



## Alternative aviation fuels – ● Questions, challenges and policy makers' perspectives

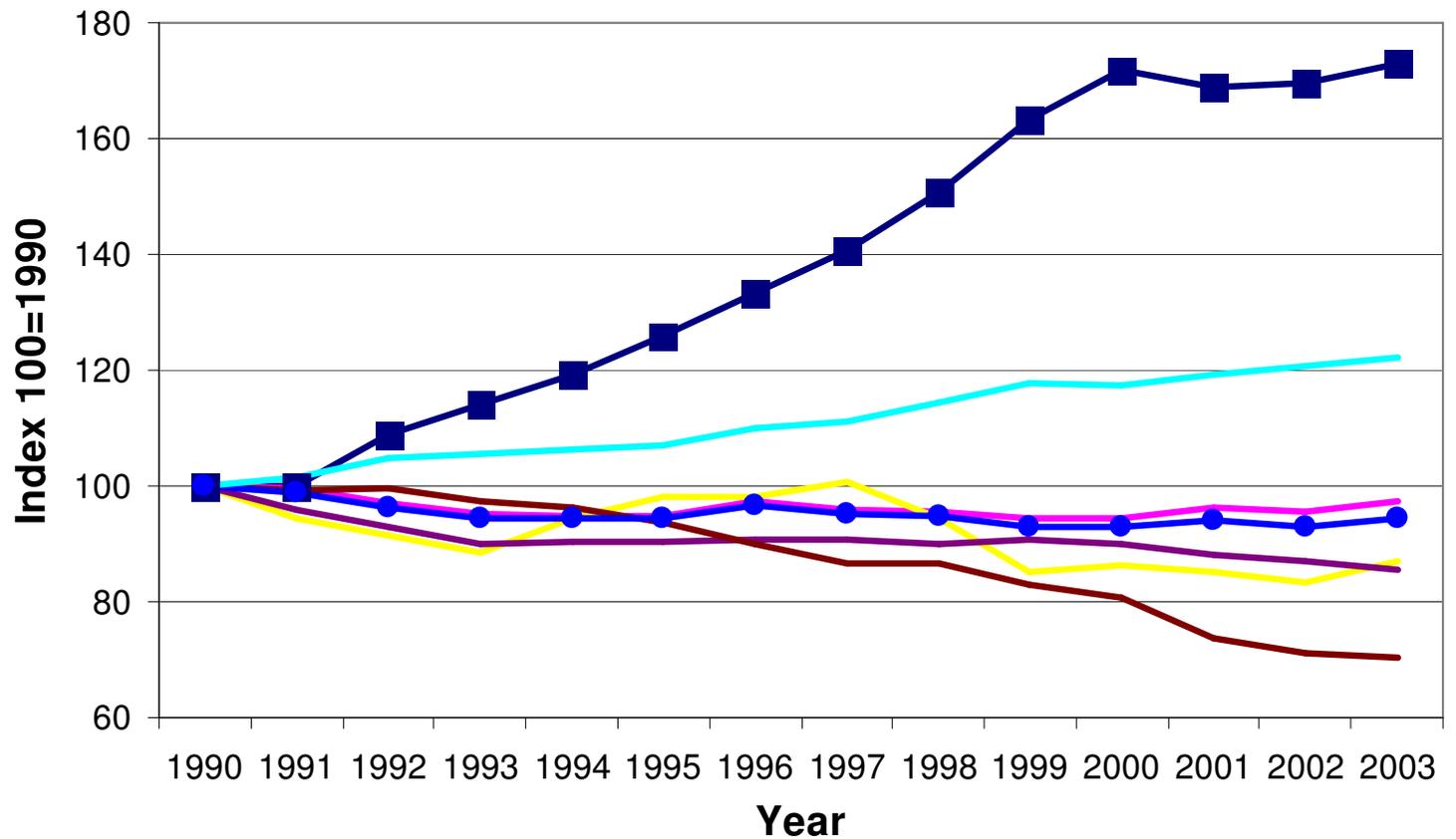
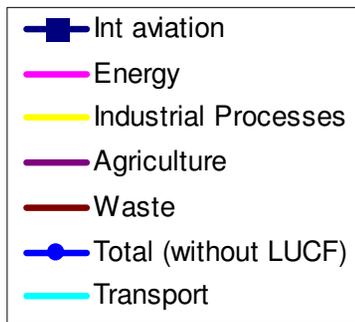
ICAO Side Event at the UNFCCC talks in Bonn

