The NextGen Business Case: Addressing Environmental & Energy Issues

Meeting: RTCA Symposium

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Date: June 10, 2009

The Challenge: Multiple Environmental Drivers

- **Aviation impacts community noise footprints, air quality, water quality, energy usage and availability, and the global climate.**

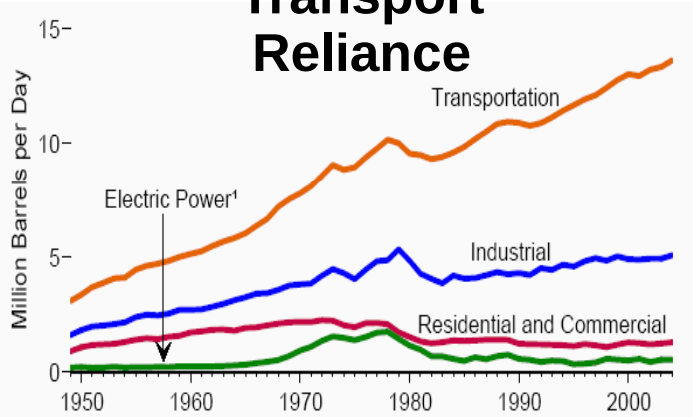
- **Difficult trade-offs and no "silver bullet" solution sets on the horizon.**

- **Trends show environmental impacts from aircraft noise and aviation emissions will be a critical constraint on capacity growth.**

➢ ***The <u>challenge</u> is to ensure energy availability and affordability and reducing aviation's environmental footprint, even with projected aviation growth***

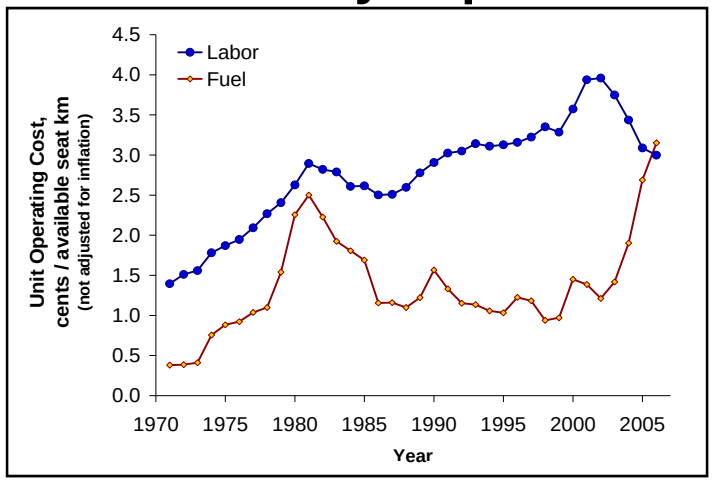
The Challenge: Changing Oil & Energy Dynamics

Transport Reliance



Price Volatility

Commercial Aviation Industry Impact



The Challenge: Climate Change Debate Reshaping Aviation

December 2009 Copenhagen meeting could shape future decisions on international bunker fuels.

ICAO's Group on International Aviation and Climate Change. Recommendations going to ICAO Council in late June. High Level Meeting in October 2009.

EU is still on course to attempt to include international aviation into its emissions trading system unilaterally.

