



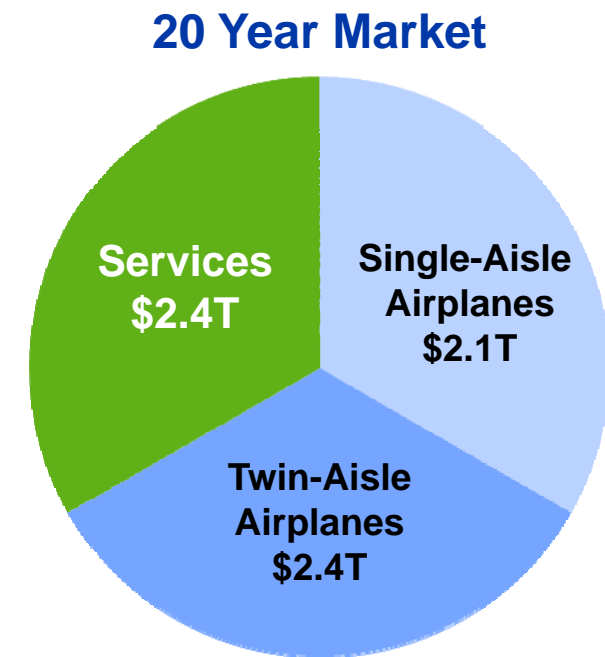
# Global Business & Environment Strategy

Billy Glover  
Vice President  
Global Business Development & Policy  
Boeing Commercial Airplanes

# Market Environment

---

- Large & growing markets
- Challenging competitive environment
- Near- term economic, geopolitical uncertainty
- Volatile & high fuel prices
- Passenger traffic is resilient
- Airplane utilization at historical peaks
- Airlines focusing on profitability & investing for future
- Increasing environmental pressures



***Very large market & growing at 5% annual rate***

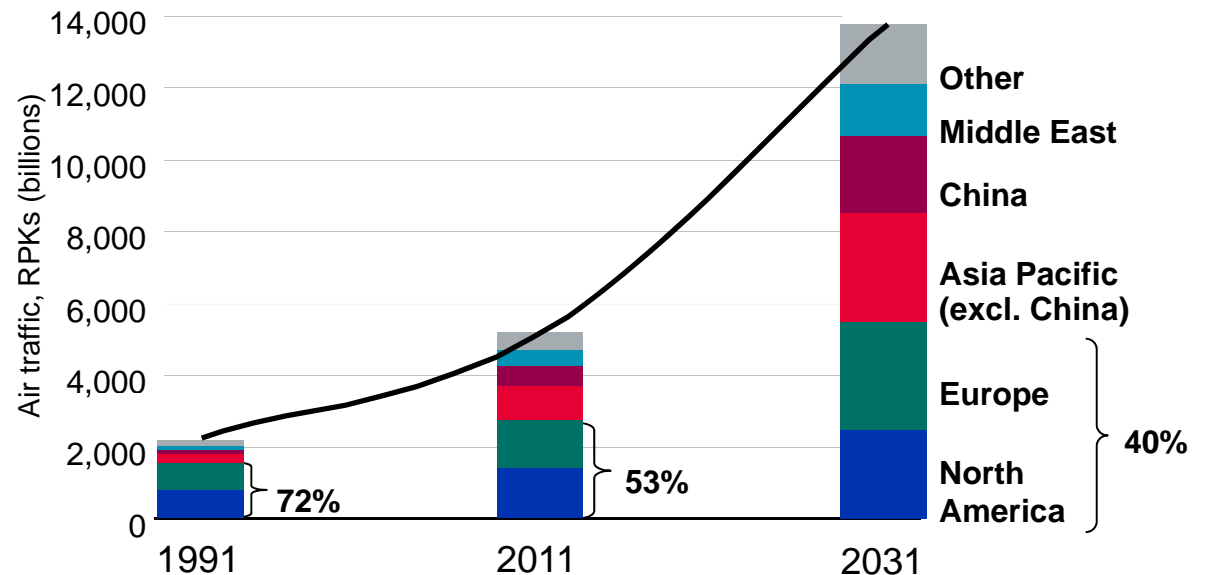
# Passenger Traffic

- Traffic 1.5X GDP growth

- Trade & globalization

- Route liberalization

- Traffic diversifying



- Frequencies & non-stops increasing

- Infrastructure constraints...some up-gauging

***Growth is driven by emerging economies***

# Evolving Airline Trends

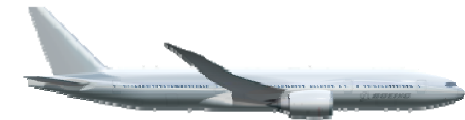
- Emphasis on lifecycle cost
- Maintenance & engineering outsourcing
- Financing and liquidity
- Mergers, restructuring & alliances
- Revenue capture



