



Assistance for Action

Aviation and Climate Change Seminar

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U.S. Climate Action Plan

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U.S. Goals



- **Carbon-neutral growth by 2020 using 2005 baseline**
 - 2010 ICAO Assembly Resolution aimed for aspirational goal of carbon-neutral growth by 2020 using 2005 baseline
- **Aspirational goal of fuel efficiency improvements of 2 percent per year**
 - Consistent with commitments in the 2010 ICAO Assembly Resolution
- **Target to use 1 billion gallons of alternative fuels a year starting in 2018**

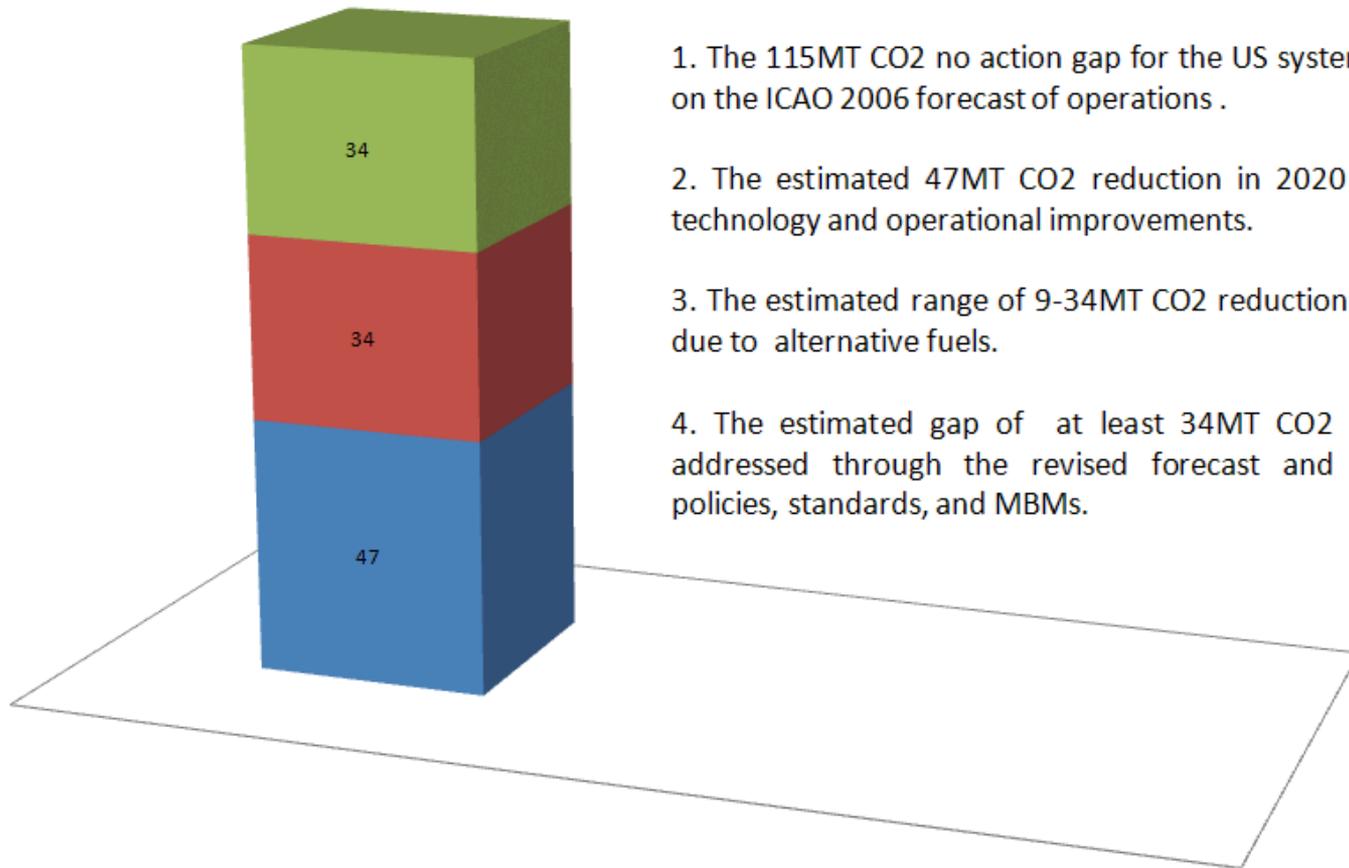


U.S. Goals



Assessment of Gap Associated with Reaching CNG in 2020

■ Technology and Operations ■ Alternative Fuels ■ Gap



1. The 115MT CO₂ no action gap for the US system is based on the ICAO 2006 forecast of operations .
2. The estimated 47MT CO₂ reduction in 2020 is due to technology and operational improvements.
3. The estimated range of 9-34MT CO₂ reduction in 2020 is due to alternative fuels.
4. The estimated gap of at least 34MT CO₂ should be addressed through the revised forecast and additional policies, standards, and MBMs.