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# Aviation emissions

## EU GHG emissions by sector as an index of 1990 levels



Directorate-General  
for Energy  
and Transport



● 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**

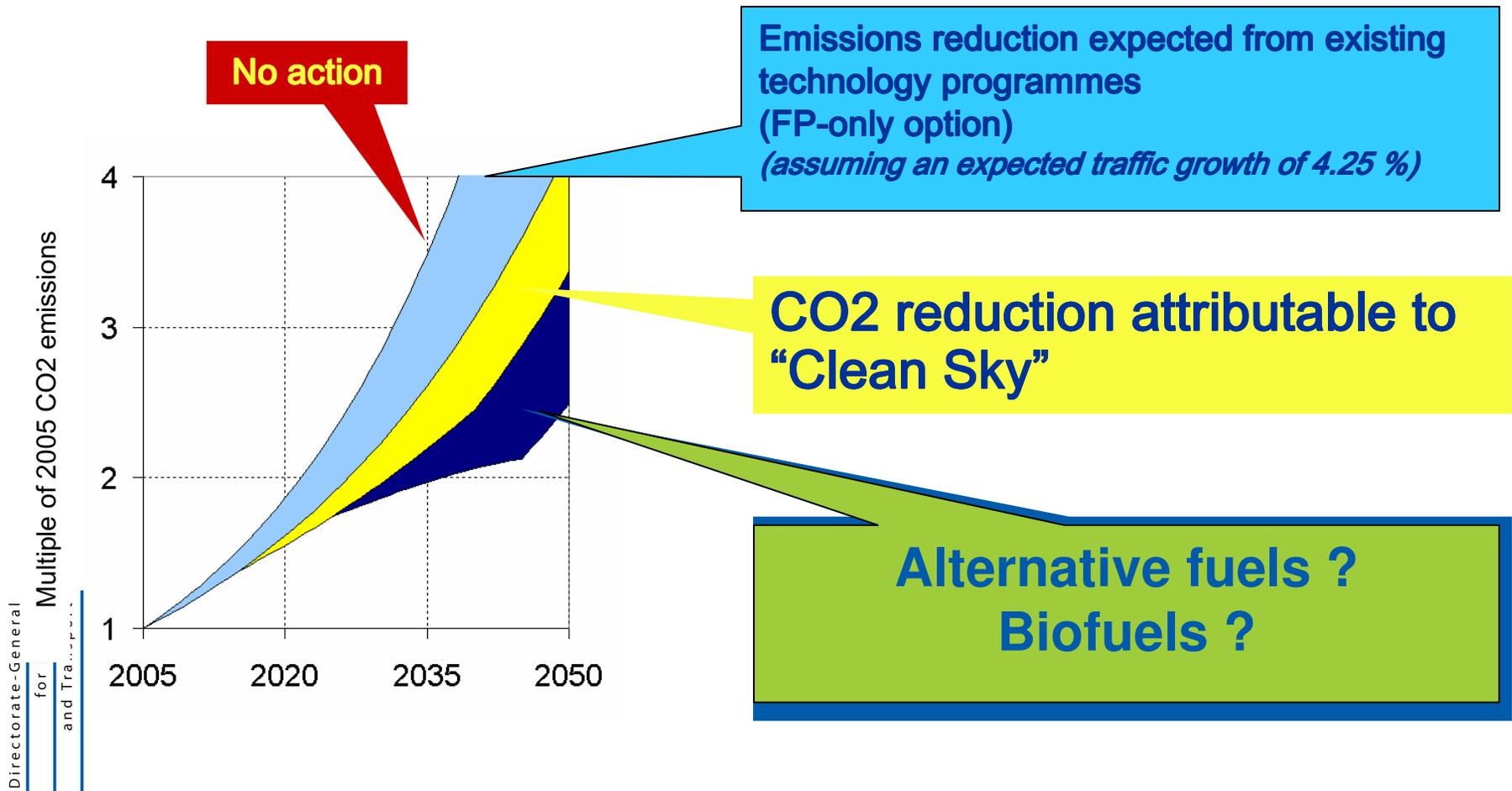


# ● European Air Transport Policy

- 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)



# ● 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

**Coordination**  
**ONERA**

- 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

## ● 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/environment/climat/aviation_en.htm)  
[http://ec.europa.eu/transport/air\\_portal/environment/index\\_en.htm](http://ec.europa.eu/transport/air_portal/environment/index_en.htm)