optimism that ICAO would achieve a comprehensive global agreement on the mitigation of aviation’s contribution to climate change ([see GreenAir Commentary Jan 2011](#)). Over the past year the harsh realities of international politics have severely challenged this optimism, particularly as regards use of MBMs. A High-level Group on International Aviation and Climate Change (HGCC) established by the ICAO Council to develop policy recommendations for the coming Assembly was unable to reach agreement on some essential elements: a global MBM scheme; a framework for MBMs; and application of the UNFCCC principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDR).

There is consequently no longer an expectation that the coming Assembly will reach a global agreement on climate change encompassing MBMs. Following intensive negotiations over the past few months, the thrust is now towards the elaboration of a framework for evolution of an agreement to be endorsed by the Assembly in 2016, for implementation from 2020. This means that a comprehensive agreement respecting international aviation will not be available in time to align with planned adoption by the UNFCCC by 2015 of a global legally-binding agreement on climate change, although the proposed implementation date from 2020 would be consistent.

The ICAO Council is to review a draft Assembly Resolution defining the way forward on climate change at a special meeting on September 4. A finalised draft will subsequently be presented to the Assembly as part of a package with other, already agreed, draft Resolutions on environmental protection. This draft Resolution on climate change reportedly has the support of key parties and the essence of it is likely to be approved by the Council for onward submission to the Assembly – at which point it will become a publicly-accessible

document on the [Assembly website](#). While the Council consists of 36 States and the Assembly is likely to be attended by the vast majority of ICAO's 191 contracting States it seems unlikely that delegates will wish to re-open substantive debate on such a hard-won consensus text. The question is how meaningful and committing the resulting formally-adopted Assembly Resolution will be.

### **Broader climate negotiations**

International aviation, along with shipping, was isolated out from other sectors in Kyoto essentially because its operational nature would not readily fit in with national GHG inventories and commitments. Paradoxically, given ICAO's operational focus – primarily on on safety and security standard-setting plus air traffic planning – the Organization has struggled with the evolution of an MBM package, and almost all its discussions on mitigation have been held behind closed doors. This is in striking contrast in transparency with its sister UN agency the International Maritime Organization – where negotiations on the parallel Kyoto task for international shipping emissions have been open – and indeed with the transparency of the UNFCCC itself. While ICAO went beyond the aviation silo with the inclusion of two climate negotiators in the HGCC, the Organization also did not do itself or the process any favours by excluding substantive dialogue with its main drivers – tourism, trade and finance – or with increasingly concerned and active NGOs.

To its credit, the European Commission responded last June to the lack of transparency and broader context in ICAO by opening a public consultation on international aviation MBM policy options ahead of the ICAO Assembly, at the same time putting into the public domain two Working Papers submitted by EU States to ICAO's HGCC last March ([see GreenAir Article June 2013](#)).

