



ASPEN/PITKIN COUNTY AIRPORT

OWNED AND OPERATED BY PITKIN COUNTY

Board of County Commissioner's Meeting - November 19, 2013

FUTURE AIR SERVICE STUDY – PHASE 1

Topics

- Introduction
- Industry trends
- Regional aircraft trends
- Conclusions & recommendations



ASPEN/PITKIN COUNTY AIRPORT

OWNED AND OPERATED BY PITKIN COUNTY

Introduction



Phase 1

- Provide insight on relevant industry trends related to regional service
- Focused on three key areas:
 - Current trends
 - The changing technology of future regional aircraft that may be capable of serving ASE
 - Actions that should be considered to sustain future air service



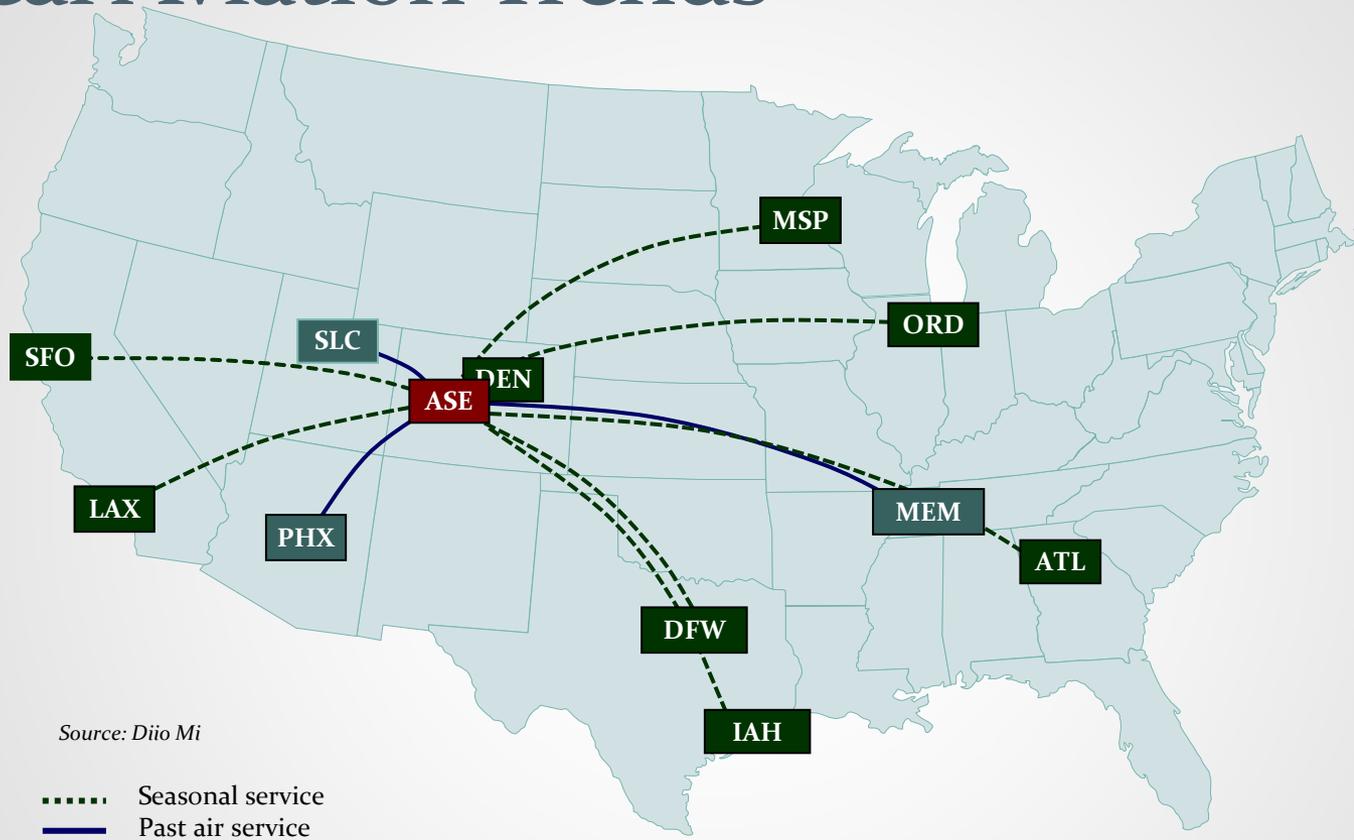
ASPEN/PITKIN COUNTY AIRPORT

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Industry Trends



Local Aviation Trends



- ASE has experienced changes in service in part due to changes in compatible aircraft (e.g. Frontier DEN)
- Current service flown exclusively by CRJ-700

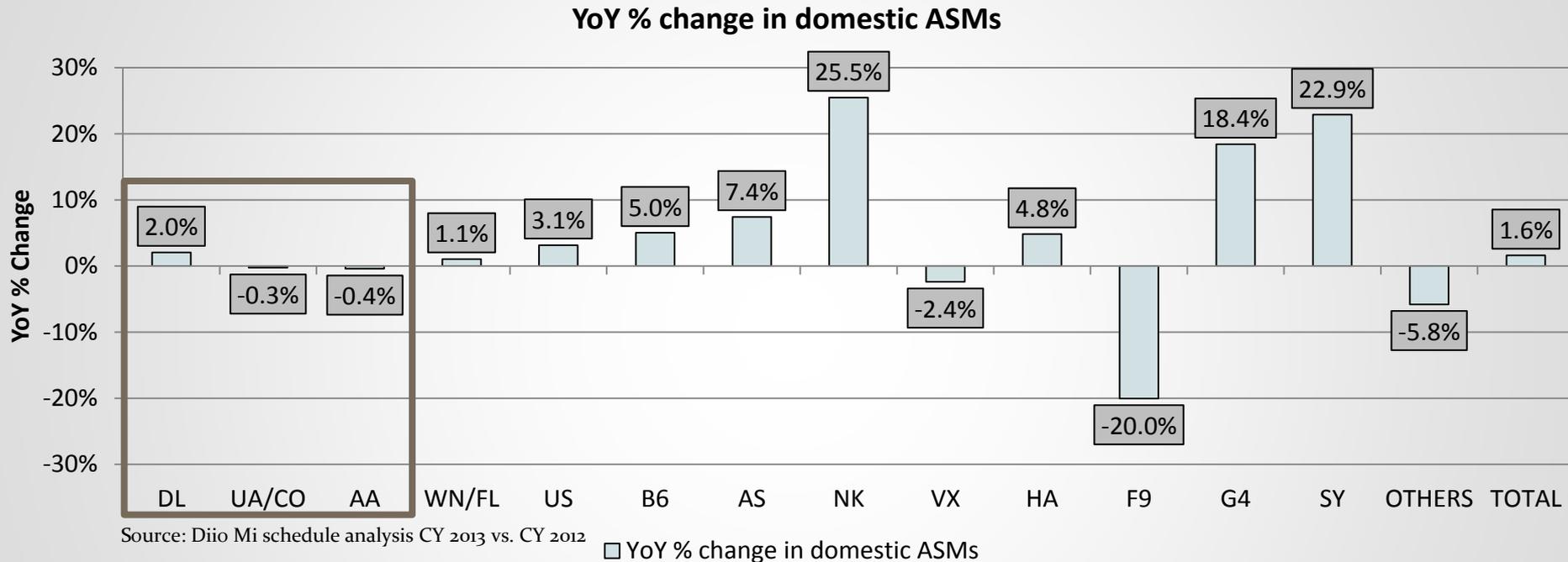
ASE Aircraft in Use

AIRCRAFT TYPE	OPERATING CARRIER(S)	SEATING CAPACITY	SERVICE BEGAN IN...	SERVICE ENDED IN...
BAe-146-200	TriStar	100	December 1995	August 1996
BAe-146-300	United	90-92	August 2003	April 2006
	US Airways	90-98	June 1991	December 1999
	Air Wisconsin	89-90	January 2000	July 2003
BAe-146-100	Aspen	86	prior to January 1990	April 1991
	Business Express	70	December 1995	March 1996
Dash 8 – Q400	Frontier	74	April 2008	April 2012
Avro RJ-85	Northwest	69	January 1998	April 2006
	Mesaba	69	January 2000	March 2006
CRJ-700	American	64	December 2011	Service continues as of November 2013
	Delta	65-70	June 2006	March 2010 – returns December 2013
	United	66	April 2006	Service continues as of November 2013
Convair CV-580	Aspen	50	prior to January 1990	May 1990
Dash 8 – Q100	America West	37	August 2003	February 2007
	Mesa	37	October 2002	August 2005
	United	37	September 2003	December 2009
	US Airways	37	March 2007	April 2008

