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CS100 Update

CS100 Overview

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- ✓ The Bombardier CS100 is a new narrow-body jet aircraft designed to offer transcontinental-range
  - ✓ The CS100 is the first all new, clean-sheet design aircraft in its category in nearly 30 years
  - ✓ Wider cabin cross-section compared to competitors for maximum passenger comfort
  - ✓ Designed with the latest light-weight materials
  - ✓ Game-changing engine from Pratt and Whitney significantly reduces fuel consumption, noise and other environmental impacts
  - ✓ The CS100 is not appreciably larger in length than the current Q400 operated by Porter

Designed for an Urban Environment

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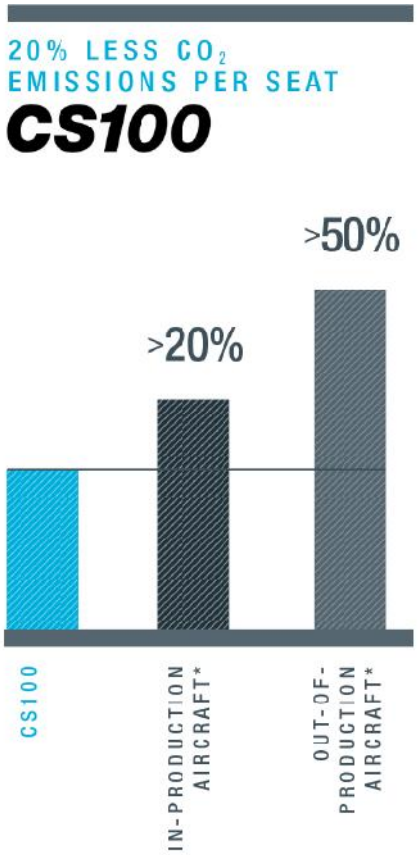
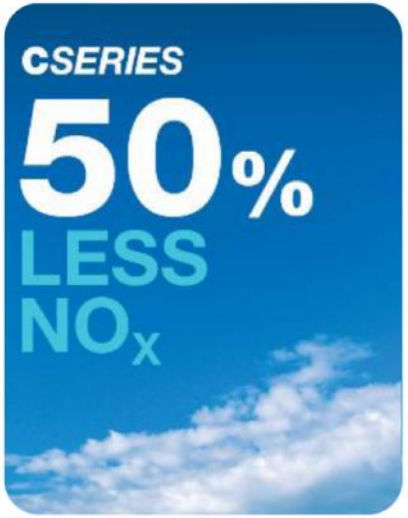
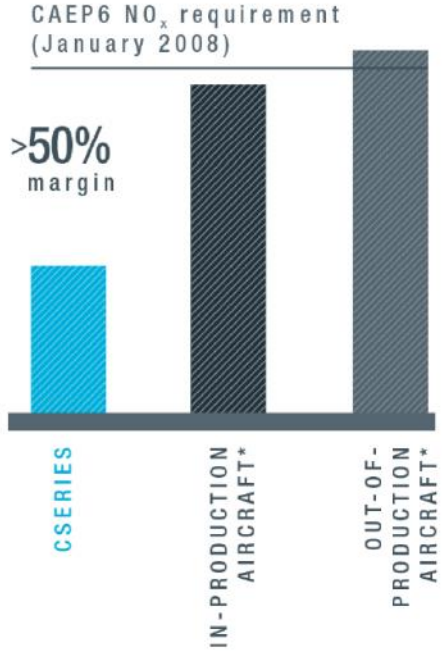
- ✓ Reduced CO_2 directly related to fuel savings
- ✓ Reduces contribution to smog







*compared to 110-seat class in-production aircraft on a 500 NM sector

Backgrounder: NOx gases are formed as a result of combustion. NOx react to form smog and acid rain. NOx are also central to the formation of tropospheric ozone.