***Focused on profitability, efficiency & innovation***

# Strategic Business Imperatives

- Unprecedented rate increase
- Expanding capacity & capability
- Investing in twin-aisle products
- Strengthening quality backlog
- Lowering operating costs
- Driving profitability by doing more with less

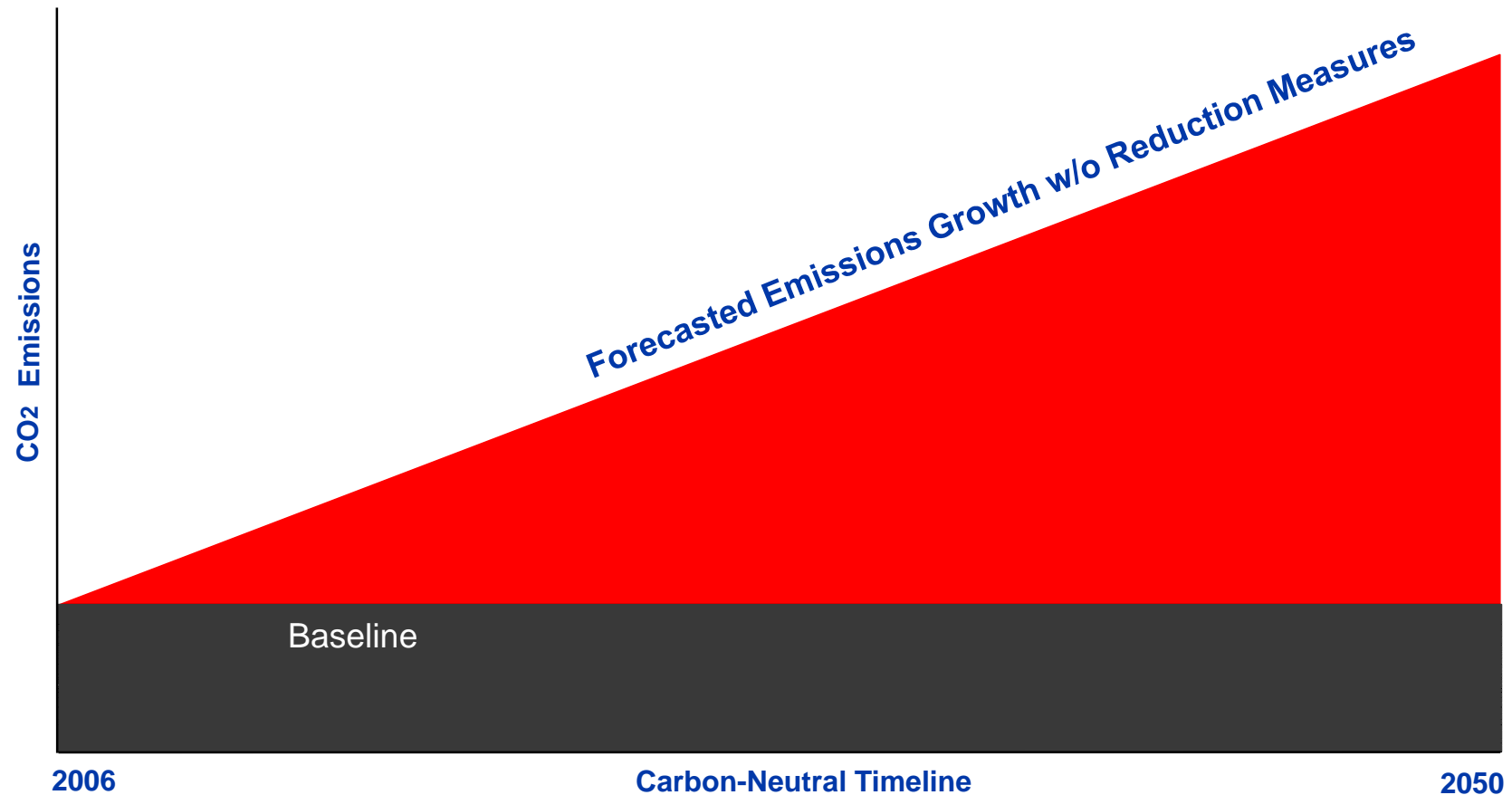