Source: Diio Mi schedules and T-100 monthly series (January 1990 - July 2013)

- ASE has accommodated regional jet aircraft with as many as 100 seats (BAe-146) – in line with the next generation of regional aircraft

Capacity by Airline



- Modest growth trend expected to continue for ASE airlines



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Regional Aircraft Trends



Current Regional Aircraft

2012 REGIONAL FLEETS

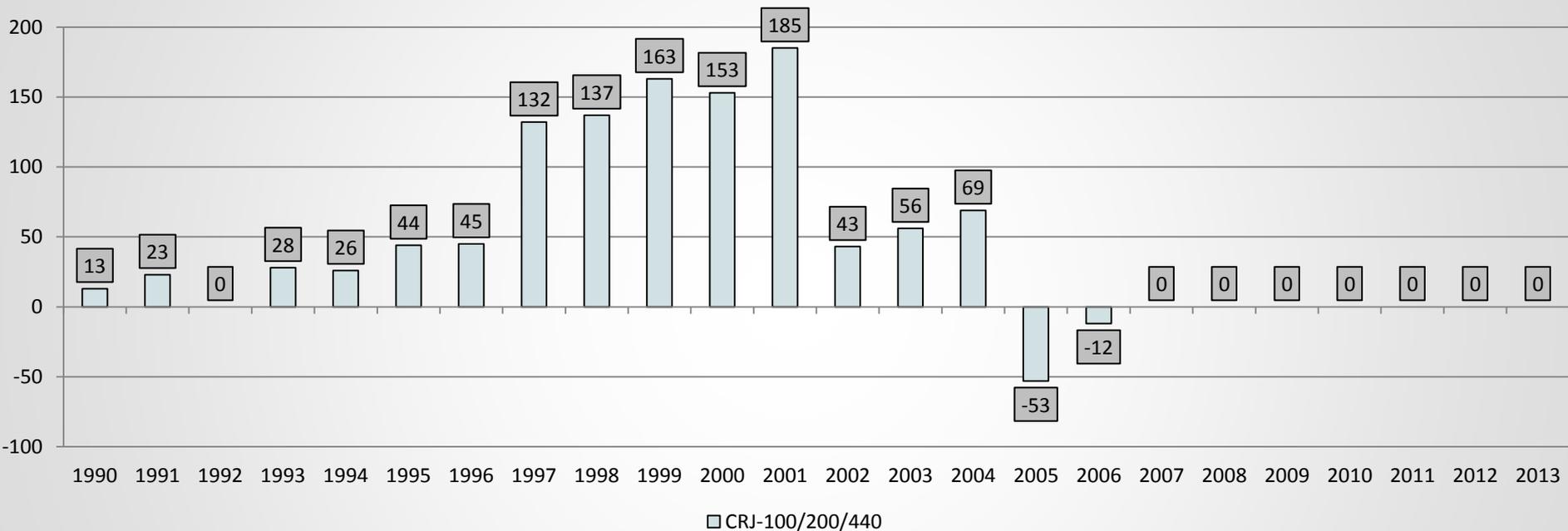
AIRLINE	TOTAL REGIONAL AIRCRAFT	50-SEAT OR LESS	50-SEAT % OF TOTAL
American	294	212	72%
Delta	616	366	59%
United	566	345	61%
US Airways	302	135	45%
Top 4	1,778	1,058	60%

Source: Airline 10-K; Diio Mi

- Current regional jets initially introduced in 1992
- Regional fleets grew as scope clauses relaxed
- Many 50-seat jets have reached their 15-17 year lifecycle and are being phased out
- Airlines using CRJ-700 as the replacement aircraft - placing it in high demand

50-Seat Orders (CRJ-100/200)

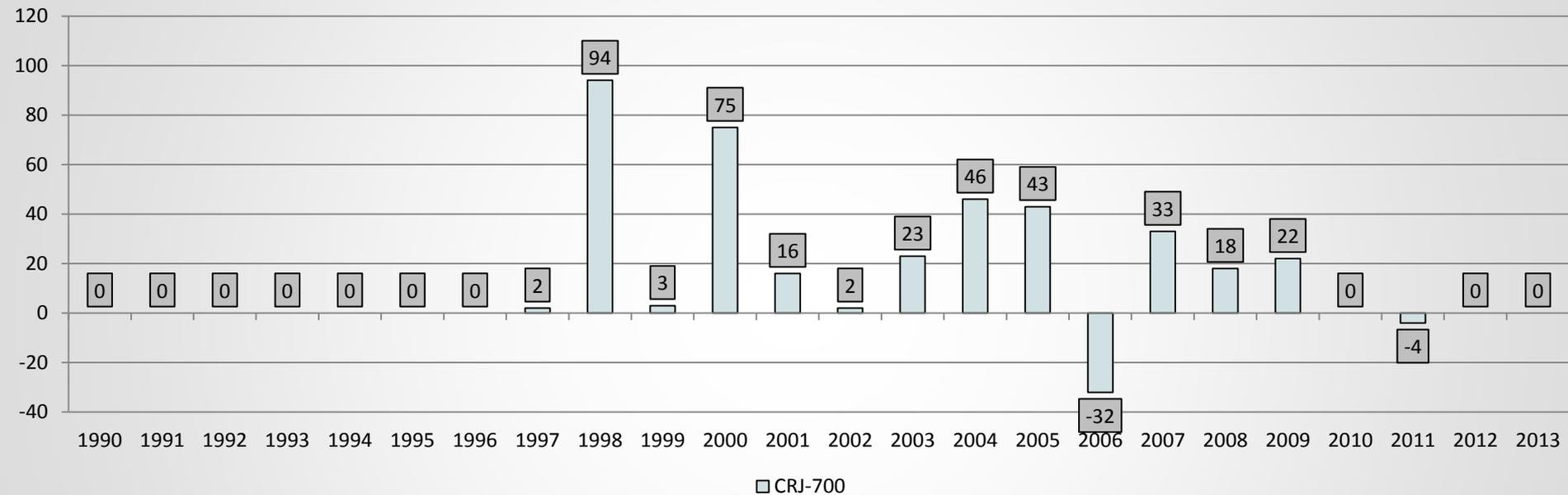
CRJ-100/200/440



- No orders since 2004 for the most successful 50-seat regional aircraft (CRJ-100/200)

CRJ-700 Orders

CRJ-700



- Regional aircraft orders have shifted away from the CRJ-700 towards the next generation of larger regional jets

Bombardier Jet Deliveries (U.S. market)

BOMBARDIER U.S. REGIONAL JET DELIVERIES

CALENDAR YEAR	CRJ 100/200/440	CRJ 700	CRJ 900	TOTAL
1993	12			12
1994	12			12
1995	11			11
1996	23			23
1997	15			15
1998	42			42
1999	51			51
2000	55			55
2001	76	10		86
2002	99	35		134
2003	127	42	10	179
2004	89	52	15	156
2005	34	47	13	94
2006	0	25	11	36
2007	0	2	40	42
2008	0	2	47	49
2009	0	22	11	33
2010	0	19	3	22
2011	0	13	3	16
2012	0	0	0	0
2013	0	0	0	0
Total	646	269	153	1,068

