777X Overview

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Wide-body market demand drivers

- Replacement
- Business model shifts
- Air cargo
- New product capabilities
Wide-body passenger deliveries by units

- **1993-2002**: 1,691 units
- **2003-2012**: 1,581 units
Airlines will need 8,590 new wide-body airplanes valued at $2.5 trillion

- **Share of fleet**
  - 2012 Airplanes: 4,610
  - 2032 Airplanes: 9,930

- **Delivery units**
  - Asia Pacific: 42%
  - Europe: 19%
  - North America: 14%
  - Middle East: 16%
  - Latin America: 4%
  - C.I.S.: 2%
  - Africa: 3%

- **2013 to 2032 New airplanes**
  - Total: 8,590
Twin-aisle market share

- **More orders**: 44% Boeing, 56% Airbus
- **More backlog**: 47% Boeing, 53% Airbus
- **More deliveries**: 39% Boeing, 61% Airbus

- Net orders: 10-year rolling average
- Backlog: As of 10/31/13
- Deliveries: 2013 through 10/31/13
Introducing the new 777X

More efficient than the competition
More revenue and network coverage
All-new passenger experience
Highest reliability in its class
## Boeing product line-up

Superior value, efficient market coverage

<table>
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<th>Current Boeing</th>
<th>Future Boeing</th>
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<tr>
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<td>777-300ER</td>
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**Fuel Efficiency**

**Range**

**Seat Capacity**

**Environmental Responsibility**

**Operations & Maint. Costs**
777X and 787 are right-sized and optimized
Two optimized families for the lowest fleet fuel use

Airbus

Boeing

777X

777-9X

Seamless market coverage from 200 to 400 seats

777-8X

787-10

787-9

787-8

A350-1000 Limited market coverage

A350-900

A350-800 is fading

787-9

350 seats

300 seats

250 seats

400 seats

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777 is preferred by customers
Delivers unrivaled performance and reliability
Provides unmatched revenue capability
Inspires passenger loyalty
777 is preferred by passengers
Named “Best Aircraft” by frequent travelers
Why the 777X?
Introducing the latest technology to a proven winner

• 12% improvement in fuel efficiency over A350-1000

• 10% improvement in operating economics over A350-1000

• More payload-range for market coverage and network flexibility
777X provides growth opportunity from current 777

- **777-200ER**
  - Seats: 314
  - Range: 777-200ER

- **A350-1000**
  - Seats: 344
  - Range: 350 seats

- **777-300ER**
  - Seats: 365
  - Range: 777-300ER

- **777-8X**
  - Seats: 350
  - Range: 777-8X

- **777-9X**
  - Seats: 400
  - Range: Superior efficiency and capacity

Superior efficiency and payload-range
Twin-engine, twin-aisle success, redefined

- New interior, improved passenger experience
- Flexible, 10-abreast seating 350 to 400+ passengers
- Largest composite wing
- Lower community noise
- Advanced flight deck displays
- New advanced GE engine with Laminar Flow Nacelles
- 350 to 400+ passengers
All-new composite wing is lighter, stronger, longer
Increasing wingspan improves aerodynamics

Proven composite wing enables long span and efficient airfoil

Folding wingtip for airport compatibility

Wingspan optimized for efficiency

Longer wingspan results in lower fuel use
Better aerodynamics enabled with exclusive Boeing technologies

Natural laminar flow nacelles reduce drag

Hybrid laminar flow control vertical tail reduces drag
All-new advanced GE9X engines
5% more efficient than any other engine

- Newer, exclusive technology
- Composite fan blades
- High bypass ratio
- Equivalent maintenance cost to GE90
GE9X advantage ... powering the 777X

- **Compressor**
  - 27:1 pressure ratio
  - ~61:1 overall pressure ratio
  - 3rd generation

- **Lean combustion**
  - 29% NOx CAEP/8 margin
  - Reduced cooling
  - CMC liner
  - 3rd generation

- **Ceramic-matrix composites (CMCs)**
  - 20% less cooling
  - 1/3 weight, 2X strength
  - 20+ yrs. development
  - 3rd generation

**EXCLUSIVE GE TECHNOLOGIES**

- **Composite fan**
  - 16 blades
  - Thinner, stronger, fewer
  - 150+ million flight hour experience by 2020
  - 4th generation

**LOWER Fuel Burn**

- 10% versus 300ER

**LOWER Maintenance Cost**

- 5% versus XWB-97

GE90

*GE90-115B
GE9X timeline … underway since 2010

Technology

Compressor rig 2013
Fan rig 2013
CMC demo 2014
Core 1 2015

Engine

Final design 2015
First engine test 2016
Flight testing 2017
Certification 2018
A new level of passenger experience
Exploring new technologies and architectures
777X delivers lowest impact on environment

- 12% lower CO$_2$ emissions than the A350-1000
- Better than LHR QC 0.5 and future ICAO stage
- NO$_x$ levels 29% below CAEP/8 limits
777X timeline

2013 Launch

2014 Top-Level design

2015 Firm configuration

2016 Detailed design

2017 Production begins

2019 Flight test

2020 First delivery
787 innovation delivers the most value

Breakthrough business opportunities for airlines
Unrivaled comfort and spaciousness for passengers
Cleaner, quieter and more efficient for the environment
787-9 on track
Disciplined execution paying benefits

Strong progress in assembly
182 hours on 61 flights flown in test
On schedule to deliver in mid-2014
The New 787-10 Dreamliner

- Unprecedented fuel efficiency
- Optimized for 787-9 commonality
- Strong market response
- On track for firm configuration in 2014
747-8 improvements since EIS

3.5% fuel consumption improvement
2% operating cost reduction
7,200 lbs OEW reduction
A complete lineup for the complex twin-aisle marketplace

- **747-8**: Great airplane just keeps getting better
- **777X**: Unmatched capability and efficiency
- **787-10**: Optimized for 787-9 commonality
- **787-9**: On schedule to deliver mid-2014
- **787-8**: More than 100 deliveries