***Expanding market share while growing profitability***

# The Commercial Aviation Challenge

## *Carbon-Neutral Growth*

---



# Environmental Stewardship Strengthens Business

---

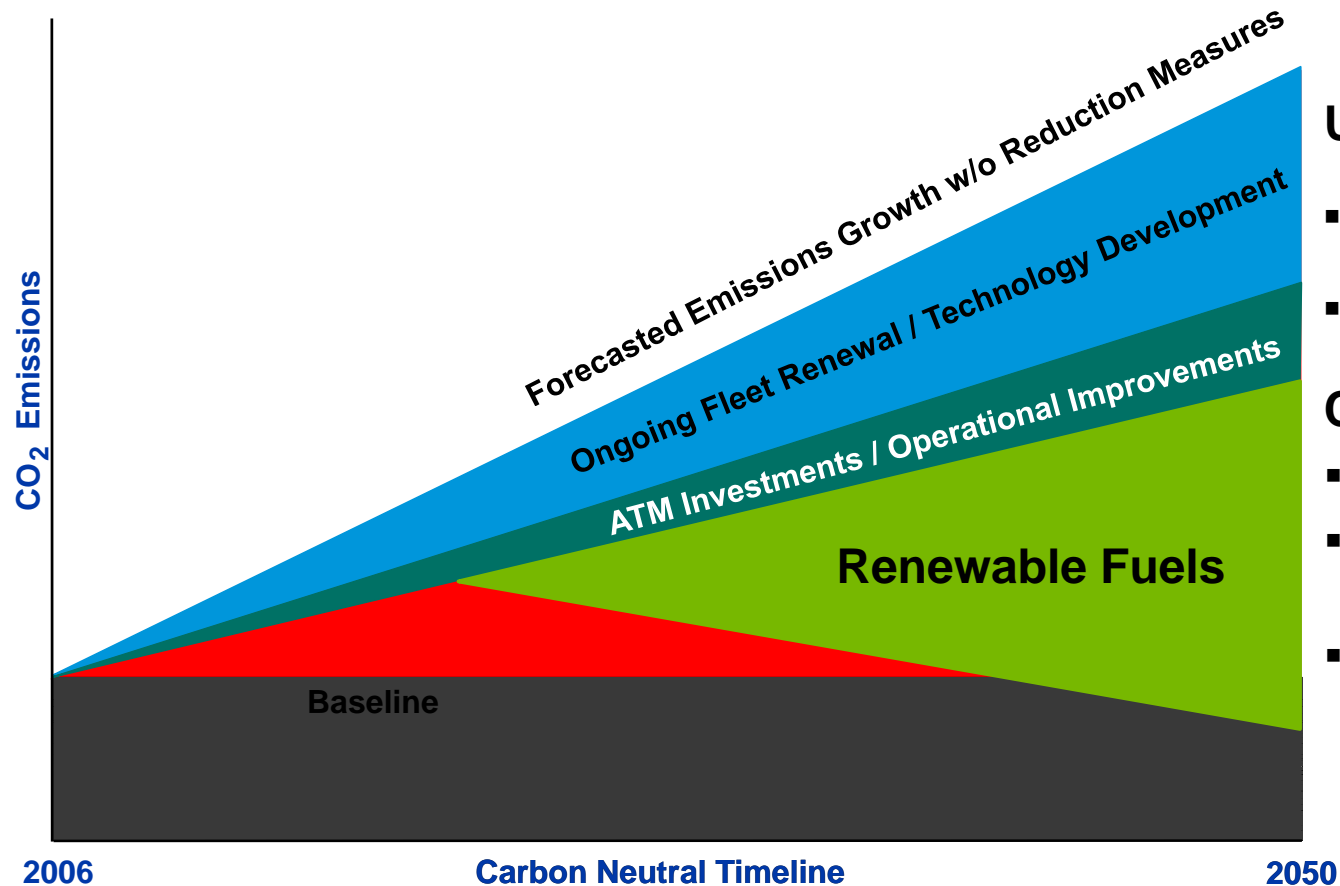
- Pollution and climate change are serious challenges that require aggressive action
- Employees, customers, communities and investors expect environmental stewardship
- Environmental improvement supports business performance