- Over half of U.S. CRJ-700 deliveries occurred by 2004
- It is expected that the majority of CRJ-700 operations will begin to significantly decline in the coming decade
- ASE service likely impacted by CRJ-700 reduction

Future Regional Air Service

AIRCRAFT TECHNICAL SPECIFICATIONS

AIRCRAFT TYPE	WINGSPAN		MAX LW (LBS)	ASE PERFORMANCE -CAPABLE	MEETS / DOES NOT MEET ASE OPERATIONAL RESTRICTIONS
	FEET/INCHES	METER			
Current Regional Aircraft					
CRJ-700	76' 3"	23.2	67,000	YES	Meets
Q-400	93' 3"	28.4	62,000	YES	Meets
CRJ-900	81' 7"	24.9	73,500	NO	Meets
CRJ-1000	85' 11"	26.2	81,500	NO	Meets
E-170	85' 4"	26	72,312	NO	Meets
E-175	85' 4"	26	74,957	NO	Meets
E-190	94' 3"	28.7	94,799	NO	Meets
E-195	94' 3"	28.7	99,208	NO	Meets
Future Regional Aircraft					
E-175 E2	101' 7"	31.0	86,201	TBD	Does not meet
E-190 E2	110' 6"	33.7	109,018	TBD	Does not meet
E-195 E2	110' 6"	33.7	118,498	TBD	Does not meet
MRJ-70 Standard	95' 9"	29.2	79,807	TBD	Does not meet
MRJ-90 Standard	95' 9"	29.2	83,776	TBD	Does not meet
CS100 Base	115' 1"	35.1	110,000	YES	Does not meet
CS300 Base	115' 1"	35.1	121,500	YES	Does not meet
Comparison Non-Regional Aircraft					
Airbus A319	111' 11"	34.1	138,000	N/A	Does not meet
Boeing 737-700	117' 5"	35.7	128,928	N/A	Does not meet
Boeing 717	93' 5"	28.5	100,000	N/A	Does not meet

Source: Manufacturers

- Next generation of regional aircraft have a larger wingspan

Changing Regional Jet Technology

- The next generation regional aircraft are larger but offer improved efficiencies
 - Winglets or blended wings improve fuel efficiency and climb gradient
 - Lower carbon footprint
 - Quieter
 - Improved range
 - Improved comfort





The Future of Regional Service At ASE

November 2013

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BOMBARDIER
the evolution of mobility

FORWARD-LOOKING STATEMENTS

This presentation includes forward-looking statements. Forward-looking statements generally can be identified by the use of forward-looking terminology such as “may”, “will”, “expect”, “intend”, “anticipate”, “plan”, “foresee”, “believe” or “continue”, the negative of these terms, variations of them or similar terminology. By their nature, forward-looking statements require Bombardier Inc. (the “Corporation”) to make assumptions and are subject to important known and unknown risks and uncertainties, which may cause the Corporation’s actual results in future periods to differ materially from forecasted results. While the Corporation considers its assumptions to be reasonable and appropriate based on information currently available, there is a risk that they may not be accurate. For additional information with respect to the assumptions underlying the forward-looking statements made in this presentation, please refer to the respective sections of the Corporation’s aerospace segment (“Aerospace”) and the Corporation’s transportation segment (“Transportation”) in the fiscal year 2012 MD&A.

Certain factors that could cause actual results to differ materially from those anticipated in the forward-looking statements, include risks associated with general economic conditions, risks associated with the Corporation’s business environment (such as risks associated with the financial condition of the airline industry), operational risks (such as risks related to developing new products and services; doing business with partners; product performance warranty and casualty claim losses; regulatory and legal proceedings; to the environment; dependence on certain customers and suppliers; human resources; fixed-price commitments and production and project execution), financing risks (such as risks related to liquidity and access to capital markets, certain restrictive debt covenants, financing support provided for the benefit of certain customers and reliance on government support) and market risks (such as risks related to foreign currency fluctuations, changing interest rates, decreases in residual value and increases in commodity prices.) For more details, see the Risks and Uncertainties section in the fiscal year 2012 MD&A. Readers are cautioned that the foregoing list of factors that may affect future growth, results and performance is not exhaustive and undue reliance should not be placed on forward-looking statements. The forward-looking statements set forth herein reflect the Corporation’s expectations as at the date of this presentation and are subject to change after such date. Unless otherwise required by applicable securities laws, the Corporation expressly disclaims any intention, and assumes no obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

BOMBARDIER COMMERCIAL AIRCRAFT PORTFOLIO

Optimized
short-haul
solution

**Q-SERIES
FAMILY**



Optimized
**regional
network**
solution

**CRJ SERIES
FAMILY**



Optimized
**100- to 149-seat
market segment**
solution

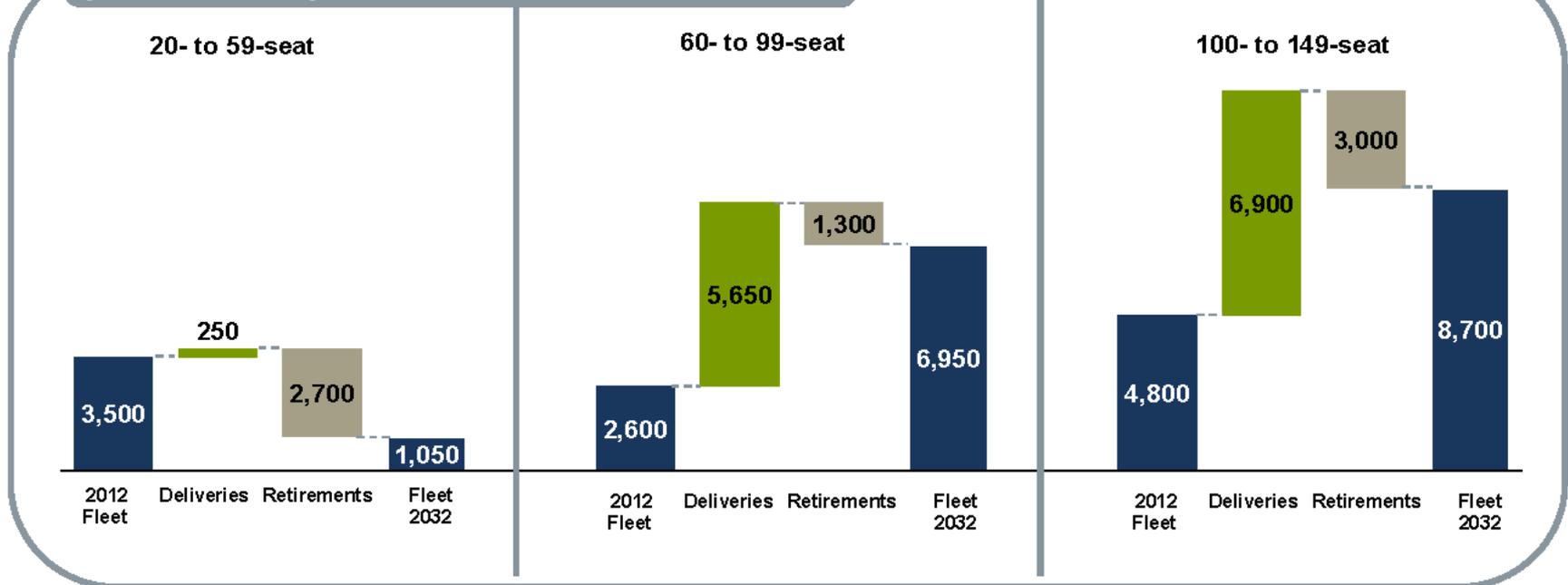
**C SERIES
FAMILY**



TREMENDOUS FLEET GROWTH FOR 60-99 SEAT AND 100-149 SEAT AIRCRAFT CATEGORIES

20-Year Commercial Aircraft Fleet Forecast

[Units, 2012-2032]



