Aviation and Emissions - Managing the Challenge of Growth

Overview

• Aviation Emissions in Context
• International Regulatory Setting
• ICAO Work on Emissions Trading
• Observations on the EU Proposal on Emissions Trading
• The Better Way Forward

Aviation and the Economy

• Aviation plays a key role in the world economy
• Aviation supports 8% of global economic activity and carries 40% of the value of freight
• Flights over 1500 km - with few alternative transport modes - generate 80% of aviation emissions.
• 2002 U.N. World Summit on Sustainable Development affirmed that economic growth is a prerequisite for improving earth’s environment
• The number of air travelers is expected to double by 2025 to more than 9 billion a year.

Present Aviation Greenhouse Gas Emissions

• Aviation 2-3% of global GHG emissions
• Aviation forecast to growth to 5% of GHG emissions by 2050.
• Aviation is a key category for UNFCCC
• Some multiplier for aviation emissions.
• Given alternative fuel technology diffusion - aviation may grow as a contributor in context with other sources

With projected increase in aviation demand, aviation emissions are expected to increase both absolutely and relative to other sources

Level of Understanding and Uncertainties of Aviation’s Climate Impact

Significant Fuel Efficiency Gains Historically

Source: NTSB, National Transportation Statistics 2002
International Regulatory Setting - Civil Aviation

- ICAO and the Chicago Convention
  - The Convention does not directly address environmental issues
  - General provisions on advancing international aviation and providing for efficient and orderly aviation system (e.g., Article 37) interpreted to give ICAO authority
  - ICAO Standards and Recommended Practices on Noise and Emissions (Annex 16)
  - ICAO Assembly and Council Resolutions on Environment
  - ICAO Committee on Aviation Environmental Protection (CAEP)
- Bilateral Air Service Agreements

ICAO Work on Emissions Trading

- CAEP formed an Emissions Trading Task Force
- Wide Participation – Experts from EU, US, South America, and Asia
- Agreed Guidance Except for One Issue- Geographic Scope
  - EU: Unilateral Implementation on Other States Airlines
  - ROW: Mutual Consent for Inclusion of Other States Airlines
- Guidance Approved by CAEP 7 and ICAO Council- Continuing Disagreement on Geographic Scope
- Key Issue at Assembly

International Regulatory Background – Climate Change

- United Nation Framework Convention on Climate Change (UNFCCC)
  - General commitment to reduce certain greenhouse gas emissions
- Kyoto Protocol
  - Specific targets for reductions
  - Developing countries exempt
  - Coverage of domestic aviation up to each country
  - International aviation subject to ICAO plan (per Article 2.2)

EU Draft Legislation on Emissions Trading

- Council of Ministers 2005 Decision to include Aviation in EU Emissions Trading System
- EU Proposed Draft Legislation in December 2006
  - Key Elements
    - Incorporate into existing EU ETS
    - Aircraft operators responsible for emissions
    - All flights to and from the European Union
    - Baseline set on 2004-06 emission levels
    - Only CO2 emissions to start
    - Country which receives the most flights from a foreign airline administers the program for that carrier.
    - Foreign airline participation mandatory- no consent of governments required.
    - EC can exclude selected foreign operators from participation based on its judgement of third country measures.

Why This European Approach is Unworkable

- Rest of World Rejects Mandatory Inclusion
- Subject to Legal Challenge Under Chicago Convention and Air Services Agreement
- Impinges on National Sovereignty
- Potential for Significant Market Distortions
- Penalizes the Developing World
- Offers No Protection from Multiple Taxation
### A Better Way Forward – The Five Pillars

- Promote Better Scientific Understanding
- Accelerate Air Traffic Efficiency Improvements
- Foster Energy Efficiency in Aircraft and Engines
- Explore Development of Alternative Fuel
- Institutionalize Mutual Consent on Emissions Trading

### A Better Way Forward: Understand the Problem

- Better science-based understanding of the impacts of aviation emissions on climate change
- Improved metrics, measurement techniques, and modeling capability to quantify and predict impacts and to understand inter-relationships of aviation environmental factors
- FAA initiated review of key issues through PARTNER Center of Excellence in 2006

### A Better Way Forward: Improved ATM Procedures

**Opportunities**
- New technologies to improve air traffic management will help reduce emissions.
- An example is RVSM – Reduced Vertical Separation Minimums – which reduces fuel use by hundreds of million gallons each year.
- Other operational approaches, such as continuous descent arrivals, can reduce fuel burn as well as noise
- Reducing congestion, and optimizing airport ground and terminal air space operations offer great promise for future reductions of noise and emissions

### A Better Way Forward: New Aircraft Technology

**Opportunities**
- Historically new technology accounts for 90% of environmental footprint reduction
- Collaborative demonstrations with industry can stimulate technology transition
- Focus on maturing environmentally friendly technologies

### A Better Way Forward: Pursuit of New Fuels

**Opportunities**
- Synthetic Fuels may help both Energy Security and the Environment
- Helps Manage Interdependencies
- Sustained High Costs Keep Synthetics Viable
- FAA initiated Commercial Aviation Alternative Fuel Initiative (CAAFI) in 2006

### Summary

- Environmental issues pose real constraints to aviation growth
- EU approach on emissions trading is misguided and unworkable
- “Five Pillars” approach offers a better way forward to manage emissions growth
- Endorsement of mutual consent- not forcible inclusion- is the right decision for the ICAO Assembly on emissions trading.