



Aviation Alternative Fuels towards Sustainable Air Travel

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ICAO

International Civil Aviation Organization

- UN specialized agency
- Established by the "Chicago Convention" in 1944
- Forum for cooperation in all fields of civil aviation
- 190 Contracting States and 86 int. orgs.
- Policies, Standards & regulations for aviation environmental protection since late 60's
- Focus on noise, LAQ and global climate
- Approach: technological, operational and MBM





Global Climate Change Challenges

How to find an appropriate balance between future growth and environmental problems?

How to accommodate States' very different views within a harmonized worldwide approach?





ICAO's Work on Environment

ICAO Assembly Resolution A36-22

... achieve maximum compatibility between the safe and orderly development of civil aviation and the quality of the environment...

- ICAO Environmental goals:
 - limit or reduce the number of people affected by significant aircraft noise;
 - limit or reduce the impact of aviation emissions on local air quality; and
 - limit or reduce the impact of aviation GHG emissions on global climate





Alternative Fuels for Aviation

- *A36-22 (App K) - Encourages* the Council, to promote improved understanding of the potential use of and the related emissions impacts of alternative aviation fuels ;
- CAEP – requested to explore the issue
- GIACC - CAEP to ... consider the development of a new net CO₂ intensity metric, which also takes into account the mitigation achieved from alternative fuels ...
- GIACC – Basket of measures - ... a mix of measures will need to be implemented from the following categories: technology development (aircraft and engine) including alternative fuels, improved air traffic management and infrastructure use, more efficient operations, market-based measures and regulatory/other measures





Alternative Fuels for Aviation

ICAO Workshop on Aviation Alternative Fuels

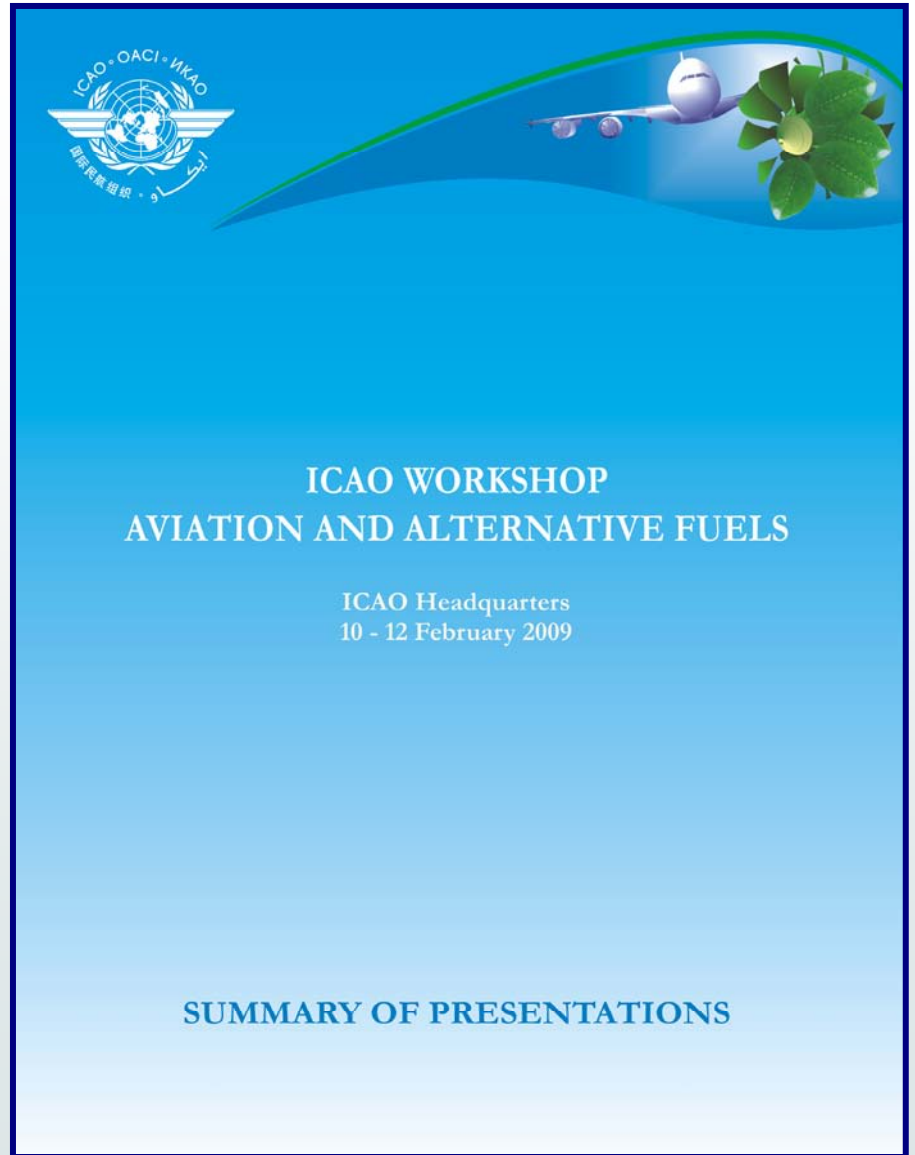
- To respond to the challenge: ICAO assembled experts in main areas involved, *inter alia*: research; production; certification; distribution; airlines; manufacturers; regulators
- A workshop in Feb 2009 paved the way by assembling a knowledge-base for the state-of-the-art in aviation alternative fuels
- Consensus emerged that global harmonization is needed in vision and goals while recognizing multiple, yet acceptable, analysis approaches