Overall Approach

- Aircraft and Engine Technology Improvement
- Operational Improvements
- Alternative Fuels Development and Deployment
- Policies, Standards, and Measures
- Scientific Understanding and Modeling/Analysis



Aircraft Technologies



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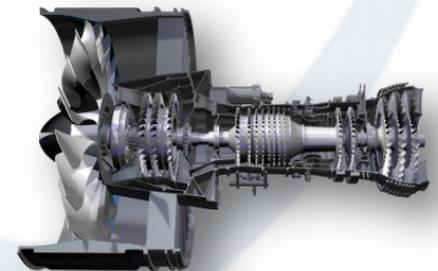
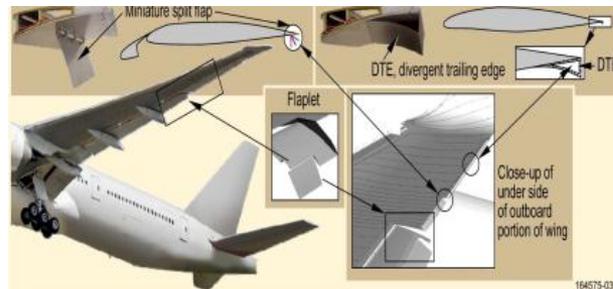
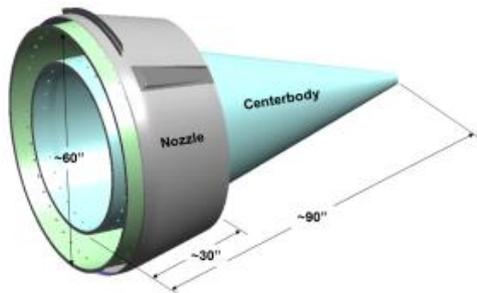


CLEEN

Continuous Lower Energy, Emissions and Noise



- **5 year effort to accelerate technology development and commercialization with 50 percent cost share**
 - FAA budget: US\$125 million
 - Industry budget: US\$125 million+
- **Mixed portfolio of technologies**
 - Engine: *GE, Honeywell, Pratt & Whitney, Rolls-Royce*
 - Aircraft: *Boeing*
 - Alternative Fuels: *Boeing, Honeywell, Rolls-Royce*



Operations

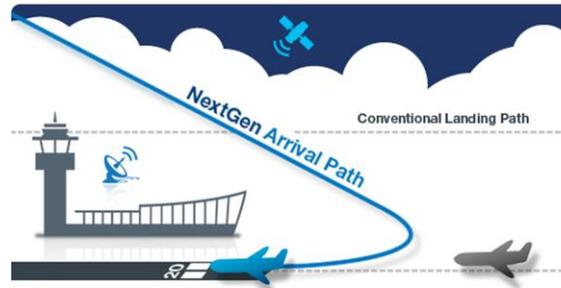


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NextGen

- **The Next Generation Air Transportation System (NextGen) drives many FAA efforts**
- **Integrated set of systems, technologies and policies to make U.S. aviation safer, reduce delays, reduce energy use, and mitigate impact on the environment**



Alternative Fuels

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Commercial Aviation Alternative Fuels Initiative

- **Public-Private coalition for commercial aviation to engage emerging alternative fuels industry**
- **Goals**
 - Drop-in capable
 - Comparable cost to petroleum fuels
 - Environmental improvement
- **Enables diverse stakeholders to:**
 - Share and collect data and identify resources
 - Direct research, development, and deployment of alternative jet fuels



Policies, Standards and Measures

A stylized illustration of a hand holding a pen, with a background of yellow dots and a grey gradient. The hand is dark grey, and the pen is black. The background is a light grey gradient with a pattern of yellow dots of varying sizes, some of which are arranged in diagonal lines. The overall style is modern and professional.