# The Commercial Aviation Challenge

## *Carbon-Neutral Growth*

---



### Using less fuel

- Efficient airplanes
- Operational efficiency

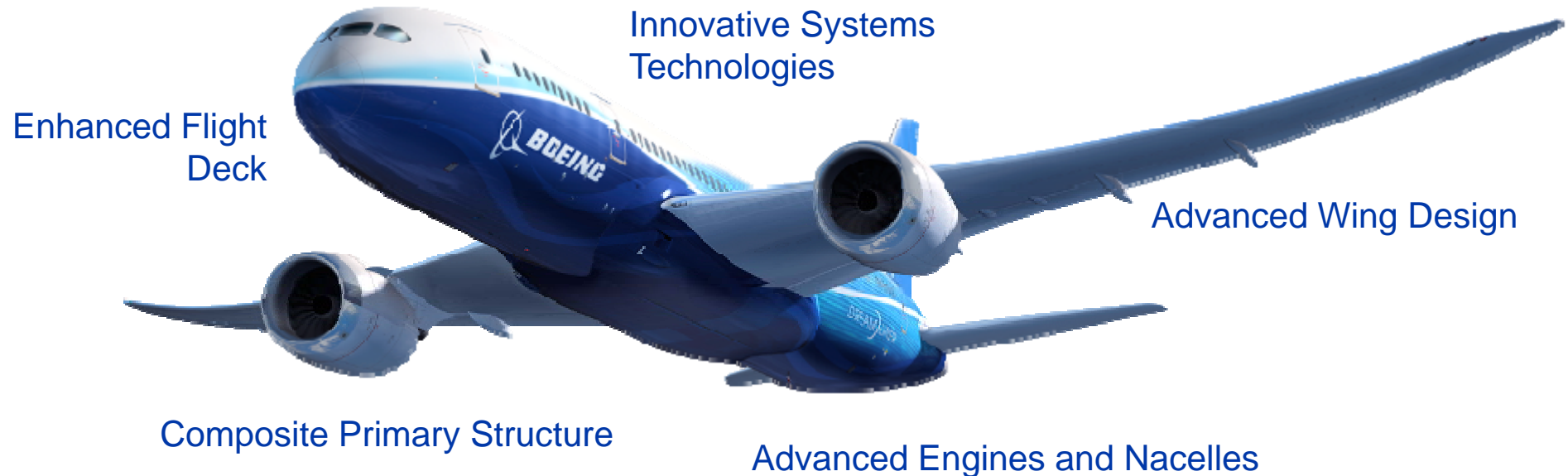
### Changing the fuel

- Lower lifecycle CO<sub>2</sub>
- No infrastructure modifications
- “Sustainable Biofuel”