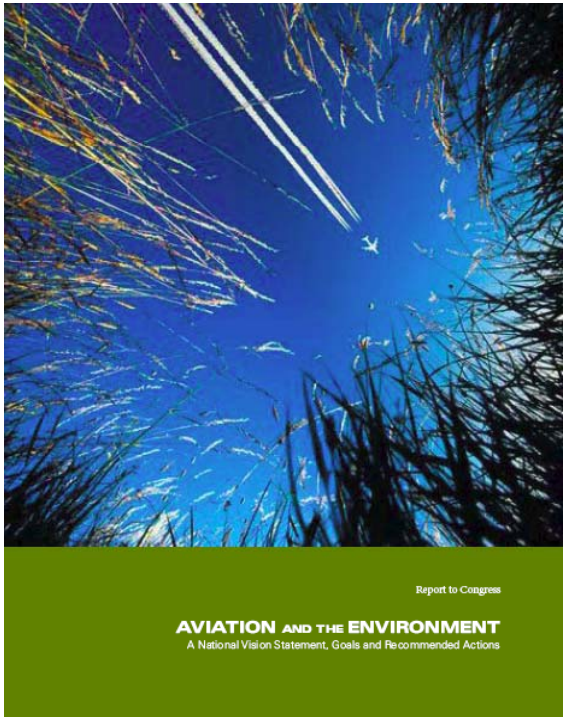
Climate and energy legislation (Waxman-Markey, etc.) could alter U.S. aviation and NextGen's future.

NextGen Vision

Provide environmental protection that allows sustained aviation growth

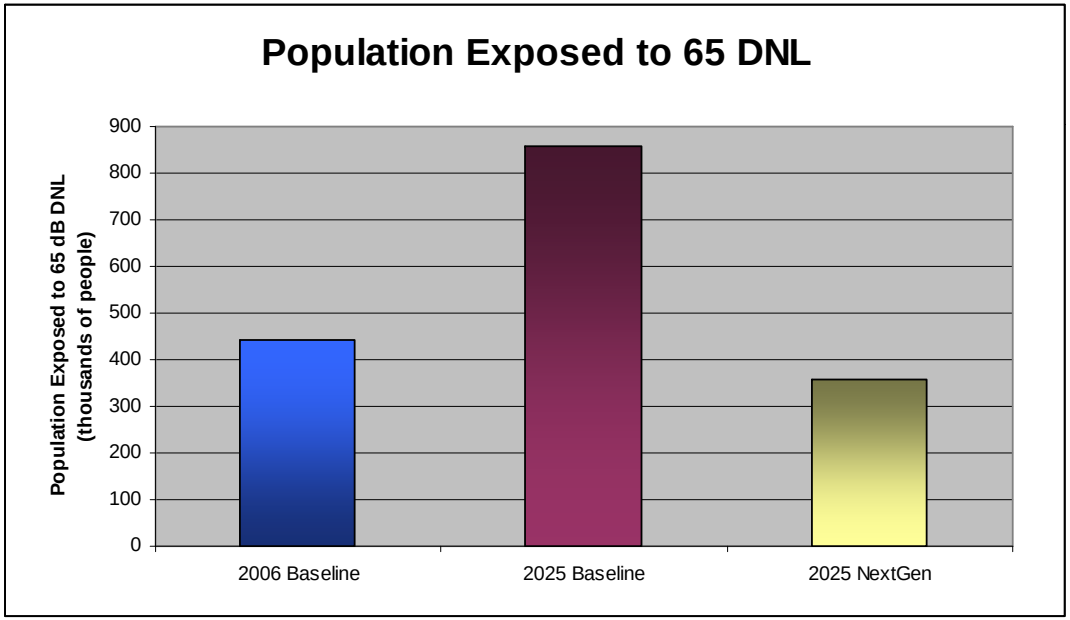
Key Initiatives:

- Continued Local Mitigation
- Better Scientific Understanding
- Accelerate Operational Changes
- Mature New Aircraft Technology
- Develop Alternative Fuels
- Policy and Market-Based Measures