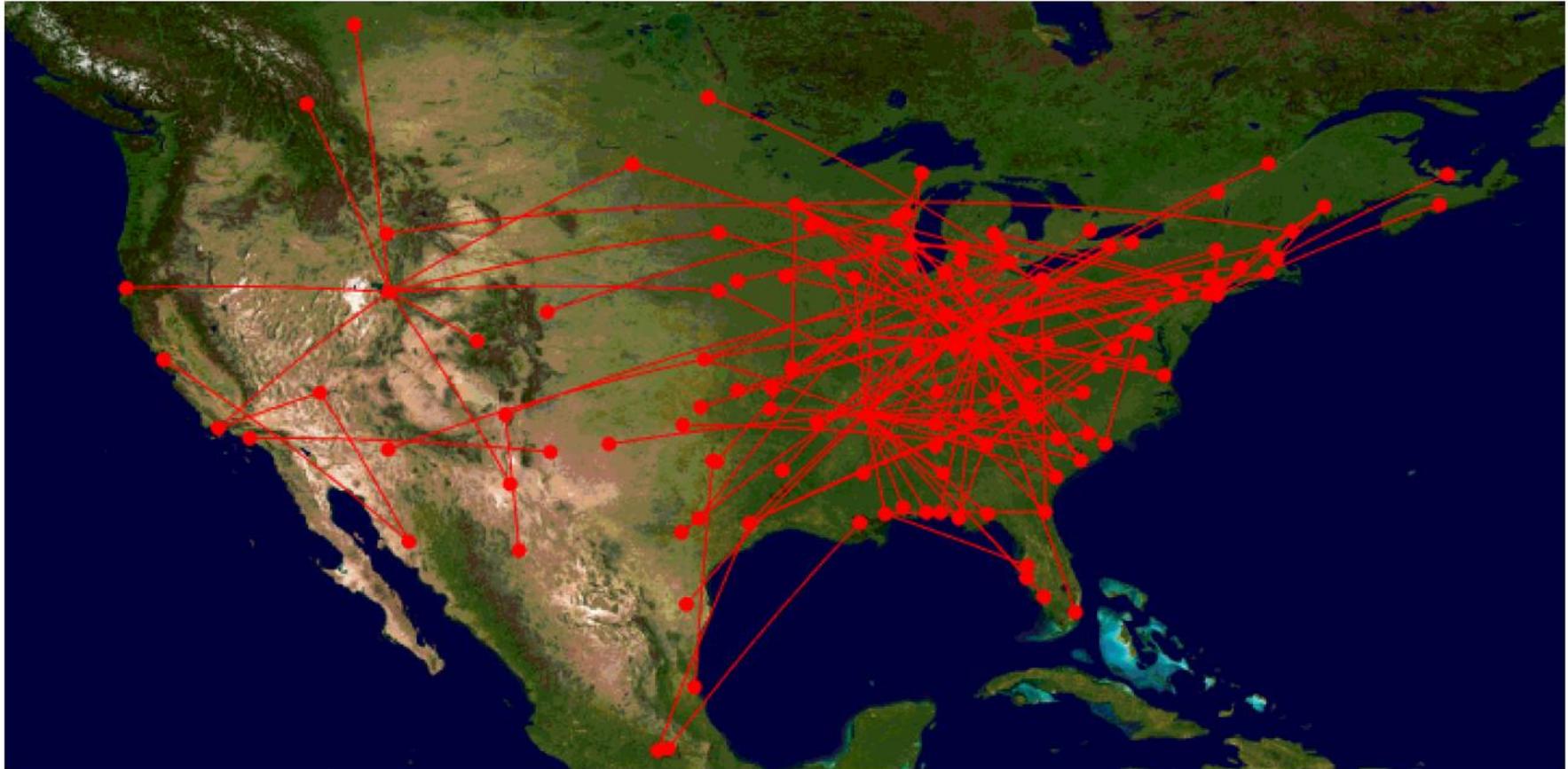
Total	Fleet 2012	Deliveries	Retirements	Fleet 2032
20- to 149-seat	10,900	12,800	7,000	16,700

Demand will shift away from the 20- to 59-seat category

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PREVIOUS 50-SEAT JET MARKETS