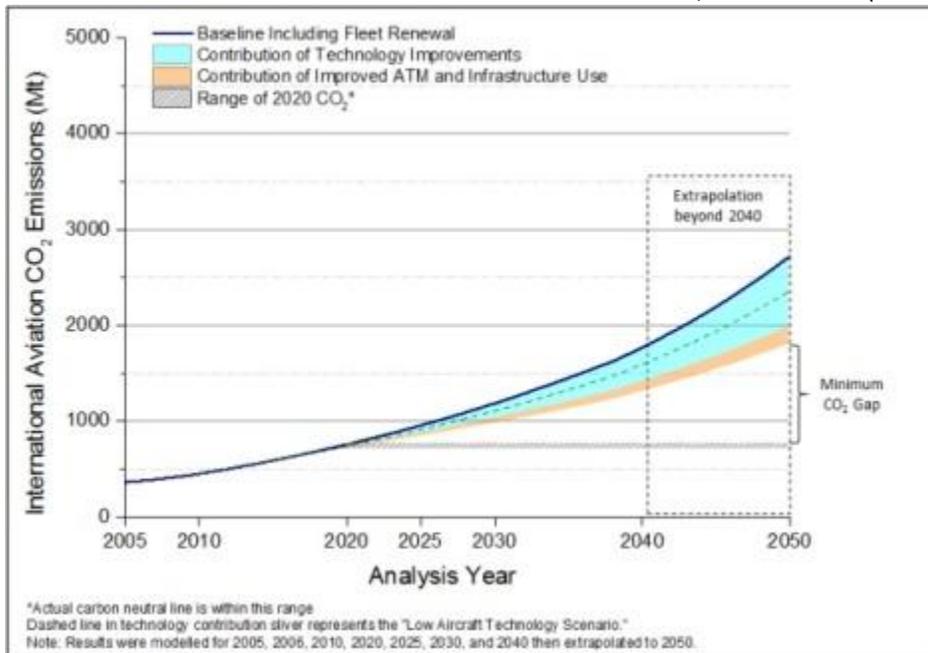
### **Aspirational goals and MBMs**

Operational, technical and infrastructure developments suggest that per unit fuel consumption for air transport will continue to fall over the coming years, in the order of about 1.5% per annum worldwide. However, with air transport forecast to grow at between 4.5 and 5.0 per cent per annum, there would still be a substantial increase in absolute emissions.

As illustrated by the graph overleaf, for international aviation there would be a gradually increasing CO<sub>2</sub> gap between the actual emissions and ICAO's aspirational CNG2020 goal. The CO<sub>2</sub> gap is anticipated to be closed by a combination of using sustainable alternative fuels (essentially biofuels) and MBMs. Biofuels for aviation show promise but there remain major issues of scaling up, of reducing costs and, in particular, of full life cycle impact assessment. The CO<sub>2</sub> gap has been shown in independent studies, in particular research by MMU CATE ([see GreenAir article March 2013](#)), to be more substantial even in the best scenario case for biofuels.

In addition to its CNG2020 goal, ICAO has an aspirational fuel efficiency improvement rate of 2% per annum from 2021 through 2050. This is at odds with the graph since it would mean a reduction in technology, ATM and infrastructure contributions of 45% over the 30 year period – rather than the 33% shown here. ICAO's Committee on Aviation Environmental Protection (CAEP) has recently determined that the goal is not achievable without additional improvements and the Organization has yet to indicate how this might be achieved. Furthermore, ICAO's proposed CO<sub>2</sub> emissions standard for aircraft aimed for adoption in 2013 is now only intended for final analyses by late 2015 and adoption by the Council in 2016. Against this background, ICAO has also deferred exploration of the feasibility of a long-term aspirational goal which might go beyond carbon neutrality to carbon reduction.

Forecasted aircraft CO<sub>2</sub> emissions from international aviation, 2005 to 2050 (source: ICAO):



Even IATA, which is highly optimistic regarding the promise of biofuels, accepts that the arrival in industrial quantities will take time and sees MBMs as an important “stop gap measure” (for 15 years or so) not only to achieve the industry’s own goal of CNG2020 but also the ultimate industry aim of a 50% reduction in emissions in 2050 compared with 2005. In June of this year, IATA’s Annual General Meeting approved a resolution with an overwhelming majority in favour of governments adopting at this month’s ICAO Assembly a commonly agreed, single global MBM mechanism to be applied to offsetting the industry’s growth in emissions post-2020 ([see GreenAir article June 2013](#)). IATA has now joined with the other industry bodies ACI, CANSO, IBAC and ICCAIA to propose to the Assembly a somewhat backtracked position “to establish a clearly defined process for the Council to develop, for adoption at the 39th Assembly in 2016, a single, global MBM”, based on certain principles ([see Working Paper](#)).

During the present triennium, an Ad hoc Working Group of the ICAO Council and MBM Experts assessed options for MBMs, including design features and a quantitative review. The analysis determined that MBMs based on purchase of carbon credits from outside the sector can contribute to achieving the CNG2020 goal at a relatively low cost compared to the cost of in-sector reductions and with marginal differences between regions and groups of States.

The costs of MBM application as assessed would have very limited impact on airline economics. Using a carbon price of \$3 and the most optimistic technology and operational improvements, MBM cost as a proportion of revenue would not represent more than \$0.40 per passenger on a long haul flight and \$0.10 on a short-haul flight. At the other end of the spectrum, a carbon price up to \$45 and low technology and operational improvements would add \$7.60 to a long-haul flight and \$2.30 on a short-haul flight. As IATA has indicated, these figures represent costs of the same order as present environmental levies already in place by some States, which IATA anticipates would be withdrawn when a global MBM agreement is in place.

The analysis also showed that certain preferred MBM options were technically feasible. The results of the ICAO study have just been corroborated by a further MMU CATE study that concludes MBMs are the quickest

and most effective way to reduce aviation CO2 emissions ([see GreenAir article August 2013](#)). There would thus appear to be an overwhelming case for some form of MBM to complement the operational, technical and infrastructure elements in a 'basket' of emissions mitigation measures.