NextGen Benefits: Reduced Noise Exposure Impacts

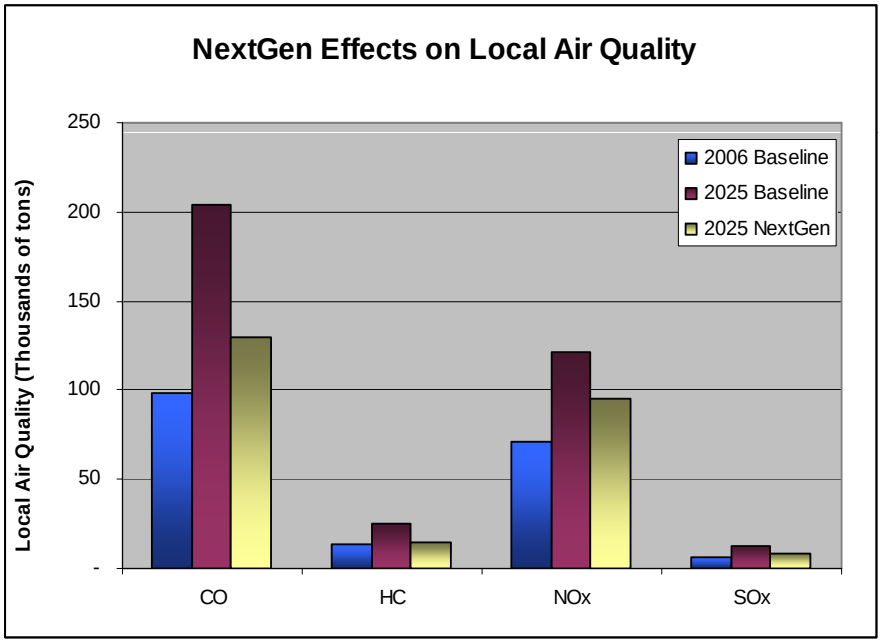
- **By 2025 NextGen could reduce the number of people exposed to 65 dB DNL by 58% (and by 19% relative to population exposed in 2006)[1].**
- **The reduction in noise will reduce impacts on property values exposed to 55 dB DNL approximately $13-15 billion in 2025[2].**

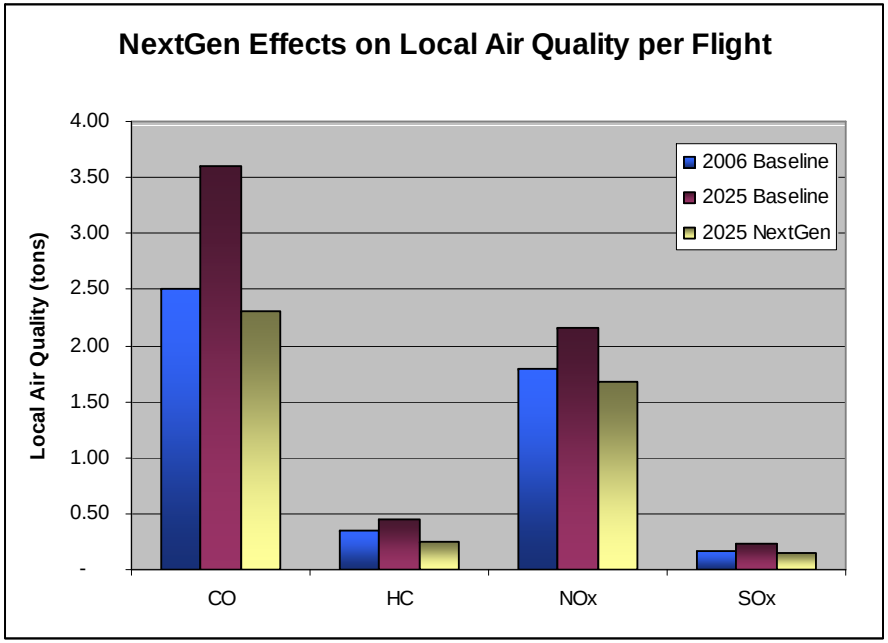


[1] Based on estimates comparing 2025 No Action vs. 2025 NextGen High Density analysis which included 70% of the commercial traffic at the CONUS OEP airports.
[2] APMT Analysis of SMAD HD Case, July 17, 2008.