LOST SERVICE IN 5 YEARS = 160 ROUTES

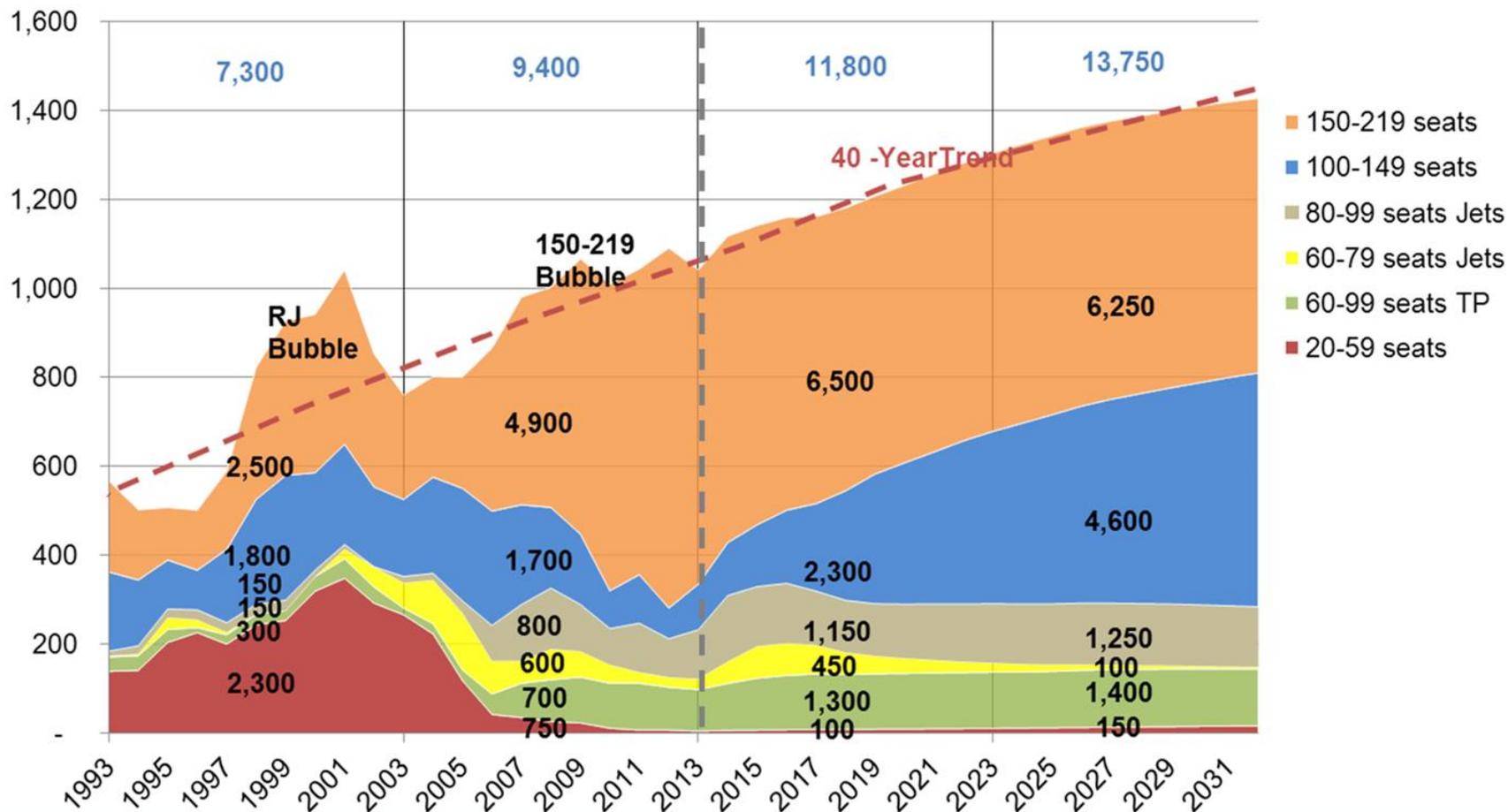


LOST ANNUAL DEPARTURES: ~170,000

LOST ANNUAL SEATS: ~8.5 MILLIONS

GLOBAL COMMERCIAL AIRCRAFT DELIVERIES

20 TO 219 SEAT DELIVERIES IN UNITS [1993-2032]



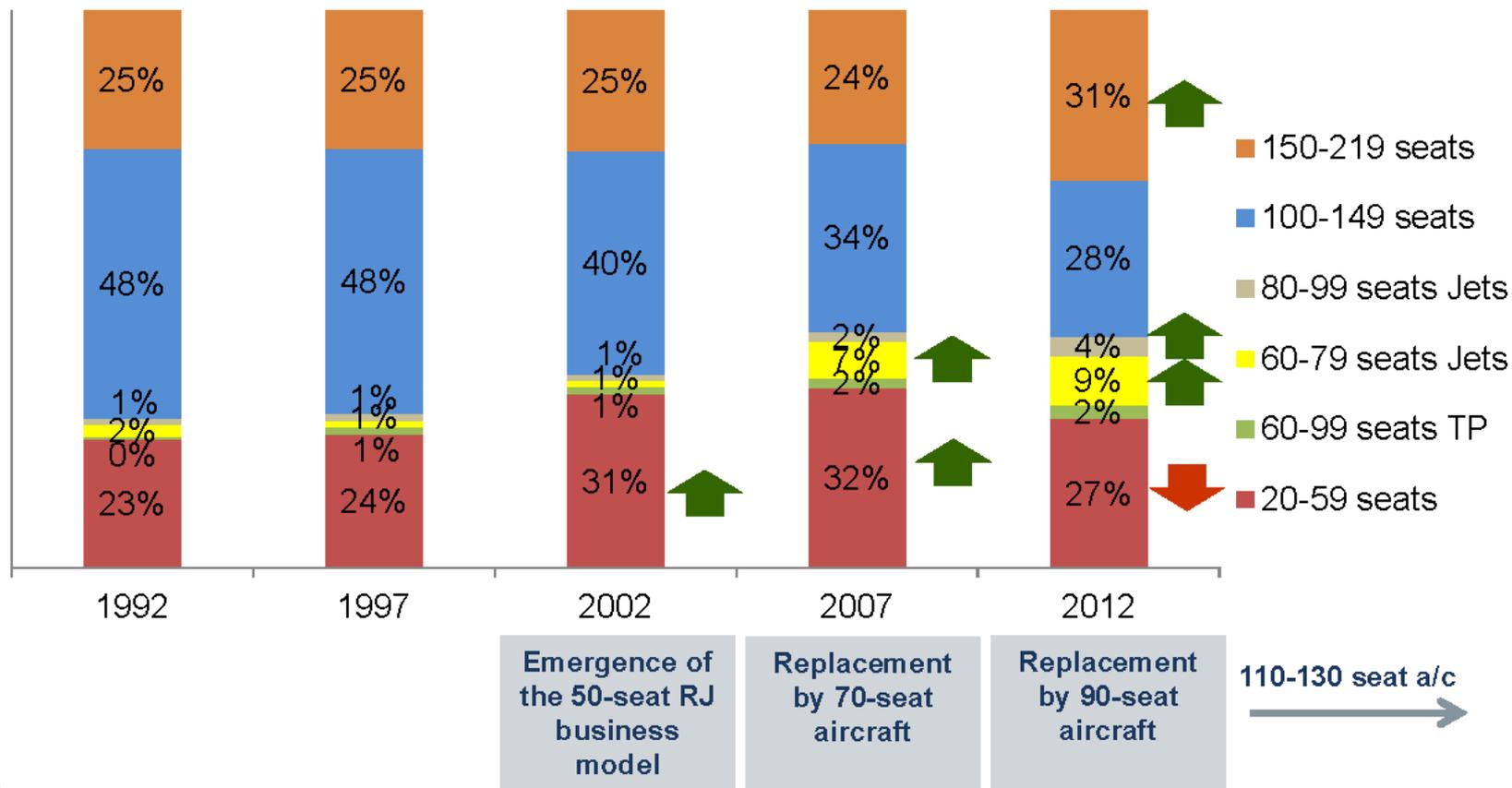
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6,900 deliveries in the 100-149 seat category over the next 20 years

RECENT PURCHASING CYCLES HAVE SHOWN AN INCREASED INTEREST FOR LARGER REGIONAL JETS AND SMALL SINGLE-AISLE AIRCRAFT

Mix of Aircraft in the US

[%, All narrowbody aircraft, 1992-2012]



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BOMBARDIER C SERIES

100% NEW
AIRCRAFT



BOMBARDIER
the evolution of mobility

ADVANCED TECHNOLOGY AIRCRAFT

CLEAN SHEET TO ENSURE OPTIMAL INTEGRATION



Advanced Flight Deck
FBW with Side Sticks



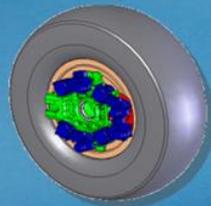
Best-In-Class
Cabin Comfort
and Flexibility



Superior Field Performance
& Range Flexibility



Pratt & Whitney
PurePower®
PW1500G Engine



Electric
Brakes



Integrated Avionics &
Optimized Systems



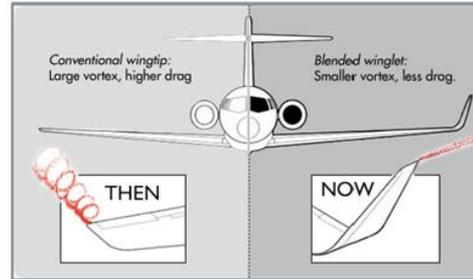
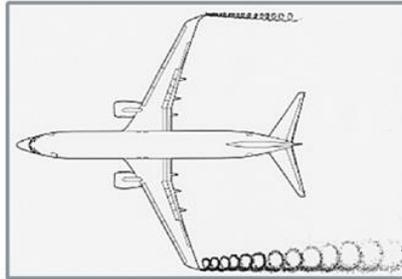
Advanced Materials
> 2,000 lb. weight savings



WINGLETS 101

HOW THEY BENEFIT PERFORMANCE

Winglets act as obstacles to wingtip vortices and reduce their strength, therefore reducing induced drag. Winglets also divert vortices away from the wingtip, reducing the fraction of the wing affected by the vortex downwash.



