



South Coast Air Quality Management District Aircraft Emission Control Technology Forum

Airline Industry Perspectives

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About ATA

- Oldest and largest U.S. airline association, representing leading U.S. carriers
- ATA airlines and their affiliates transport 90% of the passengers and cargo in the U.S.
- Environmental Leadership
 - Environmental Department
 - Environment Council
 - International Noise & Emissions Committee



Overview

– Aircraft Emission Issues

- Climate change
- Local air quality
- ...but must continue to address noise

– International and U.S. framework

– What ATA and its airline members are doing

- Driven to fuel efficiency, which reduces both greenhouse gas and local emissions
- Comprehensive approach to emissions



Aircraft Emissions -- The International Framework

U.N. International Civil Aviation Organization (ICAO) Committee on Aviation Environmental Protection (CAEP)

- Collaboration of national aviation and environmental authorities, with expert Observer organizations including airlines, manufacturers, NGOs, other stakeholders for uniform global standards for aviation
- Emission standards for aircraft engines (NO_x, HC, CO and smoke), which are adopted into national regulations (EPA/FAA under Clean Air Act)
- Technology goals – medium and long term
- Guidance and recommended practices for minimizing environmental impacts



Airlines and Emissions

- Relatively Small Contributor
 - Contribute about 2% Man-made CO₂; estimated 3% climate change impact
 - Local emissions generally <6% around most airports (FAA Primer)
- Challenges/Concerns
 - Aviation and its Greenhouse Gas Emissions Are Growing
 - “Most likely” IPCC scenario estimates 3% CO₂ and 6% climate change impact in 2050
 - Note – different growth rates in different world regions
 - Structural Issues Constrain Options
 - Equipage is expensive and has a long useful life
 - Safety and operational imperatives
 - Technology lead times
 - Airlines have limited ability to pass on costs
 - Local Emissions Often a Constraint on Facility Expansion
- Address Climate Change and Local Air Quality, but Remember Other Environmental Parameters and Interrelationships
 - Noise
 - Environmental management (fuel, stormwater, etc.)



The Fuel Efficiency Mandate

- Airlines Are Driven to Be Extremely Fuel Efficient
 - Fuel has become the #1 cost for most airlines (for years it was the #2 cost) – market pressures are driving airlines to be more fuel efficient (win/win)
- Airlines Have an Excellent Fuel Efficiency Record
 - US airlines improved fuel efficiency 103 percent since 1978
 - Absolute fuel consumption and emissions reduction between 2000 and 2006, with increased passengers and cargo
- The ATA Airlines Have Committed to an Additional 30% Fuel Efficiency Improvement between 2005 and 2025



Airline Measures to Reduce Fuel Burn/Emissions

- ATA Takes a Comprehensive Approach to Emissions, Which Includes The Following Elements:
 - Technology
 - Operations
 - Infrastructure
 - Economic Incentives





Technology

- Airlines Seek to Enhance Existing Technology
 - Engine/airframe modifications (e.g., winglets)
 - Advanced navigation aids
- Continue to Invest in Newer Aircraft
- Airlines Work to Develop New Technologies
 - Environmentally friendly alternative fuels
 - “Commercial Aviation Alternative Fuels Initiative”
 - ATA advocacy to restore federal R&D funds to seek breakthroughs in engines & airframes
 - Significant benefits from current work of FAA’s PARTNER Center of Excellence





Operations

- Airlines Enhance Aircraft Maintenance and Operation to Improve Fuel Efficiency
 - Reduced weight (and shifting weight)
 - Reduced thrust takeoffs
 - Engine maintenance (such as engine wash)
- Airlines Seek Every Efficiency Within Existing Air Traffic Control System (ATC)
 - ▶▶ Continuous Descent Arrivals (CDA)
 - Lower fuel burn/CO₂, NO_x, noise – win/win/win
 - ▶▶ Required Navigation Performance (RNP)
 - ▶▶ Area Navigation (RNAV)
 - ▶▶ Transition to Automatic Dependant Surveillance-Broadcast (ADS-B)



Infrastructure

- Modernizing ATC Systems Will Reduce Emissions
 - US Next Generation Air Transportation System (NextGen) will produce a 10-15% reduction
 - Eliminating delays and circuitous routings avoids wasteful fuel burn
 - NextGen environmental goals – absolute reduction of significant noise and local air impacts despite growth



Non-Aircraft Measures

South Coast Memorandum of Understanding

- Early emission reductions from ground service equipment (GSE) at 5 South Coast airports – 2002 - 2005
 - ▶▶ NO_x/HC reductions – 4+ tons/day compared to 1997
 - ▶▶ Accelerated electrification – zero local and CO₂ emissions
 - ▶▶ Early conversion to low sulfur diesel (1/1/2004 vs. 2006)
- 2008 electrification status -- examples
 - ▶▶ United and American: > 50% of their South Coast GSE
 - ▶▶ Southwest: >75% at Burbank and Ontario, >50% at John Wayne



Questions?

Thank you

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