



COPENHAGEN CLIMATE SUMMIT

## **The global aviation sector:** united behind common goals and a global solution

*A global approach for a global industry tackling a global problem*

The aviation sector recognises the growing and urgent need for society to address the global challenge of climate change. It also emphasises that aviation plays a vital role in promoting sustainable development and should remain safe, affordable and accessible in order to ensure mobility on an equitable basis to all sectors of society.

The international community thus has a common responsibility to ensure that aviation can continue to deliver vital social and economic benefits, while addressing aircraft Carbon Dioxide (CO<sub>2</sub>) emissions. The Copenhagen process presents a unique opportunity for broader cooperation between governments and the aviation sector to address this challenge.

The United Nations' specialised agency for aviation, the International Civil Aviation Organization (ICAO) must continue to play a leading role in efforts to limit and reduce aviation emissions. ICAO has the expertise and experience to deal with this unique sector of the economy and can build on knowledge developed through previous work that, among other things, has seen aviation become the safest form of travel on earth.

As early as 2007, the global aviation community adopted a four-pillar strategy, subsequently endorsed by the ICAO General Assembly, which promotes and drives efforts in four key areas: improved technology, efficient operations, effective infrastructure and positive economic measures. In 2008, the airlines, manufacturers, air navigation service providers and airports came together in Geneva and signed a commitment to a pathway to carbon-neutral growth.

## Carbon-neutral growth to be achieved from 2020

Carbon-neutral growth means that net CO<sub>2</sub> emissions from aviation would peak between now and 2020 and would stabilise and then decline after that, despite increases in traffic growth. To achieve carbon-neutral growth from 2020, a multi-faceted approach is required with a strong commitment from all aviation stakeholders: airlines, manufacturers, fuel suppliers, airports, and air navigation service providers working together through the four pillars of the aviation industry strategy outlined below.

Of the four pillars, **technology** has by far the best prospects for reducing aviation emissions. The industry is making great advances in technology such as: revolutionary new aircraft designs; new composite lightweight materials; radical new engine advances; and the development of sustainable alternative jet fuels which could reduce CO<sub>2</sub> emissions by 80%, on a full carbon life-cycle basis. The sector is focusing on biofuels from second generation sources such as algae. These fuels can be produced sustainably to minimise impacts on food crops and fresh water usage. Recent test flights have clearly demonstrated that the use of biofuel from these sources as “drop-in” fuels is safe and technically sound. Biofuels can be blended with existing jet fuel in increasing quantities as they become available.

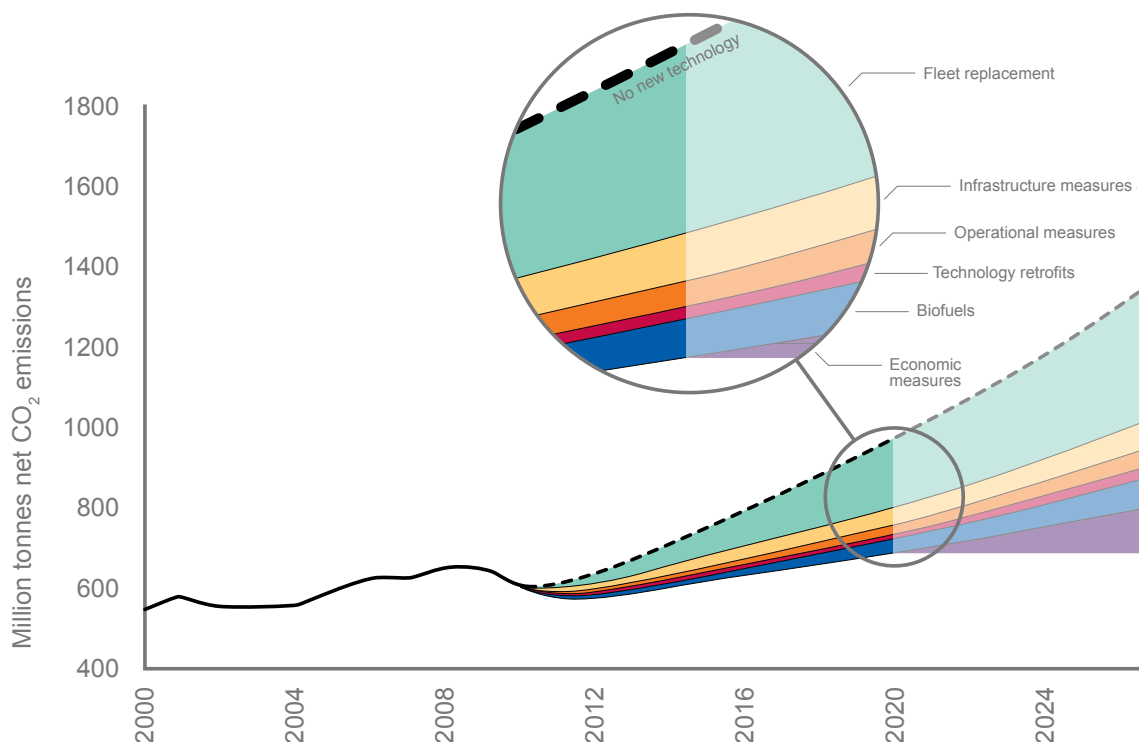
Improved **operational** practices, including reduced auxiliary power unit usage, more efficient flight procedures, and weight reduction measures, could achieve further reductions in CO<sub>2</sub> emissions.

