



# Aviation and Climate Change Pathway to carbon-neutral growth in 2020

The Copenhagen process presents a unique opportunity for broader cooperation between industry and government to address aviation's climate change impact. While the negotiations towards climate change negotiations in Copenhagen (COP15) are unfolding, the airline industry is assuming its responsibility by making significant commitments to reduce its emissions based on concrete targets.

In this document we describe our recommended policy approach for adoption by governments in Copenhagen. This will support the sector's efforts to meet the global challenge of climate change in a timely and effective manner.



# A RECORD OF PROACTIVE ENGAGEMENT

Aviation is responsible for 2% of global manmade CO<sub>2</sub> emissions – but it is a small part of a major problem: climate change. Recognizing the growing and urgent need to address the adverse effects of climate change, especially those undermining sustainable economic and social development and efforts to eradicate poverty, the airline industry has in recent years established a comprehensive and ambitious framework to lower its levels of greenhouse gas (GHG) emissions.

As early as 2007, the global airline community adopted a vision for the industry to build a carbon free aircraft within 50 years. To support their vision, airlines, working through IATA (the International Air Transport Association), adopted a four pillar strategy, which promotes and drives efforts in four key areas: improved technology, effective operations, efficient infrastructure and positive economic measures. Since its inception, efforts coordinated under the industry strategy have delivered substantial reductions in emissions.

**In June 2009, the Board of Governors of IATA took a landmark decision to adopt a set of ambitious targets to mitigate GHG emissions from aviation:**

- a cap on aviation CO<sub>2</sub> emissions from 2020 (carbon-neutral growth);
- an average improvement in fuel efficiency of 1.5% per year from 2009 to 2020; and
- a reduction in CO<sub>2</sub> emissions of 50% by 2050, relative to 2005 levels.

## ACHIEVING CARBON-NEUTRAL GROWTH

Carbon-neutral growth (CNG) is a fundamental milestone on the route towards a zero carbon future for aviation. It ensures that aviation's net CO<sub>2</sub> emissions stop growing, even when demand for air transport continues to grow.

The achievement of CNG thus responsibly balances the contribution made by a sustainable, competitive and healthy aviation sector to the global economy with the urgent challenge of combating climate change.

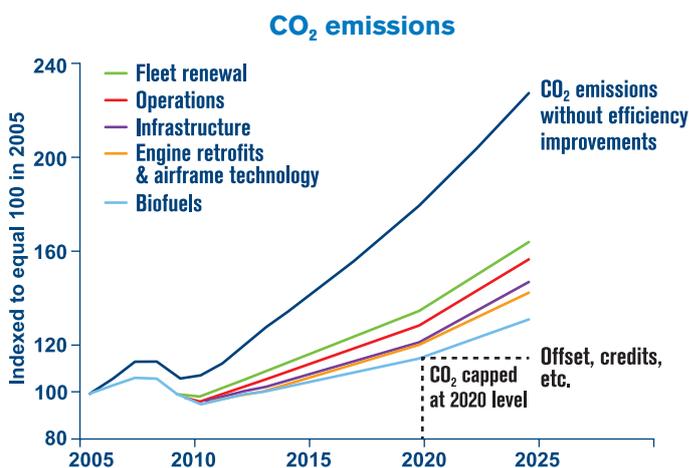
Airlines are the first global industry to make such a bold commitment. To achieve it, a multi-faceted approach is required with a strong commitment from all aviation stakeholders: airlines, manufacturers, fuel suppliers, airports, air navigation service providers and governments. The need for the airline industry to continue to have the capacity to invest in emissions mitigation measures must be central to any approach.

Key drivers towards achieving carbon-neutral growth, as well as the associated CO<sub>2</sub> benefits and required capital

expenditures, are summarized as follows:

