Aviation & Climate Change

Presentation to GIACC
ICAO, Montreal
February 26, 2008
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- Why are we here today?
- What are the challenges?
- What is the industry doing?
- The way forward
- Expectations of ICAO & GIACC
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Expectations of ICAO & GIACC
Strong Industry track record

- Over the last 40 years
  - Soot has been eliminated
  - Noise reduced 75%
  - Fuel efficiency improved 70%

- Further 25% by 2020
  - ATA 30% by 2025
Aviation’s Contribution to CO₂ Emissions

Our carbon footprint is small but growing

From 2% today to 3% in 2050 (IPCC)

Source: IPPC/WRI
GIACC’s Mandate: Vital & Urgent

ICAO Assembly in September:

- Unanimous support (179 States) for a comprehensive approach
  - IATA 4-pillar strategy

- 179 States mandated ICAO to:
  - Take strong leadership
  - Develop an aggressive plan of action

- Policy issues need resolution
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Growing carbon footprint

- Future traffic growth: 5.2% per annum
- Emissions growth: ~3% per annum
- Imperative to decouple

Constraints:
- Safety first
- Long implementation timelines
- Single fuel technology
- Dependence on governments
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Our Vision

- Is for carbon neutral growth

- Leading to a zero carbon emissions future

- Requires a comprehensive Industry approach
  - Airlines, manufacturers, airports, ATM

- Requires government support
  - Infrastructure
  - Economic Incentives
IATA Four Pillar Strategy

- **Technology**
  - Airframe, engine
  - Cleaner bio-fuels, new energy sources

- **Infrastructure**
  - Improve air routes, ATM & airport procedures

- **Aircraft operations**
  - Drive for maximum efficiency & minimum weight

- **Economic instruments**
  - Incentives to finance technology R & D
  - Carbon offsets & trading
Inspiring Innovation
Solar Impulse
Carbon Neutral Growth

- Traffic growth (5% pa)
- Emissions growth (2-3% pa)
- Technology
- Operations
- Infrastructure
- Economic instruments

Time

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Pillar 1: Technology - Aircraft

- **Short term:**
  - Aerodynamics
  - Weight reductions
  - Engine upgrades

- **Medium term - 2020:**
  - New wing & fuselage profiles
  - Next generation engines

- **Long term:**
  - Entire new aircraft design

- **IATA actions:**
  - Industry united and mobilized
  - Technology roadmap
  - Regulatory environment
Pillar 1: Technology - Alternative Fuels

Several Industry initiatives
- Airbus Gas-to Liquids Test 0208
- Virgin Biofuels Test 0208
- Air New Zealand Biofuels Test Q408

IATA actions
- Provide information and knowledge
- Development of fuel specification
- Support Drop-In fuels
- 100% sustainable fuels in long term
Pillar 2: Operations

- **“Green Team” programme**
  - 30 Gap Analyses in 2007— Saving US$ 1.3bn and 7m tonnes of CO₂
  - Target of further 6 m tonnes in 2008

- **Flight Operations:**
  - APU vs. Ground Power
  - Flight Management
  - Continuous Descent Approach

- **Engineering & Maintenance:**
  - Weight reduction
  - Maintenance actions (e.g. SQ)

- **Dispatch:**
  - Flight Planning accuracy (LH, LIDO)
  - Fuel planning
Pillar 3: Infrastructure

Optimisation of routes & terminal areas

Fuel savings 2007:

- US$ 817 million
- 377 routes
- 80 airports
- 3.73 million tonnes CO$_2$
Pillar 3: Infrastructure: Government Action Needed

- Implement the global plan
- Performance-based navigation
  - Single European Sky
  - U.S. NextGen
  - Continued expansion of RVSM
    - Russia, Central Asia and Africa
- Airports
  - Arrival / departures procedures
  - Continuous Descent Approaches (CDA)
  - Focus on problem areas, e.g. JFK, LHR, Pearl River Delta
- Reduced separation in oceanic airspace
Bay of Bengal Cooperative Air Traffic Flow Management Advisory System (BOBCAT)
China: implemented 21 Nov
1.1 M tonnes CO₂
Panama approach procedures

Fuel savings 2007:

† US$ 7 million
† 31,000 tonnes CO₂
Economic Measures

- **Taxes and charges do nothing for environment**

- **Emissions trading**
  - Could play a role, if properly designed
  - Must be fair, global and voluntary

- **Carbon offsetting programmes**
  - Influence consumers’ behaviour
  - Numerous airline offset programmes
  - Need harmonisation, certification & recognition
Carbon Offsetting

- 26+ airlines offer carbon offset programmes
- IATA developing industry level programme
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Holistic approach imperative
- Encompassing all 4 pillars

Clear role for governments
- Infrastructure upgrades essential
- Incentives for R&D
- Incentives for all industry players

Penalties do nothing for innovation & growth
- Taxation / charges take money away from solutions
- Landing / take-off slot limits ineffective
Positive economic incentives rather than penalties

- Emissions Trading could be a useful tool ..... BUT!
  - Domestic or regional solutions are sub-optimal
  - Auctioning is a concealed tax that robs airlines ability to invest
  - All funds collected must be re-invested in the aviation industry

- Carbon Offsets as a transition tool
  - Bridge the time gap before new technologies kick in
  - No double counting
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Expectations of ICAO & GIACC
An aggressive and comprehensive plan of action

Build on the work of CAEP and other bodies
- No need to re-invent the wheel

Clear metrics and timelines

Streamlined & focussed process

Secure States’ commitments to R&D and infrastructure

Positive economic incentives over penalties

Need for impetus to change the policy framework
URGENCY! - We have 2 to 3 years!

- Post Kyoto Framework will be set
- ICAO’s last opportunity to:
  - Demonstrate leadership
  - Propose a concrete action plan to the Kyoto II / Copenhagen process
Anything is possible
Air transport was built by turning dreams into reality