**Infrastructure** improvements present a major opportunity for CO<sub>2</sub> reductions in the near-term. Initial estimates by the Intergovernmental Panel on Climate Change (IPCC) indicated 12% inefficiency in global air transport infrastructure. Since then 4% efficiencies have already been achieved. Full implementation of more efficient air traffic management and airport infrastructure could provide substantial emissions reductions through implementation of measures such as the Single European Sky and the Next Generation Air Traffic Management system (NextGen) in the United States.

While efforts from the first three pillars will go a long way to achieving the goal of carbon-neutral growth from 2020, the aviation sector will need to turn to the fourth pillar – **positive economic measures** – to close the gap.

### Carbon-neutral growth from 2020 - where emissions reductions will be achieved

The top (dashed) line shows where emissions would be if there was no new technology or fleet replacement, based on forecast passenger growth. Each segment adds to emissions reduction potential. Economic measures kick-in in 2020 to make up any shortfall in emissions reductions and provide for a cap in net emissions from 2020 - carbon neutral growth.



## A global sectoral approach for aviation

Aviation is the ultimate global activity: it provides an interconnected network of air services spanning the entire globe, with aircraft – and their emissions – crossing continents and national jurisdictions on a daily basis. Even flights that are purely within a State's boundaries can have implications for international aviation, as domestic flights often serve as critical feeders for the international network. To avoid a patchwork of conflicting and potentially overlapping national and regional policies, a framework for measures addressing CO<sub>2</sub> emissions from aviation must be developed at a global level.

Further, although aviation is a relatively homogenous sector in terms of technology and efficiency levels, it is also a highly competitive, research and development-intensive sector, largely characterised by low entry barriers, thin revenue margins and high risk exposure. Policy measures applied in other sectors may not necessarily translate to aviation. While the aviation sector has many characteristics that make the development of policy mechanisms to further reduce emissions more challenging than for other fossil fuel consuming sectors, it has an unparalleled record of CO<sub>2</sub> efficiency improvements.

Given the nature of the aviation sector, plus the fact that its emissions cannot easily be attributed to any particular State's economy, it is recommended that multilateral collaborative action by all States through a global sectoral approach, encompassing all air transport operators, is the most appropriate mechanism to effectively address CO<sub>2</sub> emissions from aviation in the post-Kyoto framework.

To be effective, however, regulatory efforts to limit or reduce CO<sub>2</sub> emissions from aviation should address all parts of the aviation supply chain. In addition to aircraft operators this includes, for example, aircraft manufacturers, fuel suppliers, air navigation service providers and airports, who directly influence aviation's environmental performance through the design and deployment of the products and services they supply.

Lastly, governments have a responsibility to establish the right legal and fiscal frameworks to facilitate and increase investment in cost-effective CO<sub>2</sub> emissions reduction measures, including new aircraft and engine technologies, more efficient ATM infrastructure and low-carbon sustainable alternative jet fuels, and to enable the full and unrestricted access of the aviation sector to the global carbon market and use of available mitigation measures outside the sector.

## Proposed targets and guiding principles

The aviation sector urges governments to support ICAO as the appropriate United Nations body for setting and administering aviation-specific standards and targets to further address CO<sub>2</sub> emissions from aviation and for advocating these elements as part of a global sectoral approach for aviation in the Copenhagen climate negotiations (COP 15).

It is further proposed that the development by ICAO of the global sectoral agreement for aviation is based on the following targets and guided, inter alia, by the following principles:

**Targets** – In line with ICAO's "Programme of Action", a collective CO<sub>2</sub> efficiency target should be established for the near-term through 2020. The aviation sector recommends that a target to improve CO<sub>2</sub> efficiency by an average of 1.5 percent per annum (on a CO<sub>2</sub> emissions per revenue tonne kilometre (RTK) basis) be established. This target takes into account the effects of the current economic crisis on revenues and load factors, which has a direct impact on the rate at which airlines can replace their fleets. Furthermore, infrastructure and air traffic management efficiency improvements are dependent on direct government investments over which the sector has little visibility and little control.

In line with concepts already under discussion in ICAO, a mid-term target to stabilise net CO<sub>2</sub> emissions from aviation from 2020 onward (carbon-neutral growth), subject to critical aviation infrastructure and technology advances achieved by the industry and government, should also be adopted.

A long-term aspirational goal would be to reduce aviation net carbon emissions by 50% in 2050, compared to 2005 levels.

**Accounting for aviation emissions** – Aviation CO<sub>2</sub> emissions should be addressed through a global sectoral approach and accounted for in the global emissions inventory, not at a regional or national level. It is essential that emissions from aviation are accounted for only once, whether from domestic or international activities and that any market-based measures addressing aviation emissions are not duplicative. The establishment of a global sectoral approach will ensure this by replacing local, national and/or regional measures with a single, global framework for aviation.