CSeries and CAEP/6 Emissions Standards

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- ✓ The International Civil Aviation Organization (ICAO, a United Nations agency) Committee on Aviation Environmental Protection (CAEP) assists in formulating new policies and adopting new standards on aircraft noise and aircraft engine emissions

- ✓ CAEP/6 area a set of internationally recognized standards for engine emissions put forth in 2004
  - ✓ In 2004 CAEP/6 recommended, and ICAO's 35th Assembly subsequently adopted, three environmental goals: to limit or reduce noise exposure, local air quality emissions, and greenhouse gas emissions, setting a series of specific targets
  - ✓ CAEP/6 represents an approximate 12% reduction in NOx emissions from previous standards, which were adopted by ICAO in 2005
  - ✓ None of the large commercial jet aircraft commonly flown in Canada today such as the A319, and 737-600/700/800 meet CAEP/6 (see table on following page)
  - ✓ The Bombardier CS100 will be the first narrow body aircraft to exceed CAEP/6 targets with a 50% margin to the NO_x emission requirement and will exceed even more stringent CAEP/8 standards which go into effect at the end of 2013

Source: ICAO

CSeries Exceeds New Emissions Standards

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- ✓ CS100 Margins to CAEP/6
  - ✓ NOx 50%
  - ✓ Smoke 50%
  - ✓ UHC (Unburned Hydrocarbons) 75%
  - ✓ CO 50%

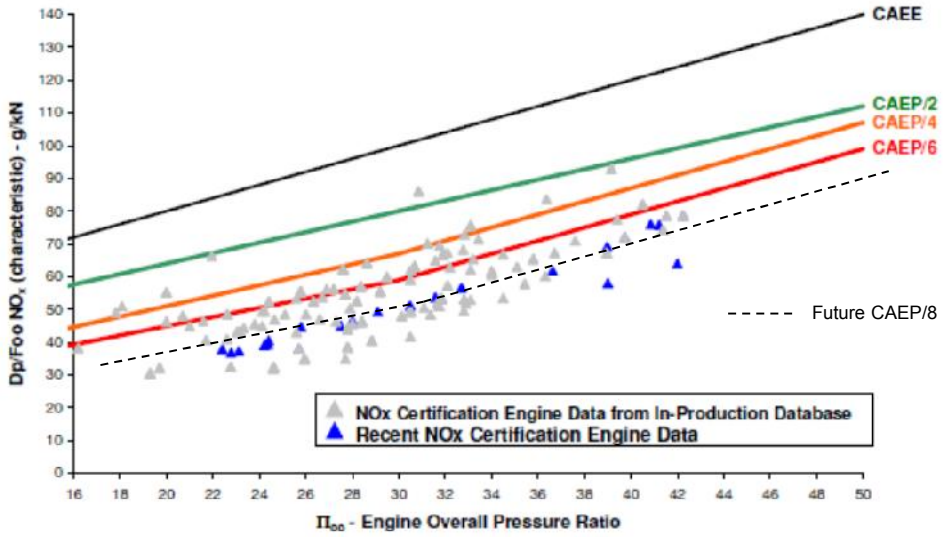

Figure 4: ICAO-CAEP NOX Stringency Standards [59]

In-Production Engines	Unique Identifier Number (UID)	CAEP/6 Exceedance	Industry Response	In Production Aircraft
CFM56-7B22	3CM031	2.5%	Para. 2.7	B737-600, 700, 700C
CFM56-7B24	3CM032	4.6%		B737-700, 700C, 800, 900
CFM56-7B26	3CM033	11.9%		B737-700, 700C, 800, 900
CFM56-7B27, B3	3CM034	12.3%		B737-700, 800, 900
V2522-A5	31A006	1.1%		A319

Source: ICAO

Emissions & Noise – Urban Airports

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- ✓ Other C-Series operators engaged in dialogue regarding noise and emission impact at urban airports
- ✓ Swiss Airlines plans to operate CS100 from London City, Zurich and Florence
  - ✓ LCY currently allows a high frequency of jet operations – CS100 will reduce the overall emission and noise impacts
  - ✓ Zurich has numerous noise and emission constraints that will be mitigated through the use of curved RNP AR approaches
  - ✓ Florence is an obstacle rich, short runway, with only one-direction take-off/landing (i.e. tailwinds)
- ✓ Malmo Aviation plans to operate the CS100/300 from Stockholm Bromma airport
  - ✓ Strict restrictions pertaining to cumulative noise will easily be met by introduction of the C-Series