***Technology Enables Sustainable Growth***

# The 787 Dreamliner Uses Advanced Technologies to Improve Environmental Efficiency

---



Cleaner, quieter and more efficient

**20%\*** More CO<sub>2</sub> efficient

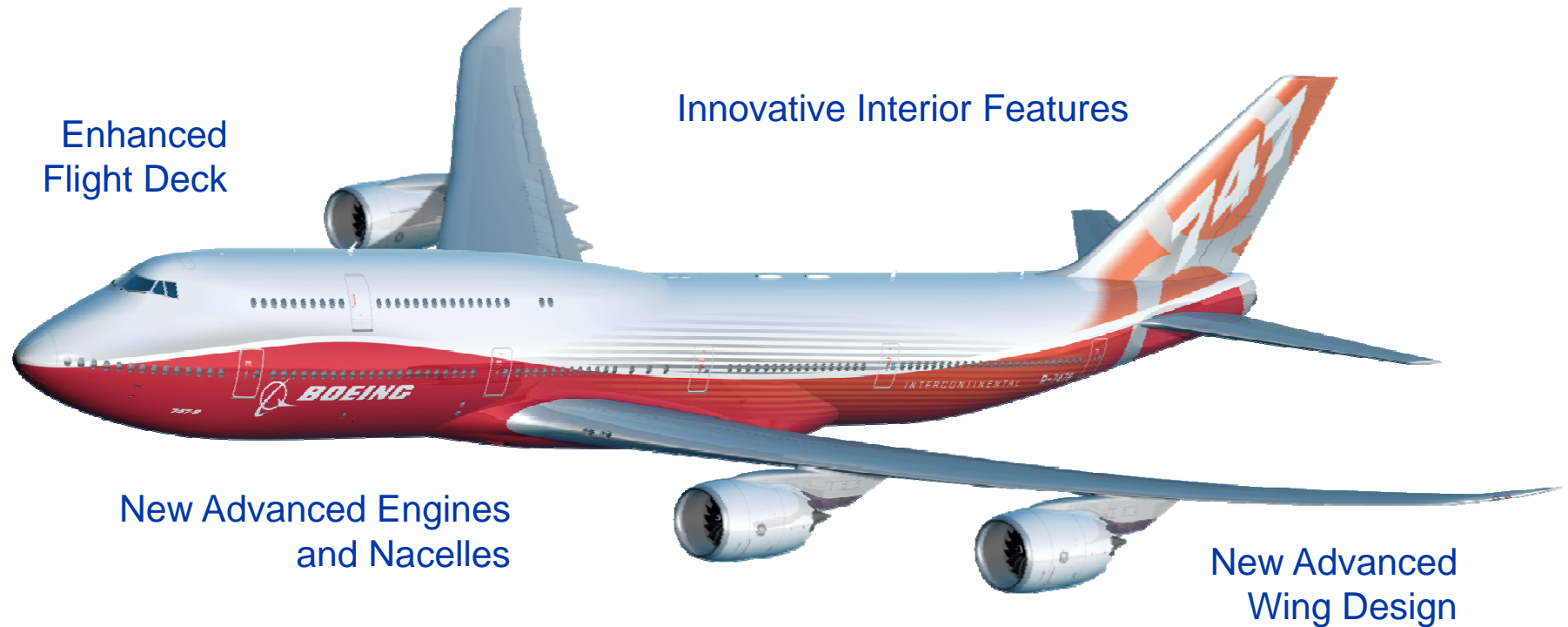
**28%** Below 2008 industry limits for NO<sub>x</sub>