There will of course be some variance in the extent of the MBM requirement from airline to airline and State to State. But some States – notably Brazil, India, Russian Federation and Saudi Arabia – have at a late stage become publicly opposed to any application of MBMs because they believe them to be unnecessary and in any event “uncertain territory”. Some of these States, as well as China, may be prepared to accept application of MBMs on a voluntary basis. The United States believes that it will be able to achieve its own goals of reduction of GHG emissions from aviation without MBMs but may be prepared to consider them if and when required. The EU has of course long recognised the need for MBMs and applied them to international air transport with effect from 1 January 2012.

These widely varying positions by major aviation parties do not bode well for a global agreement on MBMs. But those States and airlines that feel they can achieve emissions reduction goals in their absence would seemingly have little or nothing to lose should they be in place. Indeed, ICAO makes it clear that its aspirational global goals do not attribute specific obligations to individual States and that each State may voluntarily contribute to a global goal according to its circumstances. Given in any event that ICAO has no enforcement authority the global goals may be perceived as somewhat tenuous.

### **MBM design**

While guiding principles for the design of MBMs were adopted by the Assembly in 2010 and considerable follow-up was undertaken, ICAO has postponed work on the modalities until the next triennium. Having summarily excluded *inter alia* a simple carbon or fuel tax, the ICAO Council has however reduced the MBM options to three: global mandatory offsetting; global mandatory offsetting complemented by a revenue generation mechanism; and global emissions trading ([see GreenAir Commentary July 2012](#)).

No preference is set in stone at this stage, although there is leaning towards offsets without revenues, a choice supported by industry. However, selection of this option would leave open the door to the continuing consideration in the UNFCCC of a tax on international air transport as a contribution to the Green Climate Fund, a concept strongly opposed by both ICAO and industry. This option would of course also be inconsistent with both carbon tax regimes and cap-and-trade emissions schemes increasingly under consideration or in place around the world, notably that of the EU Emissions Trading System (EU ETS).

Key MBM issues which have yet to be definitively addressed include: the mechanism(s) for implementation; who would be the participants (for example States and/or air carriers); quality control; and monitoring, reporting and verification (MRV). One critical issue – the perceived conflict in the uniform application provisions of the Chicago Convention and the UNFCCC principle of CBDR – has been widely discussed within and beyond ICAO ([see GreenAir Commentaries of July 2012 and June 2013](#)). But while ICAO now accepts the need for accommodation of CBDR in the design of a global MBM, development of the form has also been deferred.

### **Scope of application**

The ultimate aim of the UNFCCC is to have a GHG emissions mitigation regime in place covering all its 192 Parties and all the emissions of the States concerned. However, at the time of adoption of the Kyoto Protocol, targets were agreed solely for Annex I States. Until very recently, ICAO has also been assuming an

objective of covering 100% of international air transport CO2 emissions, with phase-in or long-term exemptions for certain non-Annex I States, or routes touching on these States. Earlier this year, this universal objective was suddenly destabilised by a US-led proposal to restrict coverage to arriving and departing flights within national airspace, meaning that only a maximum of 22% of international emissions would be covered even if all States implemented similar measures – and of course less if applied only to Annex I States. This has spawned various other airspace-related ideas, with various levels of coverage.

The US-led concept, while meeting sovereignty concerns, on the face of it renders moot the entire tenet of the Kyoto referral to ICAO, certainly in relation to MBMs. Application solely within sovereign airspace could effectively be defined as domestic and therefore included in national inventories of GHG emissions under the Protocol, leaving (the rest of) international aviation untouched.

However, there may be a way to build on the US proposal. ICAO already has the authority for the allocation to certain States of the responsibility for airspace management over the high seas and it is conceivable that ICAO itself – a neutral body – could take on the role of covering the operation of an MBM scheme as it has done since 1946 through the Danish and Icelandic Joint Financing Agreements for the North Atlantic for services comprising air traffic control, communications and meteorology. There would still be the problematic and complicated issue of including territorial overflights. But whether such an approach or any other is ultimately taken, the paramount aim should be 100% coverage of aviation emissions. This should include GHGs in their totality, where aviation has a substantially larger contribution to climate change than its contribution through the CO2 emissions on which the entire focus has been up to now.