CS100 Aircraft Dimensions and Key Weights

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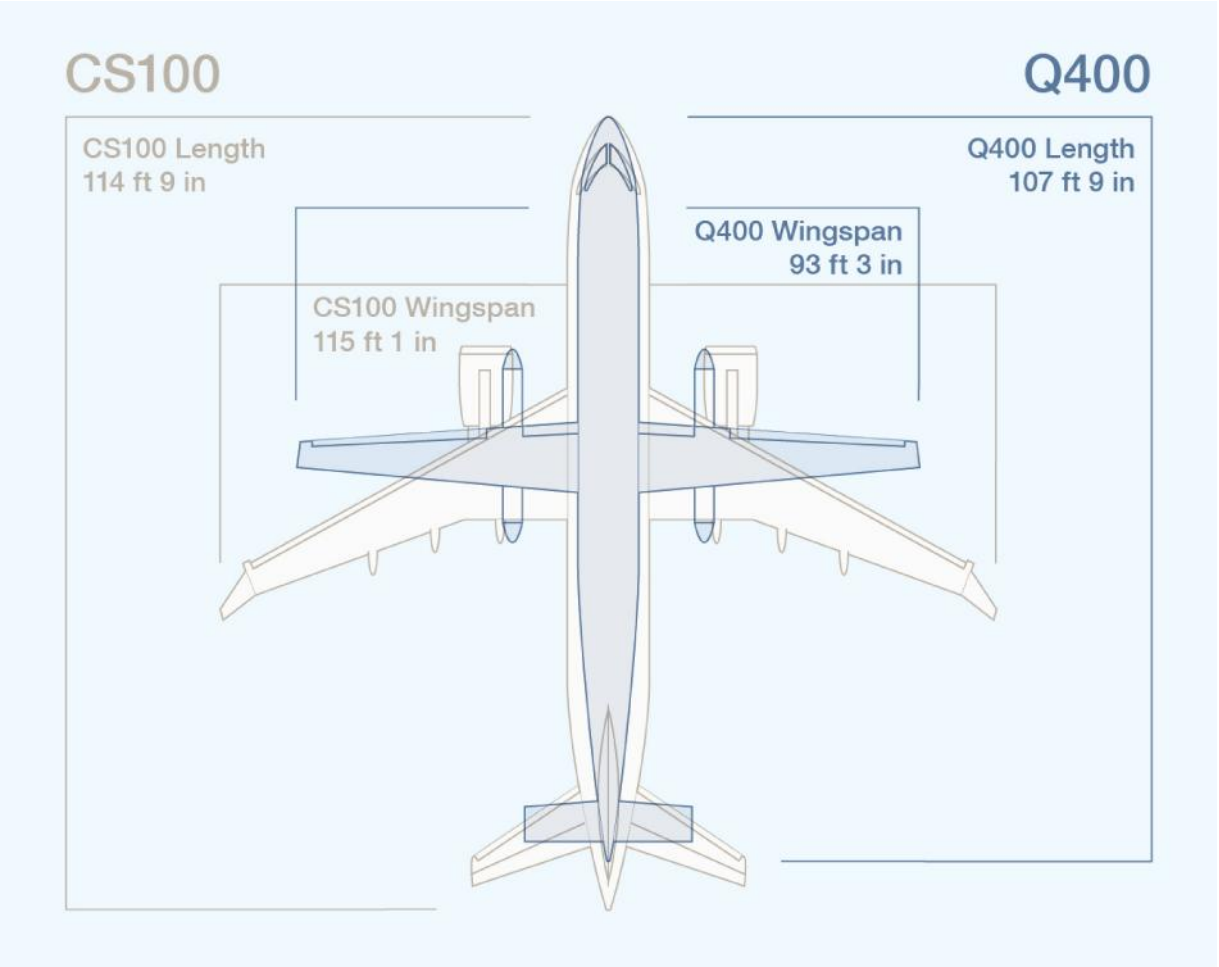
	CS100
Length	114 ft, 9 in
Wingspan	115 ft, 1 in
Height	37 ft, 8 in
MTOW	129,000 lb
MZFW	106,000 lb
MLW	112,000 lb
Thrust Options	18.9k lbf 21k lbf 23.3k lbf