**Geographic coverage** – Due to the global, interconnected nature of air transport, the sectoral agreement should apply equally to both domestic and international aviation emissions, without distinction.

**Interdependencies of measures** – The key CO<sub>2</sub> abatement opportunities for the aviation sector are the implementation of new technologies, including low fuel burn aircraft and engine technologies, alternative fuels with reduced life-cycle CO<sub>2</sub> emissions, and ongoing improvements in operational efficiency and air traffic management systems and processes. While the aviation sector continues to explore and exploit the full range of available abatement opportunities, it is important to consider the interrelationships between the various mitigation measures. For example, some actions such as changing preferred runway usage and reducing flightpath lengths near airports can adversely affect noise management procedures.

Therefore regulators, when formulating actions to address CO<sub>2</sub> emissions from aviation, must carefully consider and balance the overall possible impacts of such actions. But whatever the approach, all adopted measures should be technologically feasible, economically reasonable, and environmentally beneficial.

The aviation sector believes that ICAO is uniquely qualified to provide guidance and technical expertise to develop CO<sub>2</sub> mitigation measures and ensure that they do not adversely impact on other sensitive aviation environmental areas such as noise and local air quality.

**Cost-effective economic measures** – Economic measures to address CO<sub>2</sub> emissions from aviation must be cost-effective and non-discriminatory. These measures should be implemented globally and on the basis of consensus. They should also provide full and open access to the global carbon market and must be developed and agreed through ICAO. Further, economic measures must not create 'carbon leakage' where emissions transfer between countries or carriers lead to market distortions and negate environmental benefits. The aviation industry reiterates that taxes, levies and charges targeted at air transport are environmentally ineffective and not cost efficient; they severely undermine the sector's ability to invest in further emissions reduction technology, operations and infrastructure measures.

**Use of revenues** – Any eventual revenues from economic measures under a global scheme to address aviation emissions should be clearly earmarked for aviation and environmental purposes. Such revenues should be prioritised for re-investment in additional measures to further improve the emissions profile of aviation, for instance by supporting the development and deployment of more fuel-efficient aircraft, engines, infrastructure, low carbon sustainable jet fuels and investment in air traffic management technologies.

**Use of carbon market instruments** – For a sectoral approach for aviation to be effective it must have an open architecture, i.e. aviation should have unrestricted access to carbon market instruments to meet its obligations, on a par with other sectors. The full integration of aviation sector CO<sub>2</sub> emissions in the global emissions inventory should make this possible.

**Administration** – Effective administration of the global sectoral agreement requires implementation, management and oversight of the following processes: target setting, CO<sub>2</sub> monitoring and reporting, compliance and enforcement. Administration should be undertaken by the organisation(s) able to do so in the most efficient and cost-effective manner and could involve both government and industry bodies. As the designated United Nations body for international aviation, ICAO should have a central oversight role in this process. As is currently already the case with regard to aviation noise and non-CO<sub>2</sub> emissions, ICAO should create and maintain a robust aviation CO<sub>2</sub> emissions inventory, available on an equal access basis.

**Equal treatment and Common But Differentiated Responsibilities** – The aviation sector believes that, with some political leadership and innovative solutions, the principles of equal treatment between airlines and differentiated responsibilities for States are completely consistent in the context of aviation. ICAO has traditionally recognised and accommodated states with special needs that have difficulty complying with standards or recommended practices, either through technical and financial support or via differentiated timelines for the implementation of measures. A global sectoral approach is the best way of achieving this, bearing in mind the need to minimise competitive distortions.

## Recommendations for including aviation in a global climate change framework

The global aviation sector believes:

1. **Aircraft CO<sub>2</sub> emissions should be addressed in any post-Kyoto global framework, through the International Civil Aviation Organization (ICAO).**
2. **Emissions from aviation should be addressed through ICAO adopting a global sectoral approach that does not distort competition amongst airlines, treats aviation as one indivisible sector rather than by country and takes a global approach to emissions reduction.**
3. **Aviation emissions should only be accounted for (and paid for) once.**
4. **The aviation industry can achieve carbon-neutral growth from 2020 and work towards reducing aviation net carbon emissions by 50% in 2050, compared to 2005 levels. These ambitious targets require assistance from governments through:**
  - **the necessary investments to modernise air traffic management**
  - **investment in aerodynamic and operations technology research and development through academic and industry partners**
  - **investment in the development and commercialisation of sustainable, second-generation biofuels for use in aviation**

## A global sector united

This paper is based on input to ICAO's High-Level Meeting in early October 2009 (ICAO HLM-ENV/09-WP/19). It was submitted by the following organisations, representing the combined global commercial aviation sector:

- **Airports Council International (ACI)**, representing over 1600 airports serving 95% of the world's passengers.
- **Civil Air Navigation Services Organisation (CANSO)**, representing 54 air navigation service providers, serving over 85% of global air traffic.
- **International Air Transport Association (IATA)**, representing 230 airlines, flying 93% of scheduled international air traffic.
- **International Coordinating Council of Aerospace Industries Associations (ICCAIA)**, representing global commercial aircraft and engine manufacturers.