Alternative aviation fuels – Questions, challenges and policy makers’ perspectives

ICAO Side Event at the UNFCCC talks in Bonn

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Aviation emissions

EU GHG emissions by sector as an index of 1990 levels

- Int aviation
- Energy
- Industrial Processes
- Agriculture
- Waste
- Total (without LUCF)
- Transport

Index 100=1990

Year

Where to place alternative aviation fuels?
EU Energy and Transport policy background

Emissions and climate change
Fuel prices
Reducing dependencies - diversity

European Air Transport Policy
Greening Aviation

20:20:20 targets for 2020
-20% emissions
20% market share for RES
+20% energy efficiency

European Environment & Energy Policy
Energy Security
20:20:20 targets

European Transport Policy:
Sustainable Mobility
Greening Transport

Directorate-General
for Energy and Transport

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European Air Transport Policy

The EU’s “comprehensive approach” to aviation’s environment/climate change impact

1. **Modernisation of air traffic management**
   - Single European Sky
   - SESAR & ATM Master Plan
   - Operational improvements (e.g. AIRE initiative)

2. **Support for Research and Development of New Technology**
   - Clean Sky – next generation aircraft and engines
   - Pilot plants for biorafineries, next generation biofuels

3. **Market-Based Measures**
   - Emission Trading Scheme

4. **New environmental standards**

5. **International co-operation**
Objective and industry commitment: minus 50% energy consumption and emissions (ACARE)

- Emissions reduction expected from existing technology programmes (FP-only option) (assuming an expected traffic growth of 4.25%)
- CO2 reduction attributable to “Clean Sky”
- Alternative fuels? Biofuels?

No action
Questions and requirements for alternative fuels 1

- In addition to safety and operational requirements…

- They must contribute to sustainable aviation and environmental – emission reduction objectives
  - Reduce environmental footprint of aviation
  - Lifecycle – sustainability criteria
  - Emissions in high altitudes
  - Verification and monitoring of emissions

- What is the state of the art? What is the time horizon?
- Is sufficient supply available?: sources/feedstock, production, logistics, local supply…
Questions and requirements 2

- **What is the market & business environment?**
  - Is there a positive business case along the supply chain?
  - What are incentives for industry to invest
  - Energy supply - distribution

- **Links – interaction with other measures**
  - ETS: how can use of biofuels be traced?
  - Is sufficient targeted R&D on the way and how to achieve market take-up of R&D results?
  - How is the link between the fuel question and energy efficiency? – ATM, airport & flight operations

- **What role for policy makers?**
  - Policy framework – as described
  - Standardisation, certification – a new issue
  - Incentives – avoid undesirable knock-on effects

- **Global dimension**
SWAFEA Sustainable Ways for Alternative Fuels and Energy in Aviation

- European Commission DG Energy & Transport Call for Tender:
  - "Feasibility Study and Impact Assessment on the Use of Alternative Fuels, including Biofuels, for Aviation" (June 2008)
  - 26 months study, Service Contract

- Context: availability, cost and environment threats on petroleum use and their consequences for aviation development

- Objective:
  - Information for policy makers as input for decision making
    - Which fuels can be introduced in aviation and how?
  - Propose a vision and a roadmap for their deployment, taking into account comparative technological, environmental, business case assessment

- Final results: spring 2011
Scope of the study

- Perimeter:
  - biofuel based and non biofuel based alternative fuels
  - alternative renewable energy sources for onboard equipment

Scope of the study:

- Aircrafts / engines technical aspects: requirements, fuel properties, safety, …
- Aviation transportation aspects: operations, infrastructure, …
- Regulation: certification process
- Environmental impact: aircrafts emissions, life cycle, sustainability aspects
- Business case: economic feasibility, overall market situation, …

⇒ Multidisciplinary approach

+ Set up of a European platform for stakeholders exchanges and cooperation with international initiatives
+ Dissemination: International Conference
Study partnership and organisation

- 20 organisations involved (17 Europeans + 1 Brazilian + 2 international bodies)
  - Aviation industry: Airbus, Bauhaus Luftfahrt, Embraer, EADS-IW, Rolls-Royce, Snecma
  - Airlines: Air France, IATA
  - Fuel industry: Shell, Concawe
  - Consulting: Altran, Erdyn (study management)
  - Research: DLR, CERFACS, IFP, INERIS, INRA, ONERA, University of Sheffield

- Structure: 2 levels team
  - A "Core Team" (Altran, Bauhaus Luftfahrt, DLR, IFP, ONERA, Sheffield)
    - "Independent organisations"
    - Operational management of the study
  - The study's partners gathering the competencies in all relevant fields
  + A Steering Committee that approves strategic roadmap and conclusions
Alternative and biofuels alone will not be sufficient to reach environmental objectives but are expected to provide a contribution within packages of measures at network – system – operational level.

Policy background to be respected.

SWAFEA is the European platform to provide answers to the open questions and to inform EU policy makers.

Global connections necessary, e.g. ICAO framework.
THANK YOU!

For more information:

http://ec.europa.eu/environment/climat/aviation_en.htm
http://ec.europa.eu/transport/air_portal/environment/index_en.htm