

Briefing**New research highlights the urgency of concerted global action to tackle emissions from international aviation****Context**

New research by the Manchester Metropolitan University (MMU) highlights both the urgent need for concerted global action to address international aviation emissions and underlines the fact that all current and foreseen emissions reductions measures being promoted by industry and the International Civil Aviation Organisation (ICAO) will fall well short of those needed to prevent dangerous global warming. The study concludes that unless a carbon price is applied to the sector via a market-based measure such as emissions trading, then international aviation will fail to achieve even the modest target of carbon neutral growth in 2020 being promoted by industry.

Aviation's increasing impact on the environment

Aviation's impact on the world's climate is some 5% of the global total. In the absence of specific measures, traffic growth will continue at 4 to 5% per annum with growth being particularly strong in regions such as Asia. ICAO, governments and the airline industry have been working on various technical and operational measures to improve operational efficiency and reduce emissions including streamlined ground and takeoff/landing procedures, better air traffic control and in-flight management systems, technology upgrades and expediting delivery of new aircraft. These efforts are vital to the industry's future given the impact that ever increasing fuel costs will have on fares and thus travel demand. The extent of success depends on many variables including overcoming political obstacles to more efficient air traffic systems and the availability and uptake of technology solutions. Extensive industry and governmental research and trials are also underway into developing "drop-in" aviation biofuels but the future uptake and impact on emissions is highly uncertain; the true sustainability and carbon footprint of these fuels is not yet clear as some fuels remain experimental and the impact on land use and agriculture of the widespread production of aviation biofuels has yet to be properly accounted for in forecasting real emissions savings. Moreover, whether such fuels can be produced in meaningful commercial quantities and at a viable price compared to kerosene are questions whose answers are years away.

Global aviation emissions reduction goals

At the 2010 ICAO triennial Assembly, States provisionally agreed an emissions reduction goal of carbon neutral growth from 2020 - ie capping net aviation emissions at 2020 levels and, in parallel, achieving a goal of a 2% per annum improvement in world fleet efficiency out to 2020, and an aspirational goal to extend this out to 2050. Some countries favoured more ambitious goals: the EU called for a cap on aviation emissions at 10% below 2005 levels by 2020. Both ICAO and industry (International Air Transport Association) have produced emissions forecasts based on differing assumptions as to feasible reduction potentials and varying growth scenarios to demonstrate that the Organisation and industry are on track to contain international aviation's climate impact.

The gap between 2050 goals and achievable results

Similar to ICAO and IATA, the MMU research also forecasts international aviation emissions out to 2050 under various growth and technology scenarios. It draws on the latest research to overlay these forecasts with likely forecasts of emissions reductions from the use of aviation biofuels. **Results show that all forecast emissions reductions due to technical and operational measures, as well as those that can be expected under likely scenarios from reducing carbon by using aviation biofuels, show a very significant and widening gap from the goal of capping global emissions at 2020 levels by 2050. The report goes on to forecast the additional emission reductions – substantial – that can be achieved if regional market-based measures like the EU Emissions Trading System (ETS) – were extended out to 2050,** but this calculation also only goes to demonstrate that a continuing large gap remains. The only remaining means to bridge this emissions gap would be to extend market based measures like emissions trading on a global basis. Both the future of the EU ETS, and the question of whether ICAO should agree on a global market based measure are central questions being considered this year in the run up to the September 2013 ICAO triennial Assembly, and the EU's consideration of the future of the EU ETS when the stopped clock expires at the end of this year.

Slow progress in ICAO

Aside from endorsing industry and individual government initiatives on technology and operational measures, ICAO itself has yet to agree on any globally binding measure to fulfil the obligation the world community bestowed on it 15 years ago to limit and reduce Green House Gas emissions from international aviation. In the subsequent years of discussion, neither ICAO nor the United Nations Framework Convention on Climate Change (UNFCCC) have agreed on any binding global emissions cap on the sector. Having reviewed various options, ICAO in fact decided against global action in 2004 but did recommend that states or regions could implement emissions trading schemes as these were seen as a cost effective way to secure the needed emissions reductions in the aviation sector. The EU followed this advice by proceeding to develop its emissions trading scheme but by the time it commenced on 01 January 2012, non EU countries were objecting to their obligatory inclusion and threatening non compliance. The objectors claimed that unilateral EU action was inappropriate and illegal, that inclusion could only be by mutual agreement and that global action agreed through ICAO was the only appropriate solution. Amid all this controversy, ICAO had in fact initiated a process in 2010 to examine after all the feasibility of a global market based measure but that work only commenced in earnest at a technical expert level in early 2012.

What has happened in Europe?

By mid-2012 when the political uproar over the EU ETS was reaching a crescendo, these ICAO experts had narrowed down the global action options to global offsetting, offsetting with revenue generation, or emissions trading. But fundamental questions such as the global cap, whether to regulate countries or airlines, and how to choose between the alternatives identified by the experts and indeed how to implement them legally, remained outstanding. In November 2012 the ICAO Council decided to appoint a High Level Group to resolve these issues and to help the ICAO Council develop a proposal for a global solution to bring to the Organisation's triennial Assembly in September 2013. Reacting to this decision, the European Commission decided to "stop the clock" on enforcing the longhaul provisions in the EU ETS to defuse the political tension and to allow ICAO to agree a global solution.

Progress in the High Level group

The High Level group has met twice. Its remit is to progress the question of the feasibility of a global market-based measure, develop a Framework for MBMs, (the rules that would govern regional or national schemes like the EU ETS) and also review progress on the ICAO "basket

of measures” (the work underway on technical and operational improvements, on developing biofuels and on developing a CO2 fuel efficiency standard for new aircraft types) which commenced in 2010. Indications so far are not at all promising. Major developing states have restated old positions questioning why they need to participate at all in a global scheme even though the experts had identified several ways in which such developing country concerns could be addressed – eg through a de minimis clause or through returning revenues to developing countries via mechanisms such as the UN Green Climate Fund. Other delegations including the United States have raised the question as to whether a market based measure is really necessary given the other work underway on the basket of measures. Airlines 4 America, the US airline trade organization, made this very point again this week by describing a market based measure as merely a possible gap filler if needed in 2021.

The scope of a global emissions scheme

As regards the Framework for local/regional measures, a number of countries again including the United States, have maintained that its geographic scope should be limited to sovereign airspace. This would leave almost 50% of aviation emissions unregulated as those parts of flights in international airspace would not be included (the EU ETS by contrast covers emissions from all departing and arriving flights). Applying an airspace approach to the ETS would reduce its environmental effectiveness substantially.

An aviation carbon price is the only sustainable way forward

The latest research from the MMU goes to the very heart of the debate in ICAO and internationally because it shows clearly that **technology, operations, standards and biofuels fall well short of what is needed under every and all emissions and growth scenarios**. The report also underlines the critical role that the EU ETS – which covers 35% of global emissions – can increasingly play particularly if it is extended out to 2050 but that in fact such a measure needs to be extended globally. The message to be taken from the MMU report is that ICAO and industry can no longer avoid confronting the reality that pricing aviation carbon is unavoidable if the sector is to have a sustainable future. The industry has already been given a generous helping hand: carbon neutral growth from 2020 will already see international aviation emissions increase by 2 to 3 times above those of the 1990 Kyoto baseline. As the biggest aviation emitter by far, the United States has a special responsibility to set its excuses and protectionist arguments aside. **Placing a price on aviation carbon is an urgent necessity.**