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New Policies, Standards and Approaches

- **Work with ICAO Committee on Aviation Environmental Protection to make continued progress on an aircraft CO₂ standard**
- **U.S. experts engaged in ongoing work at ICAO on market-based measures**
- **FAA has made continued progress on ground-based emissions at airports via the Voluntary Airport Low Emission Program (VALE)**



Science & Decision-making



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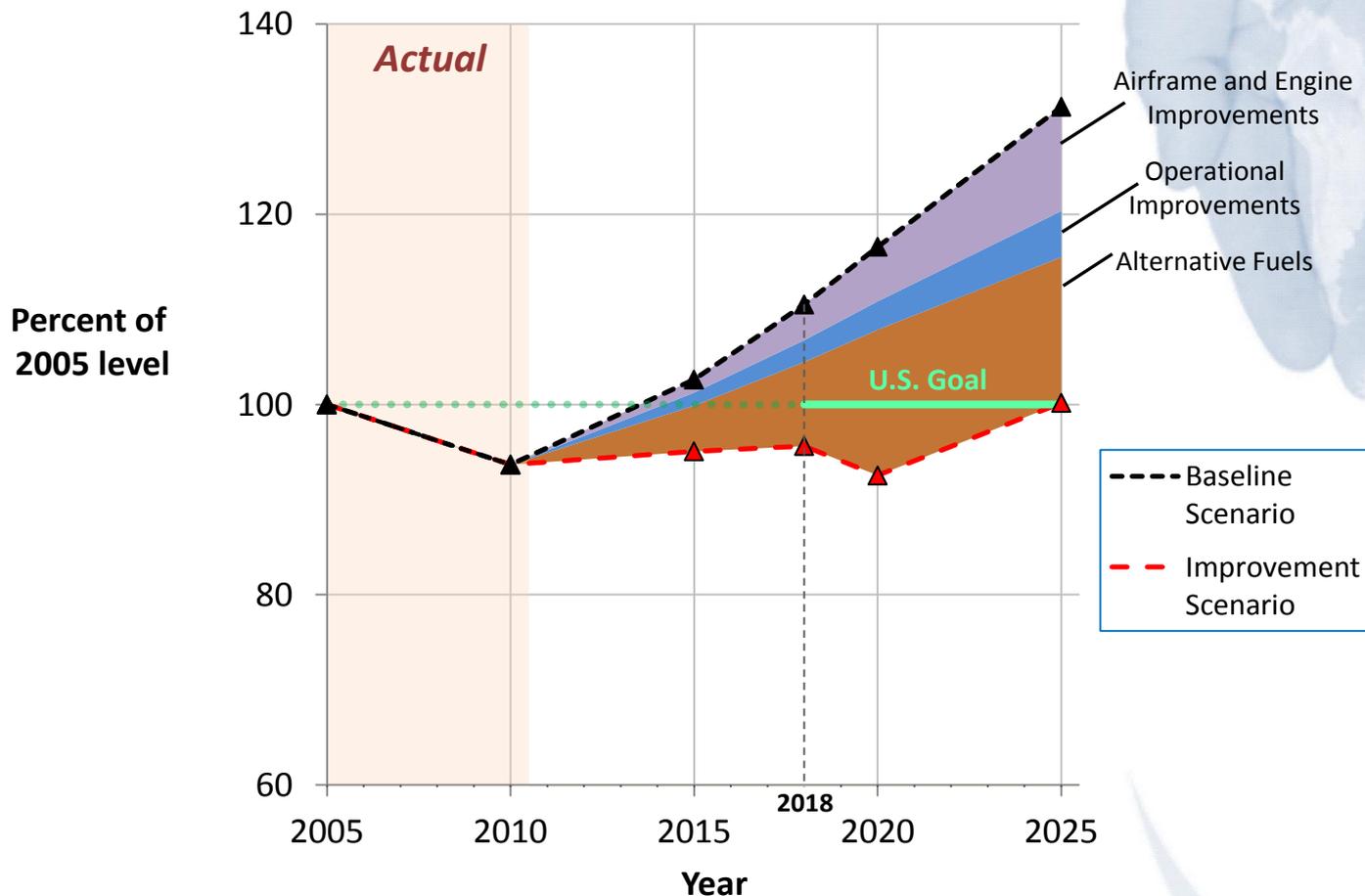
Environmental Management Systems

- Developing an “Environmental Management Systems (EMS) Approach” for NextGen
- Developing and implementing aggressive environmental targets metrics for NextGen (measuring, validating, reporting)





Sample Life-Cycle CO2 Reductions Emissions for U.S. System



Sample scenario with many assumptions/uncertainties

Alternative Fuel Consumption

Year	Volume (million gallons)	Share of total fuel volume
2018	4,639	18%
2025	8,032	28%