**60%\*** Smaller noise footprint

\*Relative to the 767

# 747-8: Incredible Again

---

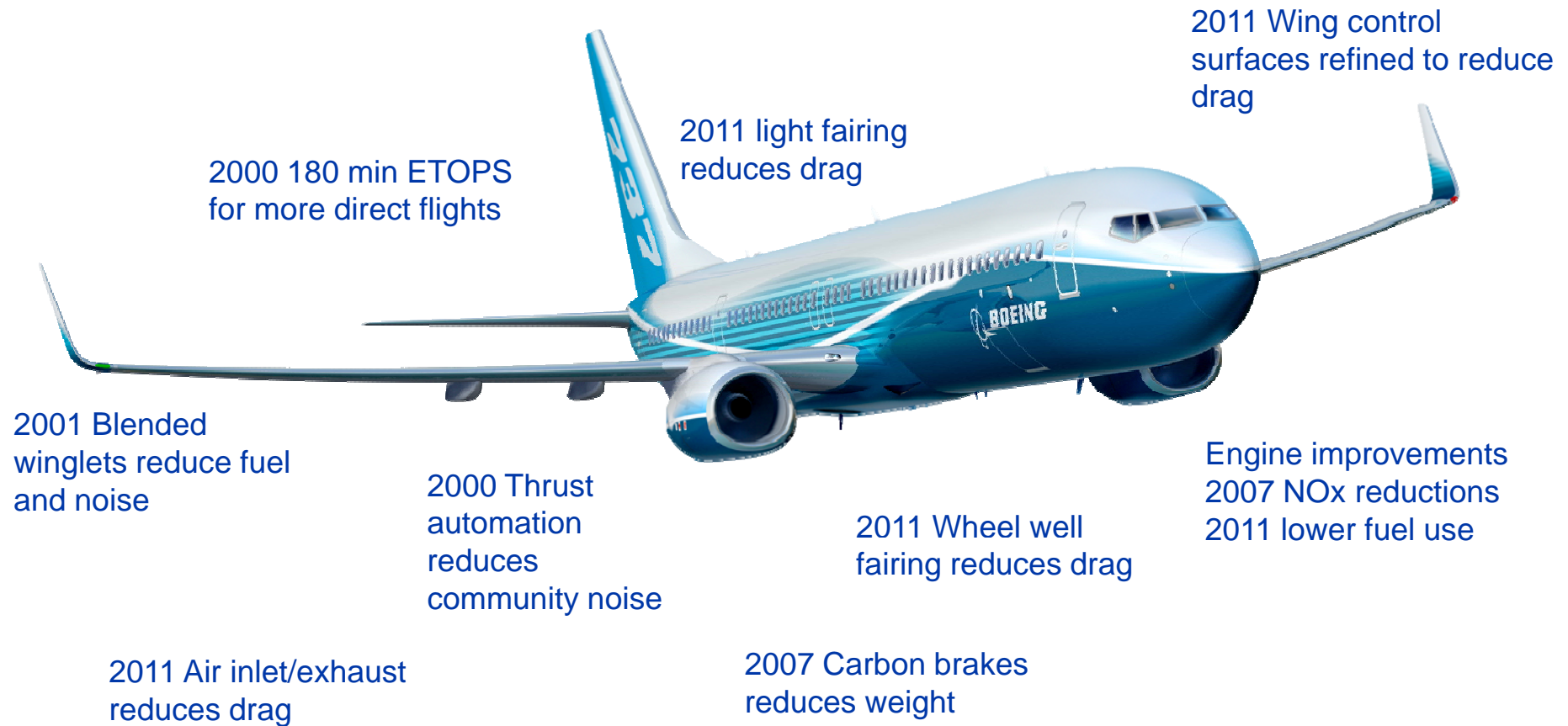


16%\* more CO2 efficient  
52% Below 2008 limits for NOx  
30%\* Smaller noise footprint

\*Relative to the 747-400

# Next-Generation 737: Continuous Innovation Improves Environmental Performance

---



# Quiet Procedures Can Reduce Aircraft Noise in Communities

---



Quiet procedures can provide immediate benefits

Benefits vary widely with aircraft and procedure



Proposed procedures depend on the location of the sensitive area

# Innovation for the Future of our Industry

---

Innovation should:

- Support customer profitability
- Enhance industry growth and efficiency
- Bolster our industry's global contributions
- Reduce environmental impacts



# 2012 ecoDemonstrator



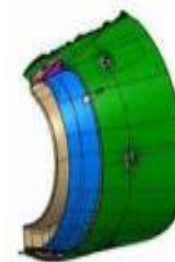
**Adaptive trailing edges  
(FAA CLEEN)**