### **The EU ‘clock’**

In the light of earlier limited progress by ICAO and recognition by its Assembly in 2004 that one approach to dealing with MBMs would be for States to incorporate emissions from international aviation into their emissions trading systems (ETS) consistent with the UNFCCC process, the European Union decided to include international aviation in its existing ETS with effect from 1 January 2012. Once a decision had been taken to include flights to and from EU territory, which make up the bulk of the emissions concerned, the application to non-EU as well EU carriers was in practice necessary to meet the Chicago Convention provisions on equal application, with their aim of avoiding a competitive disadvantage. However, the issue of extraterritoriality raised considerable concerns outside Europe and the European Union decided to ‘stop the clock’ on the application to routes beyond Europe pending what the EU would deem as acceptable action by ICAO at the forthcoming Assembly.

What will it take for Europe to ‘stop the clock’ indefinitely? The EU has come to accept that a binding agreement on a single global MBM scheme will not be forthcoming this year but is looking for a roadmap to be adopted with clear elements for the design of a scheme and a timetable for its introduction to be completed by the Assembly in 2016. In parallel, the ICAO Council should develop, as a matter of priority, a common set of MRV standards.

The EU may ‘restart’ the clock in a different way; for example it has stated that it is willing to exclude incoming intercontinental flights as part of an ICAO agreement. But will Europe be prepared to make modifications to its ETS without a clear assurance from other countries that they will commit to the global MBM scheme? Under what conditions will other countries be prepared to accept a modified EU ETS? In living with a different system for the sake of international comity, the EU would have to face how to marry the system with coverage of intra-EU operations, including domestic.

## Possible Assembly outcome

ICAO'S HGCC felt the legal instrument best suited to MBMs would be an Assembly Resolution rather than the more complex international agreement or convention. Such Resolutions are legal instruments indicative of policy decisions that the Organization's supreme body, the Assembly, takes and they have no definitive binding nature in international law; they rather take effect as a form of moral suasion or back up to legal process. ICAO currently has no less than 168 Assembly Resolutions in force. They are complied with to a greater or lesser degree according to the subject matter. Resolutions on environmental protection matters have been amongst those taken more seriously in recent years, which is one reason why they generate formal reservations on them – meaning that the States concerned are not committed to abide by particular clauses they specify.

ICAO's [Resolution A37-19](#) in 2010 on climate change proved fragile, reflecting qualifications in the language used in a number of clauses as well as in the form of reservations placed by 44 European States and, for differing reasons, 19 other States on one or more key paragraphs. Thus even a "commitment" through a Resolution at this year's ICAO Assembly to come up with a global MBM through another Resolution at the Assembly in 2016 may be qualified, and if reservations are placed by a significant number of States, or a few major aviation-generating States, its consequence may be seriously questioned.

If ICAO ultimately fails to reach a substantive agreement, there is a prospect of a complex, overlapping and possibly duplicative patchwork of emissions regimes applying to air transport. This should provide an incentive for the Assembly to achieve a substantive outcome. However, such a patchwork, while by no means ideal, is not unworkable, as illustrated by industry's administrative ability to deal with the increasing proliferation of taxes, charges and duties in the archaic bilateral economic regulatory framework – while continuing to avoid paying taxes on fuel for international flights. Various other economic sectors are already and increasingly covered by differing carbon pricing regimes in place around the world and which relate to each other without an overarching global accord.

National and EU regimes, backed as they are by legal force, may ultimately hold more promise of definitive action on aviation emissions, even if limited in geographic scope. And some major emitters may find it easier to take – and if required report on – action at a national level without being constrained by a framework which attempts to reflect the widely varying situations of 191 States.

The G8 Summit in June called for "the agreement at the [ICAO] Assembly in September 2013 on an ambitious package related to both market-based and non-market based measures to address rising aviation emissions." The release of the first part of the IPCC's Fifth Assessment Report concurrent with the ICAO Assembly Session will provide added incentive. The Assembly will surely agree on some skeleton for aviation emissions mitigation but how meaningful will it be? The devil will lie in the nuances of the text and in the reality of the follow-up.

*Chris Lyle, a former employee of British Airways and ICAO, is Chief Executive of Canadian-based Air Transport Economics and can be reached at [clyle@airtransporteconomics.ca](mailto:clyle@airtransporteconomics.ca).*

**This article was first published in [GreenAir Online](#), 2 September 2013**

© Greenair Communications and Chris Lyle 2013