WINGLETS :

- Reduce induced drag and produce lift
- Increase the lift-to-drag (L/D) ratio
- Improve the overall efficiency of the wing

As opposed to “End-plates” which would simply block vortex and only reduce induced drag (no extra lift)



BENEFITS OF WINGLETS IS WELL UNDERSTOOD

BOMBARDIER IS THE PIONEER OF WINGLET APPLICATIONS

REDUCED FUEL BURN
(BETWEEN 2% TO 5%)

INCREASED PAYLOAD-RANGE
CAPABILITIES

IMPROVED LANDING
PERFORMANCE

IMPROVED TAKEOFF
PERFORMANCE

REDUCED NOISE
(VIA REDUCED THRUST)

REDUCED EMISSIONS
(VIA REDUCED THRUST)



WINGSPAN OF NEW AIRCRAFT INCREASE WITH TIME

A TREND SEEN IN VARIOUS CATEGORIES AND WELL DOCUMENTED

Commercial Aircraft Design Characteristics
- Trends and Growth Projections

EXTERNAL INDUSTRY SOURCES

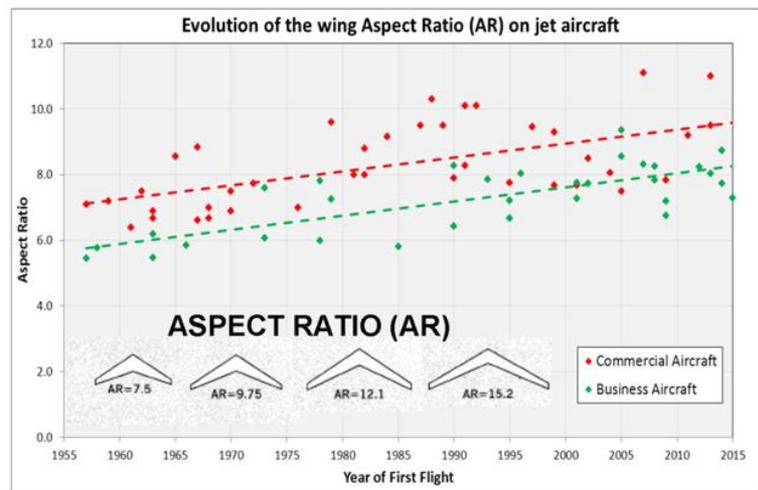
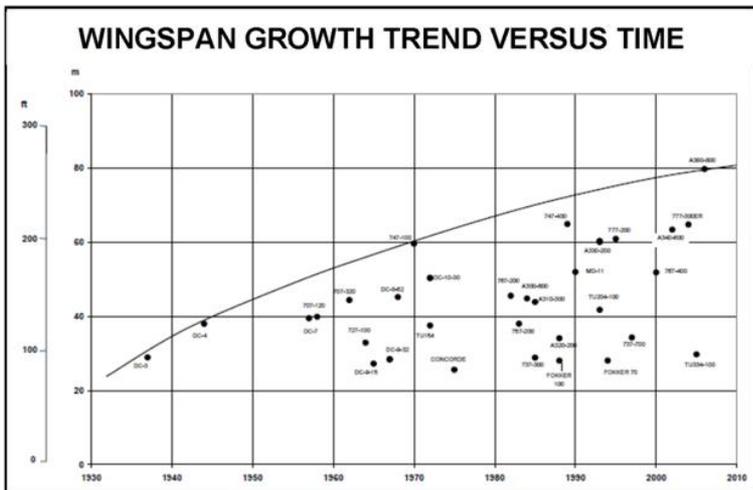
International Industry Working Group
Fifth Revision, 2003



INTERNAL BOMBARDIER ANALYSIS

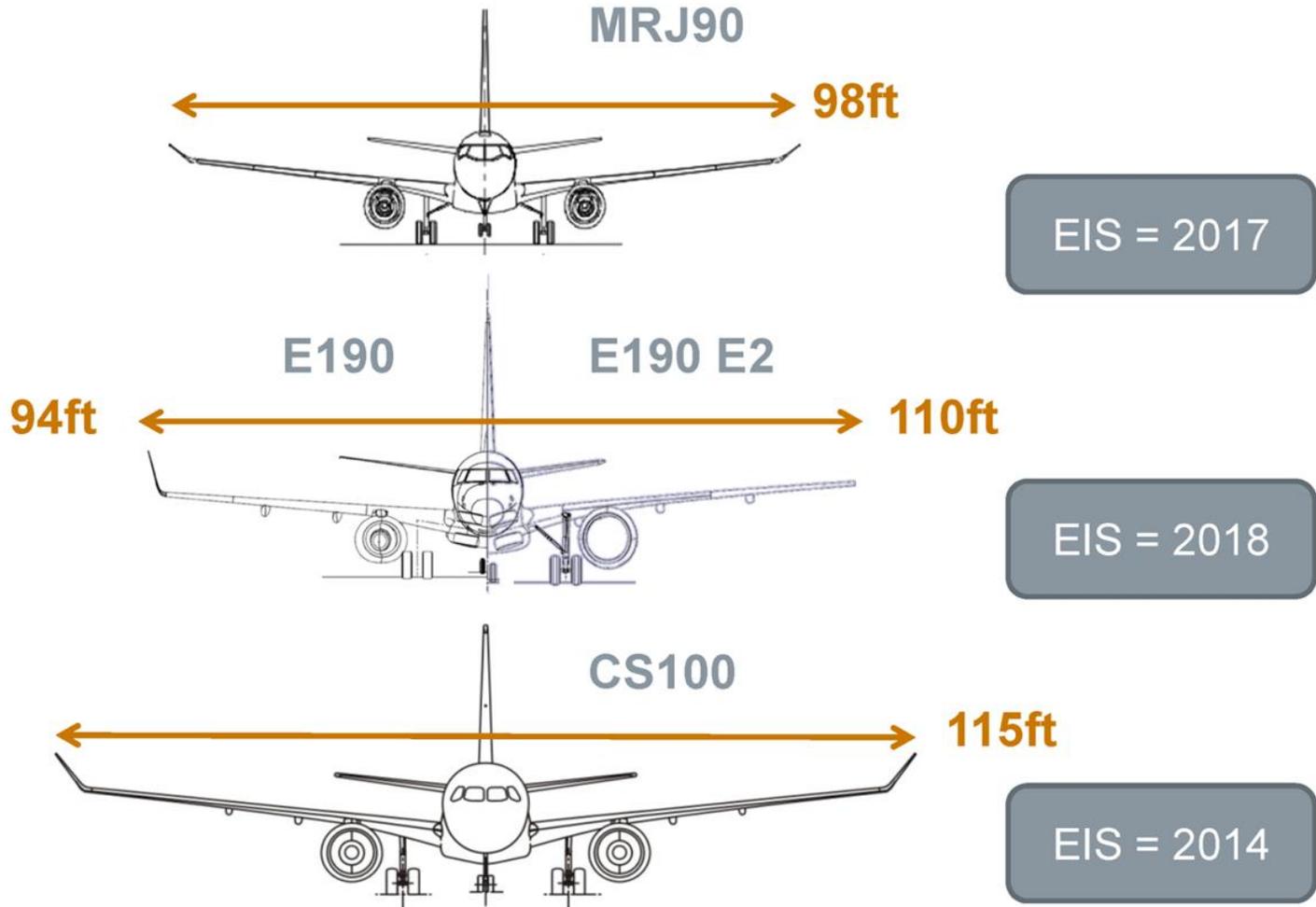
BOMBARDIER INTERNAL ANALYSIS ON WINGLETS

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WINGSPAN OF NEW AIRCRAFT INCREASE WITH TIME

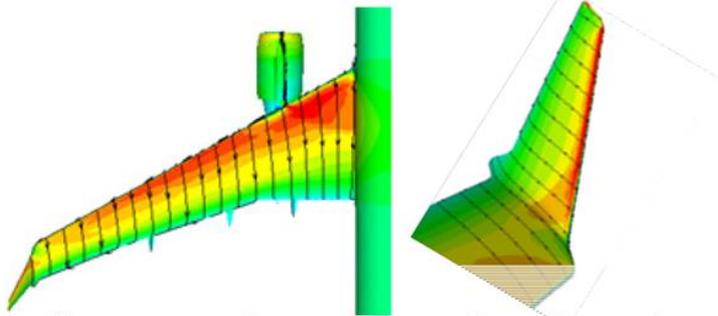
NEW GENERATION AIRCRAFT



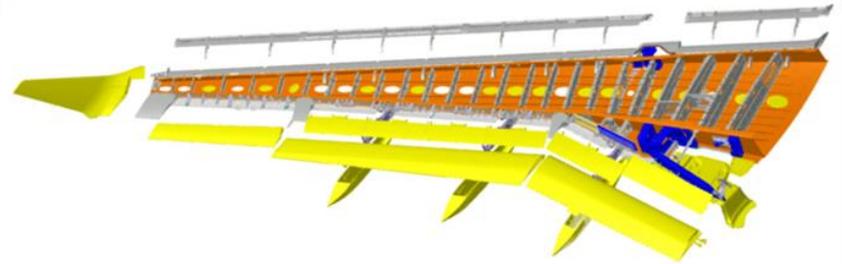
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C SERIES WING AND WINGLET DESIGN & MANUFACTURE