**Advanced ATM Technologies**



**RFID Emergency  
Equipment Demo**



**Variable area fan nozzle**

# 2012 ecoDemonstrator: Collaboration and global industry partnerships

---



# Innovation Supports Customer Profitability

---

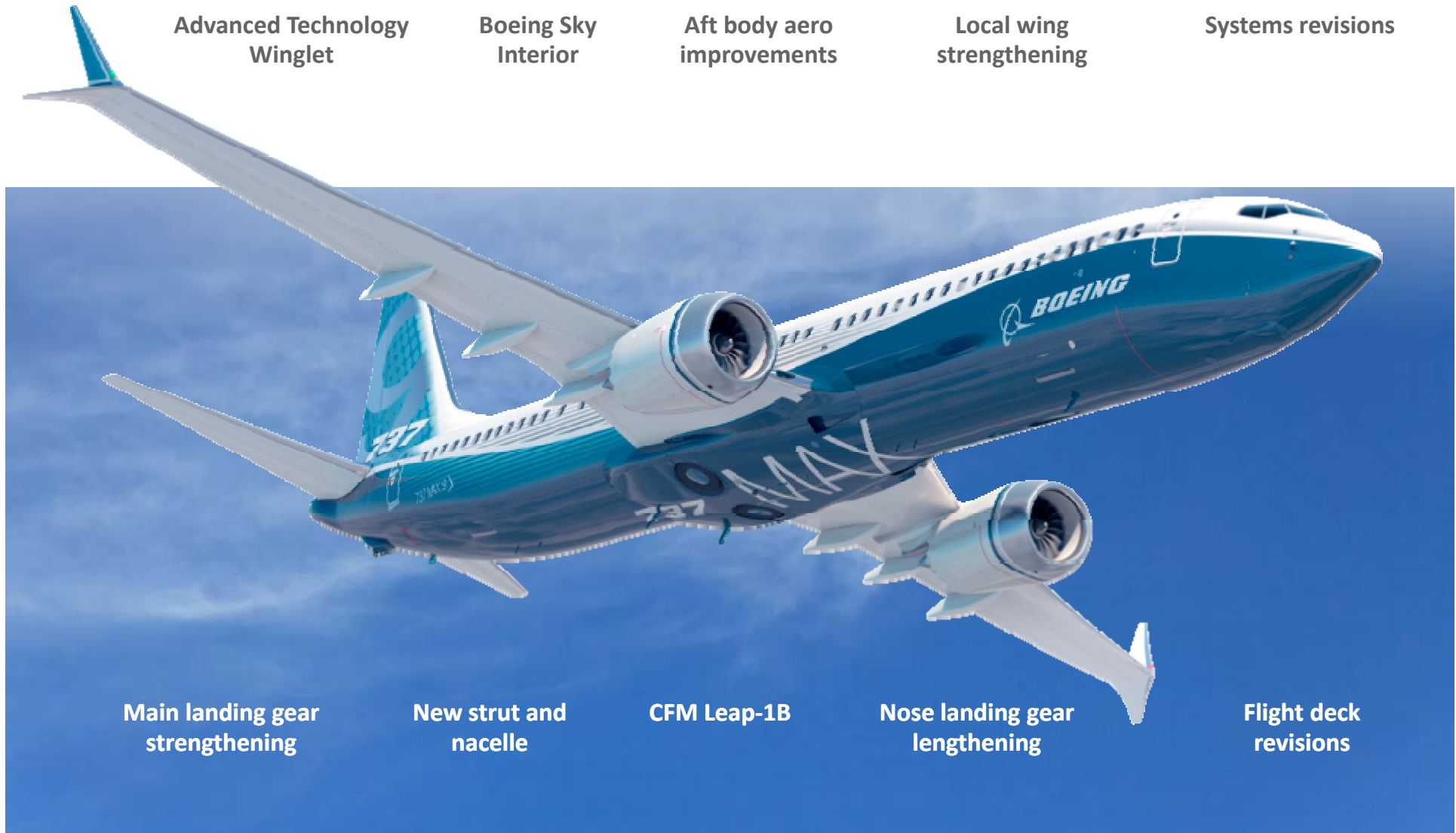
Advanced Technology  
Winglet

Boeing Sky  
Interior

Aft body aero  
improvements

Local wing  
strengthening

Systems revisions



Main landing gear  
strengthening

New strut and  
nacelle

CFM Leap-1B

Nose landing gear  
lengthening

Flight deck  
revisions

# State of Aviation Biofuel Industry

---

✓ Technically viable

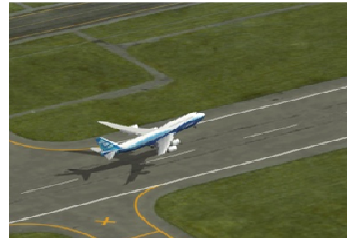


ASTM approved

Safe

Superior quality

✓ In demand



Airline associations support

“If you build it, we will buy it”

*Bill Ayers, Former  
Alaska Airlines CEO on  
biofuels*

✓ Sufficient supply



Refinery capacity small but increasing

Limited sustainable feedstock

Finance community increasing comfort

**Supportive public policy is critical**

# Boeing Biofuel Goals and Activities

---

**1% aviation fuel by 2015  
(~600M gallons)**

**3-5 large refineries**

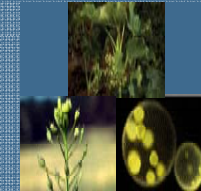
**1.5M hectares of  
sustainable energy  
crops**

**Near price parity**

Support and  
Advocacy



Feedstock  
and Pathway  
R&D



Fuels  
approval



**Ultimate goal is vibrant commercial market**

# We Are Committed to a Better Future

---



*THANK YOU*

*For more info: [www.newairplane.com/environment](http://www.newairplane.com/environment)*