CS100 Cabin Specification

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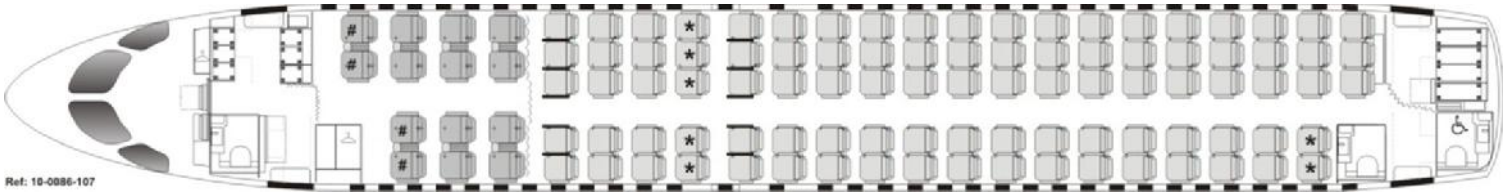
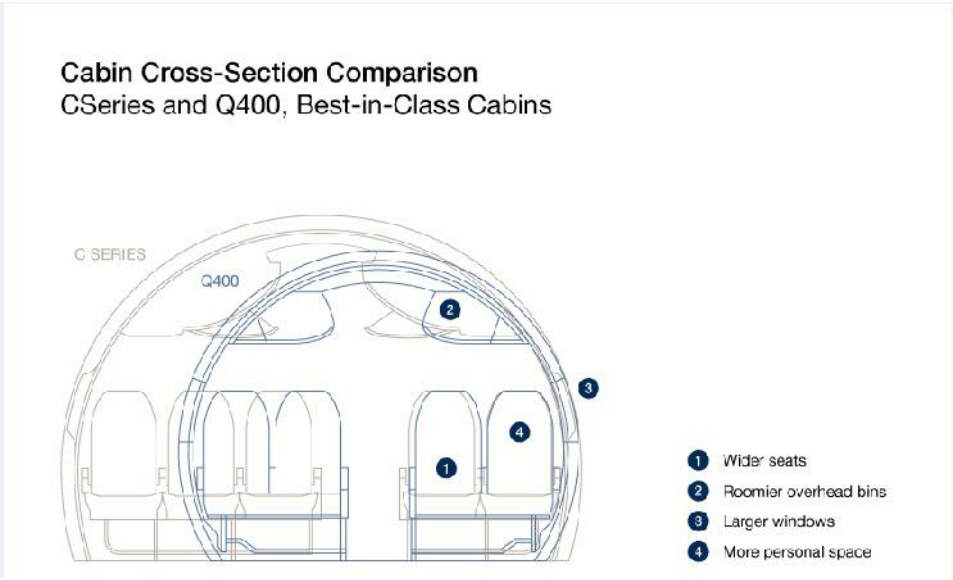
- ✓ Porter has specified a 107 seat two class aircraft interior
- ✓ 3 washrooms including first airline in Canada to add a fully-accessible washroom for individuals with mobility impairment
- ✓ Features include largest windows, largest storage bins and widest seats





