



Basket of Measures to Reduce Aviation CO₂ Emissions

Progress since the 37th Session of the ICAO Assembly



Green aircraft technologies

Fleet renewal, lighter materials, higher engine performance, aerodynamics improvements, new emissions certification Standards, etc...

ICAO global certification Standards exist for noise and local air quality (CO / NO_x / HC):

- Certification procedures for new aircraft CO₂ Standard agreed by the Council in 2013.
- Aircraft CO₂ Standard to be finalized by ICAO's Committee on Aviation Environmental Protection (CAEP) in 2016.



Operational measures

Flexible use of airspace, air traffic flow management, dynamic and flexible route management, terminal area design and management, aerodrome design and management, performance based navigation, etc...

Operational measures can result in significant enroute savings in fuel consumption, through new procedures and technology:

- ICAO developed new guidance and tools to evaluate the environmental benefits of operational measures across the air transport system.
- ICAO developed a new manual, updating the operational opportunities to reduce aviation fuel burn and CO₂ emissions.
- ICAO is assessing the environmental benefits of the ASBUs Protection (CAEP) in 2016.

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ICAO and its Member States work together to achieve their collective global goals through a multi-faceted approach – a basket of mitigation measures from which States can choose from



Market-based measures (MBMs)

Economic measures are cost-effective and can provide emissions reductions at a lower cost.

ICAO global certification Standards exist for noise and local air quality (CO / NO_x / HC):

- ICAO Member States agreed on the guiding principles for the design and implementation of MBMs
- Progress on the MBMs framework, including the geographical coverage of emissions, and means to accommodate special circumstances and respective capabilities of States.
- Progress on the design features, feasibility and further development of three options for a global scheme for MBMs in international aviation:
 - Global Mandatory Offsetting
 - Global Mandatory Offsetting with Revenue
 - Global Emissions Trading



Alternative fuels for aviation

Sustainable drop-in fuels (jatropha, camelina, algae, etc...)

Sustainable alternative fuels for aviation (SUSTAF) offer one of the most exciting and promising opportunities for reducing aviation's greenhouse gas emissions while improving local air quality. Drop-in alternative fuels are a technically sound solution that does not require changes to aircraft or fuel delivery infrastructure. Commercial- scale deployment is today the major challenge:

- Approval by ASTM of HEFA fuels (made from hydroprocessed vegetable oil and animal fats).
- More than 1,500 commercial flights used sustainable alternative fuels since 2010.
- ICAO Rio+20 initiative consisting of the first-ever series of connecting flights from Montréal to Rio de Janeiro powered by sustainable alternative fuels in 2012.
- ICAO SUSTAF experts group created in 2012



The ICAO Environmental Report

also contains helpful information on the wide range of measures being pursued by ICAO and its Member States toward their shared environmental goals



ICAO

For more information on ICAO's Environment Programme, please visit:

www.icao.int/environmental-protection

Or contact ICAO's Environment Branch via:

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