NEW TECHNOLOGY AND TOOLS ENABLING HIGHER ASPECT RATIO



4th generation transonic wing; the result of highly skilled aerodynamists



Composite wing using Resin Transfer Infusion (RTI) process



C Series wing; the result of our 40 years experience in composite



All our jet aircraft have winglet since our Learjet 28 (1977)

UNMATCHED FUEL EFFICIENCY

THROUGH WELL BALANCED TECHNOLOGY COMBINATION

Optimal Aircraft Integration

Lighter Aircraft by
up to 12,000lbs (50
pax)

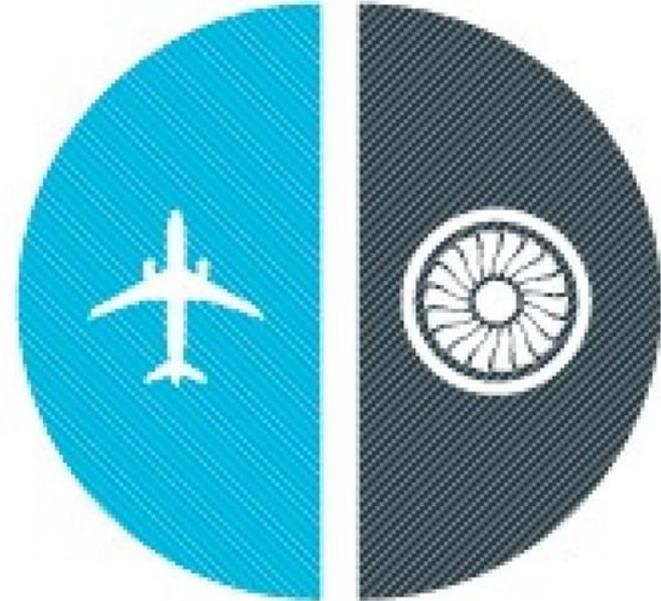


State-of-the-Art
Aerodynamics



Game Changing
Engine

PurePower® PW1500G



20% Fuel Burn
Advantage

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WIDEBODY COMFORT WITH A SINGLE AISLE AIRCRAFT



Wider
seats

Bigger
windows

More
storage

Larger
aisle

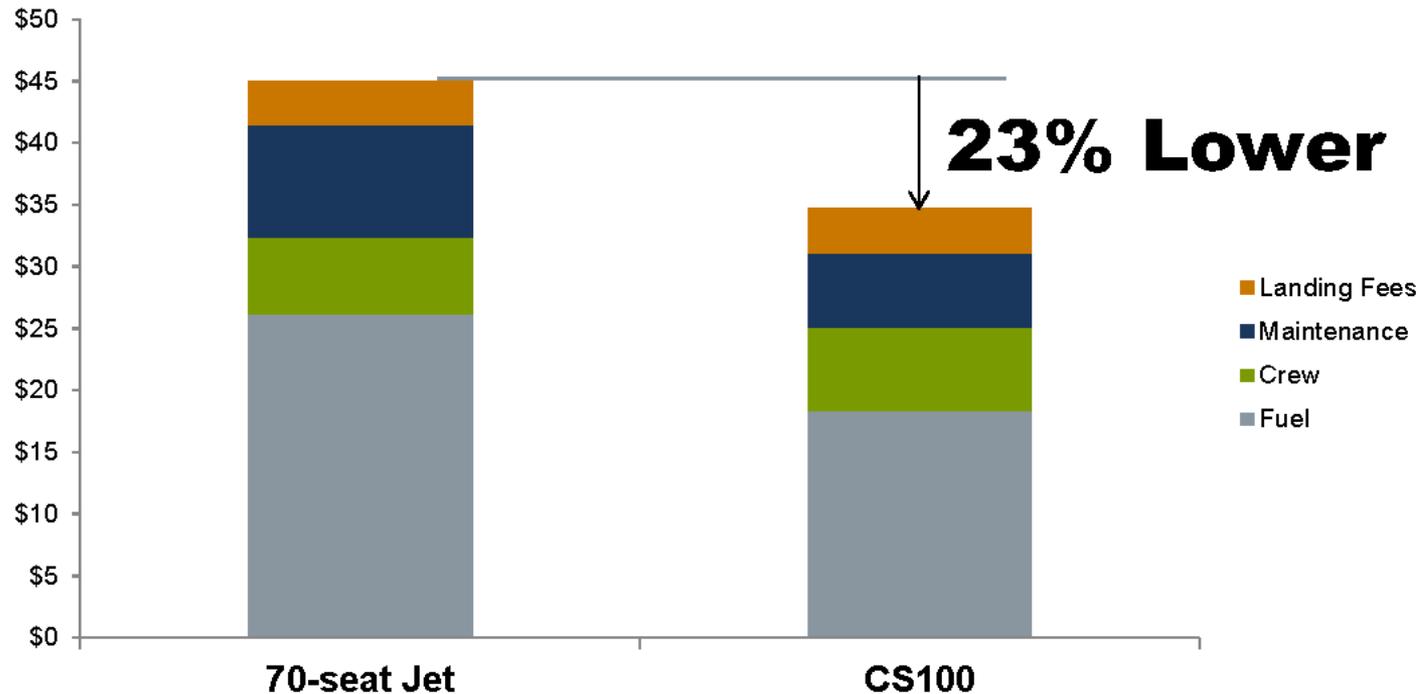




CS100 at ASE

CS100 IS AN EFFICIENT AIRCRAFT FROM AN OPERATING COST PERSPECTIVE

Cash Operating Cost (\$ per Seat)