ICAO Workshop on Aviation Alternative Fuels

<http://www.icao.int/waaf2009>





Alternative Fuels for Aviation

- Given sufficient demand or incentive, significant supplies of jet fuel that could offer around 50% or more reduction in lifecycle CO₂ emissions could be available in 15 years
- Adoption of alternative fuels by aviation may be simpler than for other sectors due to the relatively small number of *fuelling locations* and *vehicles* and a technological dependence on liquid fuels
- Could be a win-win solution by reducing aviation's dependence on fossil fuels and helping to reduce the impact of aviation on climate change
 - A number of successful in-flight demonstrations of alt. fuels have been conducted
 - ASTM International/DEFSTAN certification for blends of alt. fuels underway





Alternative Fuels for Aviation

ICAO Conference on Aviation Alternative Fuels

- A Conference (the convening to be approved by the ICAO Council this month) is planned for Nov 2009 with the aim of developing a globally harmonized roadmap involving all stakeholders
- ICAO endeavors to gather the best available expertise in order to support data-based decision making for global aviation
- Results of this conference will provide critical input to ICAO and will allow consideration of sound policy options in aviation alternative fuels
- All members of the aviation community involved in energy and environmental policy, including energy producers, airlines, airports and equipment manufacturers, as well as policy-makers at regional, national, and local levels, will be invited





Alternative Fuels for Aviation

ICAO Conference on Aviation Alternative Fuels

- **Topics to be addressed include:**
 - Certification of new alternative fuels
 - Standard methodologies for lifecycle analysis
 - Globally harmonized assessment of technology readiness level
 - Standardized vocabulary
 - Guidance to facilitate cost/benefit analysis
 - Alignment of research roadmaps and programmes
 - Overcoming barriers with incentives for investments





Alternative Fuels for Aviation Side Event – 3 June 2009

Aviation Alternative Fuels offer a very promising option for achieving sustainable aviation operations.

This event will outline the progress, the challenges and upcoming initiatives for a global solution.





Alternative Fuels for Aviation – Side Event

- Michael Farmery, Shell Aviation
 - Possibilities on Future Potential Biofuels, Ongoing Research
- Thomas Roetger, IATA
 - Airlines' Test Programmes and Ongoing Activities on Alternative Fuels
- Philippe Fonta, ICCAIA
 - Manufacturers' Perspective
- Lourdes Maurice, FAA/CAAFI
 - Mitigating Greenhouse Gases Via Alternative Fuels: U.S. Developments within the Commercial Aviation Alternative Fuels Initiative
- Doris Schroeker, EC
 - The SWAFEA Study and 'Greening Aviation' – Ongoing Developments in the Area of Alternative Fuels
- Bill Hemmings, ICSA
 - NGOs' Perspective and the Work with ICAO





More information on ICAO Activities on Environmental Protection

ICAO Web Page

- <http://www.icao.int>

ICAO Workshop on Aviation Alternative Fuels

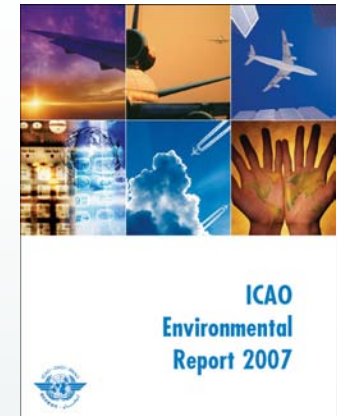
- <http://www.icao.int/waaf2009>

ICAO Environmental Report 2007

- http://www.icao.int/icao/en/env/pubs/Env_Report_07.pdf

ICAO Side Event – 3 June 2009

- http://www.icao.int/icao/en/atb/meetings/2009/ENV_SideEvent_Bonn/



Thank you!