CS100 Aircraft Program Status

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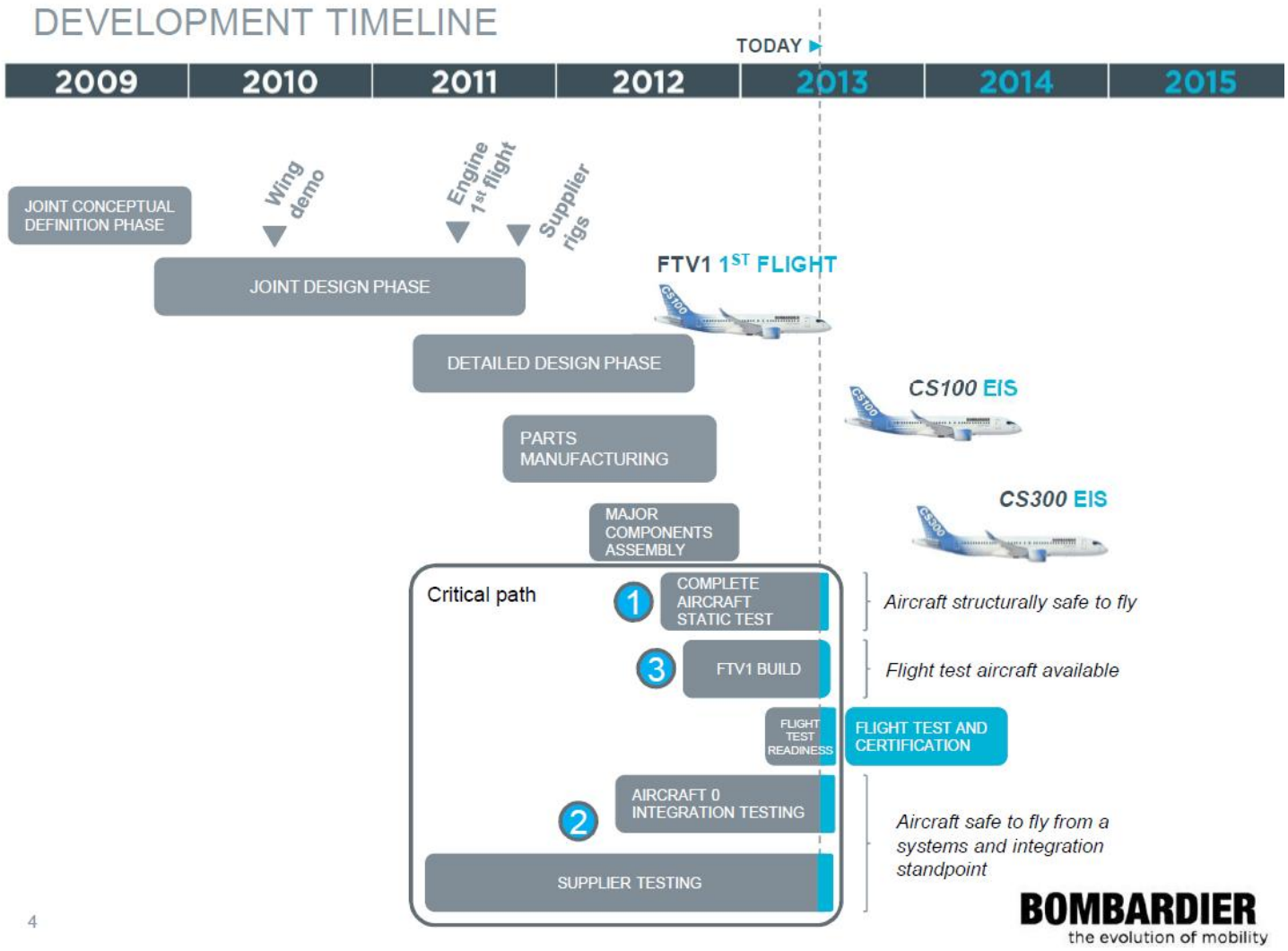
- ✓ Estimated first delivery of CS100 aircraft in mid 2014 (“EIS”- Entry Into Service)



Engine Program Status

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- ✓ PW1500G engine certified on Feb 20, 2013 by Transport Canada following thousands of hours of development and actual flight testing

KEY ACHIEVEMENTS

PW1500G ENGINE CERTIFIED

PW1500 ENGINE

- 9 engines participated in certification tests
- All certification tests completed
- 2,540+ hours / 6,640+ cycles of testing including 340 flight hours
- Powerplant assembly delivered in Mirabel (PQAD)

BOMBARDIER
the evolution of mobility

Thank you
Merci

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