NextGen Benefits: Reduced Emissions Impacts

- **In 2025 NextGen could reduce impacts on local air quality by 22% to 42% across the pollutants[1].**
- **By 2025 NextGen could reduce the costs associated with local air quality health risks by $1 to $3 billion[2].**





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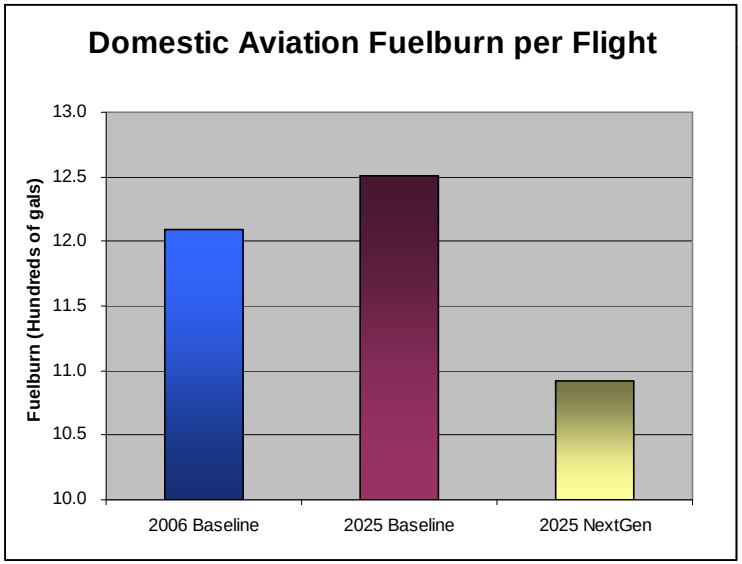
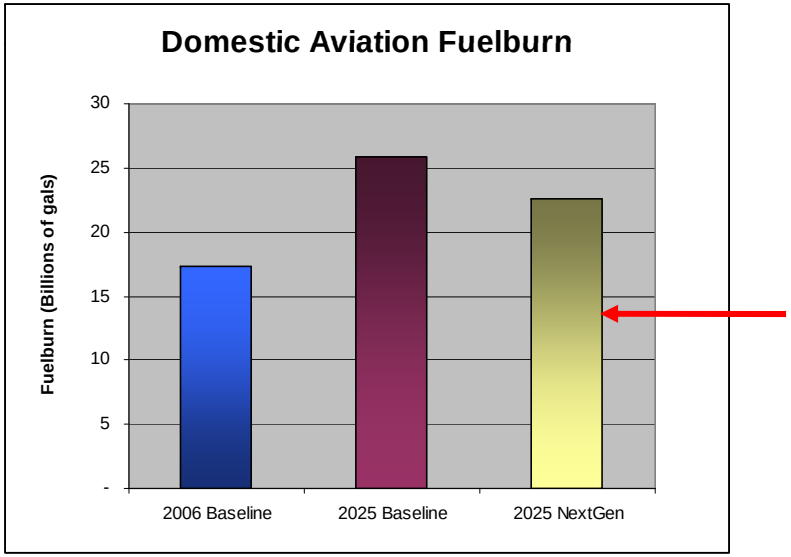
NextGen Benefits: Less Fuel Burn Per Flight

- **By 2025 the NextGen Operational Improvements including air traffic management and aircraft technology could reduce total fuel burned by 13%, saving more than 3.3 billion gallons of fuel per year[1].**
- **For example, the average flight in 2025 connecting EWR with LAX would burn 19% less fuel ~$7,500 per flight[2] with NextGen as compared without NextGen.**
- **Considering Greenhouse Gases (GHG), NextGen could reduce socioeconomic damages associated with climate changes by between $25 and $80 billion[2].**





