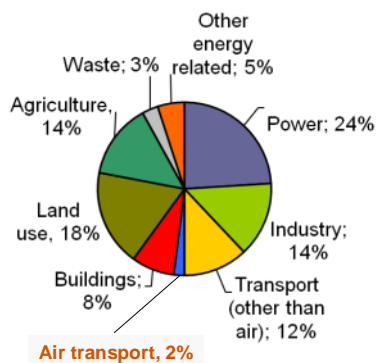


Aviation and the environment: Facts, achievements, goals

Aviation and environment in context

Aviation accounts for 2% of global man-made CO₂ emissions. It is a growth industry, owing to the demand in global trade and tourism. This is essential to Europe's competitiveness and to the EU Strategy for growth and employment; in an enlarged Europe, connectivity is essential, and aviation underpins the growth of new EU Member States. As a result of this traffic growth, aviation emissions might reach 3 to 5% of global man-made CO₂ emissions by 2050 (UN IPCC).



However, airlines have managed to decouple their emissions growth (3% pa) from traffic growth (5% pa). The industry is taking its environmental responsibilities very seriously – and fuel price alone (20 to 25% of European airlines' operational costs) would be incentive enough to reduce fuel consumption and thus CO₂ emissions. In 10 years, the industry has reduced its emissions by 17.5% (pax/km), and is committed to continuously improve on this performance. An extra 50% reduction in fuel burn and CO₂ per pax/km is targeted by 2020.

AEA members have the youngest fleet of all regional groupings in the world, thanks to massive investments into fleet renewal. Modern aircraft achieve fuel efficiencies of 3.5 litres per 100 pax/km.

An aviation emissions containment policy

A sound climate change policy for aviation should be based on four inter-dependent pillars. Many existing instruments are already being used to mitigate the environmental impact of aviation. These include technological advances, operational measures to reduce fuel burn in the air and on the ground, fleet renewal, and urgently needed infrastructure improvements in the air and on the ground. Economic instruments should always be seen in the wider context of these existing measures, and their track record in decoupling emissions growth from traffic growth.

1. **TECHNOLOGICAL PROGRESS**, representing the significant past achievements attained by airframe and engine manufacturers and future potential for further emissions reduction – such as:

- Fuel-efficient engines. The next generation aircraft are targeting an efficiency of less than 3 litres of fuel per 100 pax/km, generating 75 grams of CO₂ per pax/km – to be contrasted to the European car industry's target of 140 grams of CO₂ per km in 2009.
- Lighter materials, such as the composite material used to build the Boeing 787 Dreamliner, which will result in 20% less fuel per passenger.
- More aerodynamic designs, such as winglets, the vertical wingtips attached at abrupt angles to the wings, reducing noise, fuel consumption and CO₂ emissions, and enabling savings of around 350,00 litres of jet fuel (900 tonnes of CO₂) a year per aircraft.

2. INFRASTRUCTURE IMPROVEMENTS IN THE AIR AND ON THE GROUND

At present, European airlines operate in a fragmented airspace, and are forced to fly circuitous routings and altitudes resulting in engines operating outside efficiency. Improvements in Air Traffic Management, and the implementation of the Single European Sky (the urgently needed European single air traffic system, instead of the current multiplicity of systems based on old national boundaries), which heavily depends on political will, could reduce fuel burn by 12%.

In 2025, the top 50 European airports might be saturated for 50% of their daytime operating hours. The capacity crunch needs to be addressed, so as to eliminate holding patterns over congested airports and other infrastructure inefficiencies, which cause 73 million CO₂ to be wasted around the world every year.

3. OPERATIONAL MEASURES

This covers all the actions undertaken by aircraft operators such as those listed in the ICAO “Operational opportunities to minimize fuel use and reduce emissions”, a set of recommendations that have been implemented by aircraft operators, airports, ATC and service providers for decades without any regulatory obligation. Operational measures include, amongst others, flying the most efficient aircraft for the sector, the most efficient route, at the most efficient speed; operating at the most economical altitude; improving landing and take-off procedures – e.g. through the Continuous Descent Approach; maximising load factor and minimising aircraft weight – 1 kg less in weight per seat = 34,000 litres of fuel saved a year!

Technological progress, infrastructure improvements and operational measures require efforts from all the parties involved in the aviation value chain to be sustainably successful. Airlines, airports, ATM authorities, aircraft and engine manufacturers, fuel suppliers, European institutions, national and local governments and other partners in the aviation chain will continue to be key in developing an environmentally-efficient and ultimately sustainable aviation sector.

4. ECONOMIC INSTRUMENTS

Economic instruments should only be used as one component in the large battery of existing, tried, tested and efficient tools described above. They should have a clear environmental rather than fiscal objective: taxes, which have a fiscal objective, are of no benefit to environment – they attack airlines' customer base, and drain them of resources needed for fleet renewal and investments into R&D.

The EU Emissions Trading System, if properly designed, is a market-based incentive which could allow airlines to contribute to an overall emissions reduction target, while encouraging them to invest in new fleet and environmentally-efficient technologies – leading to a limitation in emissions not a reduction in mobility. On principle, AEA endorses the inclusion of aviation in the EU ETS, providing:

- The environmental benefits are real, and carefully assessed compared to their financial impact
- The system does not discriminate against European airlines
- This scheme is a stepping stone to a global system, lest the competitiveness of the European industry is undermined, or even irretrievably damaged.

For more information, visit www.aea.be and www.enviro.aero, or contact Françoise Humbert, AEA, tel. +32 2 639 89 93 – Email francoise.humbert@aea.be.