- **Fleet renewal** – Airlines will likely need to spend \$1.5 trillion on new aircraft by 2020, which will result in a 21% reduction in CO<sub>2</sub> emissions compared to a scenario without fleet renewal. This means 5,500 aircraft will be replaced by 2020, or 27% of the total fleet.
- **Operations** – Improved operational practices, including reduced APU (auxiliary power unit) usage, more efficient flight procedures, and weight reduction measures, will achieve 3% emissions reductions by 2020. The related costs are estimated at \$1 billion.
- **Infrastructure** – Full implementation of more efficient ATM (air traffic management) and airport infrastructure could provide an additional 4% emissions reduction globally by 2020, while benefits could be as high as 10% in some regions. The Single European Sky (SES/ SESAR; 70% cut in route extension), Next Generation ATM in the USA (57% delay reduction), Pearl River Delta, RVSM (reduced vertical separation minima) over Russia, flex tracks, etc., would require investments of \$58 billion.
- **Engine retrofits & airframe technology** – Modifications to the existing fleet using current technologies (winglets, drag reduction, etc.) could achieve an extra 1% emissions reduction by 2020 for an estimated investment of \$2 billion.
- **Biofuels** – Recent tests on biofuels have demonstrated that a reduction of 80% of CO<sub>2</sub> emissions, on a full carbon life-cycle basis, can be achieved. Assuming availability of a 6% mix of 2nd generation (sustainable) biofuels by 2020, this would reduce aviation CO<sub>2</sub> emissions by a further 5%, requiring industry and government investment of \$100 billion. IATA has set a target to be using 10% alternative fuels by 2017.
- **Offset mechanisms** - In order to “close the gap”, 90 million tonnes of CO<sub>2</sub> will need to be offset by 2025 to mitigate emissions to 2020 levels and achieve carbon-neutral growth. By 2025, this will cost an additional \$7 billion per year to achieve.

Overall, this puts the airline capital expenditure for achieving carbon-neutral growth from 2020 at \$1.6 trillion.



# KEY PRINCIPLES FOR A GLOBAL SECTORAL APPROACH FOR AVIATION

The following key principles should guide the inclusion of aviation CO<sub>2</sub> emissions in the broader Copenhagen framework:

## **Global sectoral approach**

In a post-Kyoto framework, aviation CO<sub>2</sub> emissions should be addressed through a global sectoral approach, accounting for emissions at a global level, not by state. Policy measures must be developed at a global level to avoid the unilateral imposition of targets and measures and to avert creating a patchwork of conflicting and potentially overlapping national and regional policies.

Administration of a global sectoral approach for aviation should be undertaken by the organization that is able to do so in the most efficient and cost-effective manner.

## **Accounting for emissions**

It is essential that emissions be accounted for at a global, not regional or national level. The aviation industry should be held accountable (and pay) for its emissions once, whether from international or domestic activities. Any emissions-related measures should result in credits for their contribution to achieving the sectoral targets for reducing the industry's global CO<sub>2</sub> emissions.

## **Full integration of aviation emissions in UNFCCC framework**

For a sectoral approach for aviation to be effective it must have an open architecture. This means that aviation should have unrestricted access to carbon market instruments to meet its obligations, on a par with other sectors. The full integration of aviation emissions in the UNFCCC framework, accompanied by specific reduction targets, should make this possible.

## **ICAO leadership in the UNFCCC process**

The airline industry reiterates its support of ICAO and endorses ICAO as the appropriate United Nations body for making aviation-specific recommendations in the Copenhagen climate negotiations to develop a sectoral approach to address aviation emissions.

## **Equal treatment vs. differentiated responsibilities**

The industry 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 international aviation.

ICAO has traditionally recognized 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 minimize competitive distortions.

## **Basket of measures**

In considering various mitigation measures, it is important to consider the interactivity of measures: some mitigation measures are mutually supportive while others are not. For example, unduly stringent economic measures can reduce the sector's ability to invest in further emissions-reducing technology, operational and infrastructure measures. Thus, a balance across the full range of mitigation measures must be achieved.

## **Government action**

The airline industry calls on governments to make the necessary investments to modernize air traffic management and improve airport infrastructure. They must also establish the right legal and fiscal frameworks to facilitate and increase investment in new aircraft fleets, low carbon sustainable alternative jet fuels, as well as the potential use of cost-effective economic measures and full and unrestricted access to all available abatement measures outside the sector (offsets).

## **Cost-effective economic measures**

Economic measures to address GHG emissions from aviation must be cost-effective and non-discriminatory. These measures could include emissions trading, carbon funds, offsets or other similar mechanisms as long as they are implemented globally, on the basis of consensus, provide full and open access to the global carbon market and developed and agreed through ICAO. Economic measures must not create 'carbon leakage' where emissions transfer between countries or carriers leading to market distortions.

## **Use of revenues**

Finally, any revenues from the economic measures under a global scheme to address aviation emissions should be clearly earmarked for environmental purposes. A proportion of such revenues should be re-invested in additional measures to directly improve the emissions profile of aviation, for instance by supporting the development and deployment of more fuel-efficient aircraft and low carbon jet fuels. The balance of such revenues may be used to acquire certificated emission reductions derived from recognized climate mitigation and adaptation projects, provided that airlines are able to gain the benefit of these reductions.

IATA (The International Air Transport Association) represents 230 international member airlines in 125 countries. In an industry that safely flies over 2 billion passengers a year, IATA's members carry 93% of the world's scheduled international air traffic. We represent, lead and serve the airline industry in a wide variety of fields.

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