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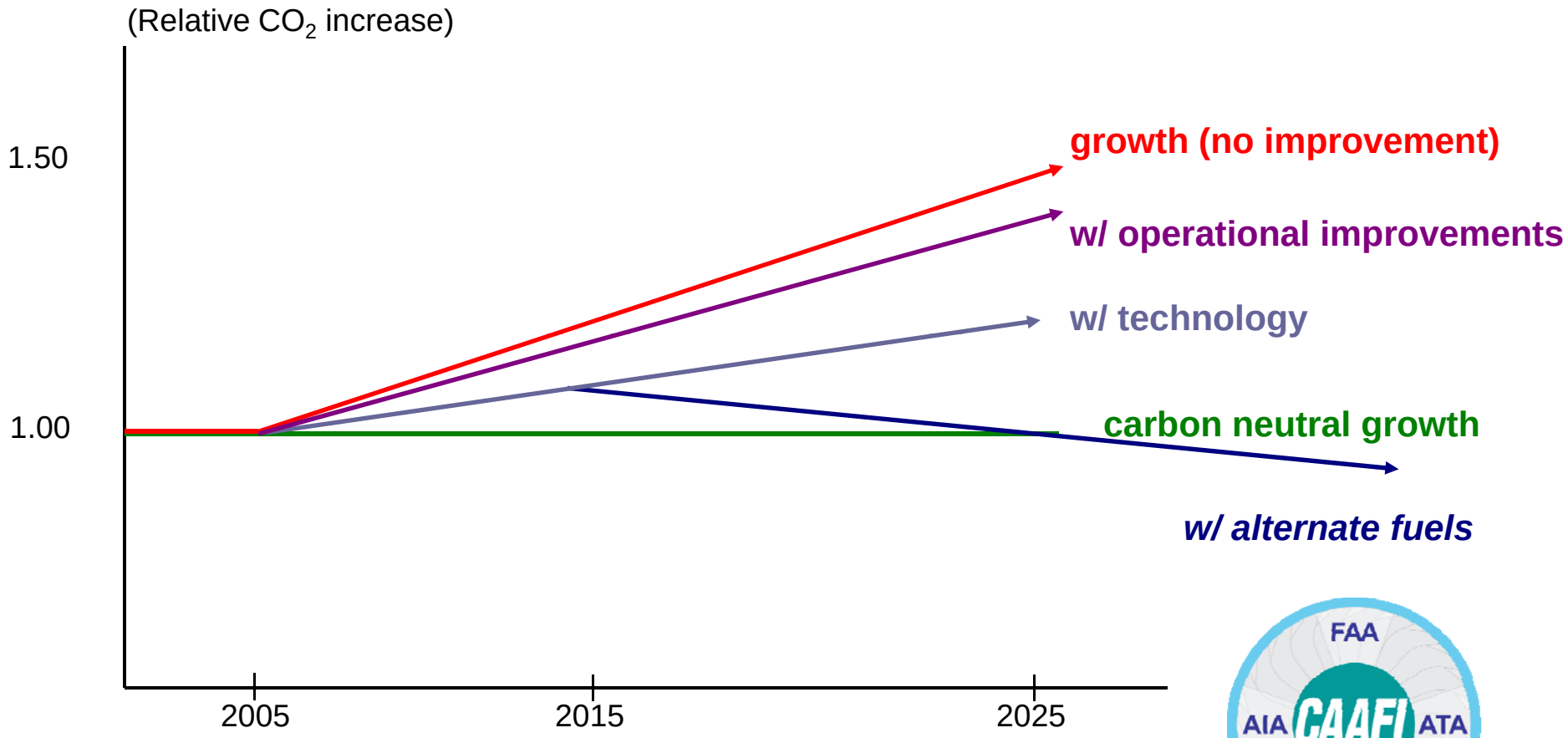
Why Alternative Fuels Are Critical to NextGen



Some Closing Observations

- NextGen will not achieve capacity goals without addressing environmental and energy issues.
- Energy and climate issues will increasingly shape the future of aviation.
- No single solution to tackle the multiple environmental and energy challenges.
- Initial assessments of NextGen operational and technology changes show significant return on investment in environment and energy benefits.
- Alternative fuels could play a critical role in tackling climate issues.