FROM ASE THE CS100 OFFERS EXCELLENT RANGE

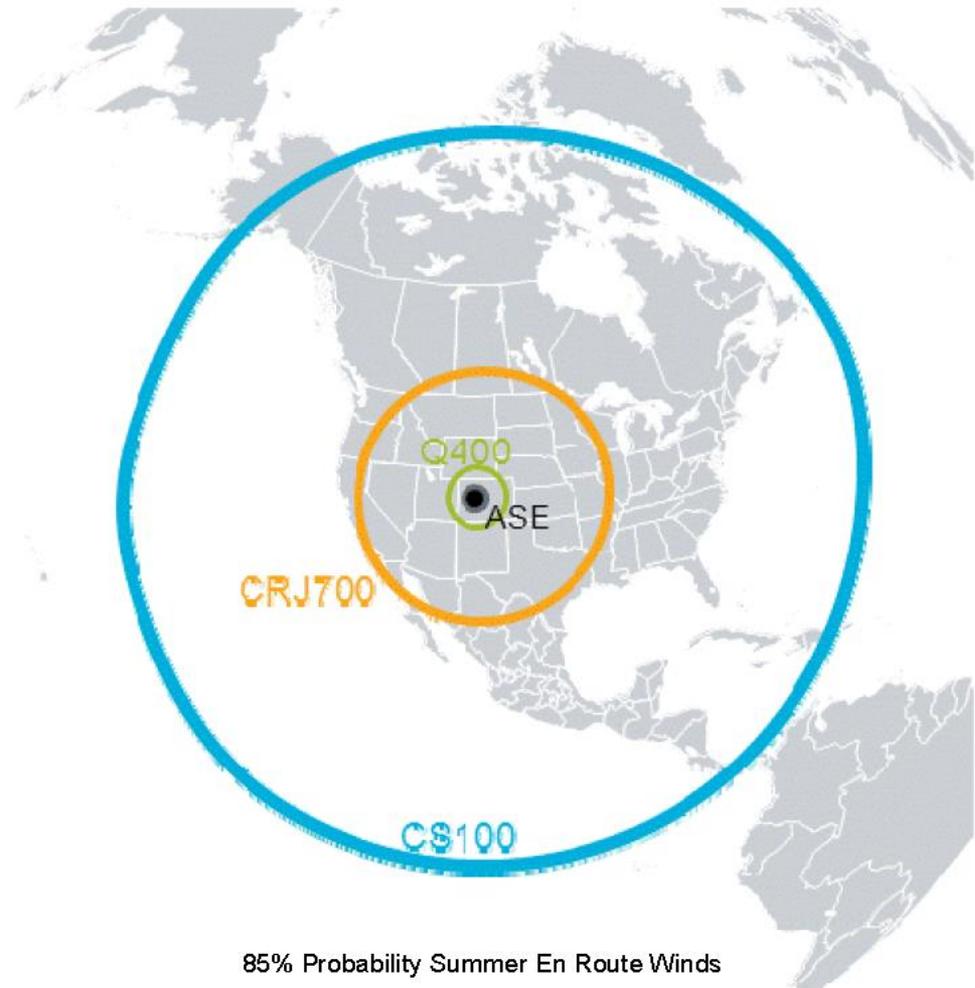
SUMMER RANGE

Q400	74 Pax	178 nm*
CRJ700	66 Pax	755nm*
CS100	108 Pax	2,340 nm*

*Still-Air Range

Standard Performance Assumptions:

- 225 lb per Pax
- Typical dual class OWE
- 100 nm Alternate
- 45 min Hold @ 10,000 ft
- En-Route Temperature: ISA
- 5% Flight Fuel Reserve
- 15 min. Taxi
- ASE at ISA+23C

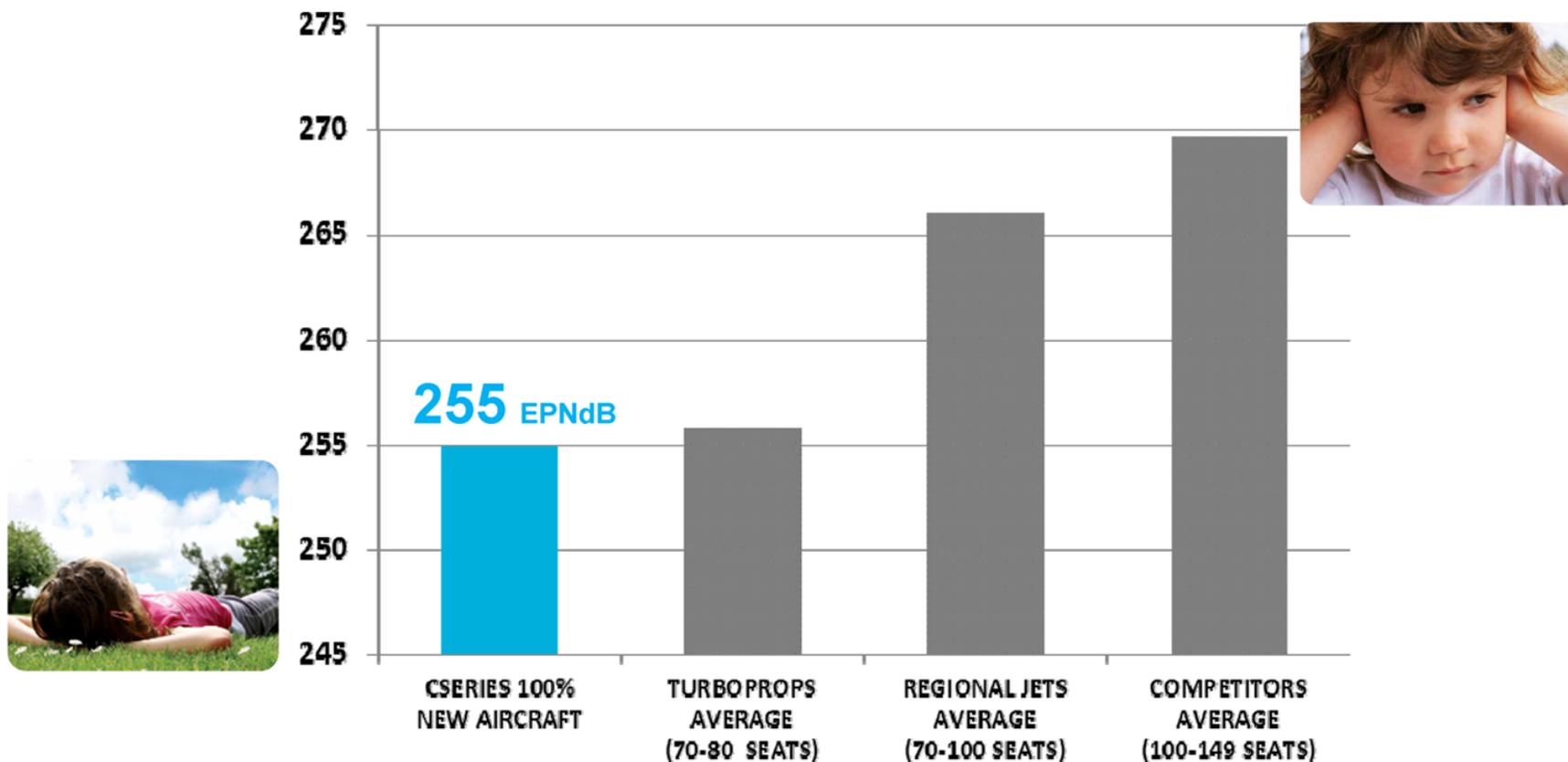


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Notes: Information purposes only – actual performance will depend on airline-specified procedures and assumptions

THE QUIETEST COMMERCIAL AIRCRAFT IN-PRODUCTION

Effective Perceived Noise in Decibels (EPNdB)



THE QUIETEST COMMERCIAL AIRCRAFT IN-PRODUCTION

MAIDEN FLIGHT OF C-SERIES AIRCRAFT, SEPTEMBER 16, 2013



“The aircraft exceeded our expectations, and truly is a **Whisperjet**”

Mr. Robert Deluce,
CEO, Porter Airlines



“I could hardly hear it, so it looks promising. It’s going to be an environmental revolution”

Mr. Trygve Gjertsen, SVP
Braathens Aviation



“It was **very quiet**, which is great. We have a lot of data and we feel pretty confident that it will be good”

Mr. Nico Buchholz, SVP Corporate Fleet, Lufthansa

Comment seen on Twitter
“SO QUIET, CRICKETS WERE LOUDER!!!”



FINANCIAL POST

NATIONAL POST • NEWS • OPINION • MARKETS • INVESTING • PERSONAL FINANCE • MORTGAGES & REAL ESTATE • IT

NEWS TRANSPORTATION

Indices Data delayed at least 15 min.	S&P 500 13,381.27 87.57 (0.65%)	Dow Jones 15,700.80 106.82 (0.68%)	NASDAQ 3,814.44 67.09 (1.76%)
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TRANSPORTATION

TRENDING | Twitter IPO | BlackBerry | Costco Advice | Earnings | Housing market | Bank of Canada | iPad

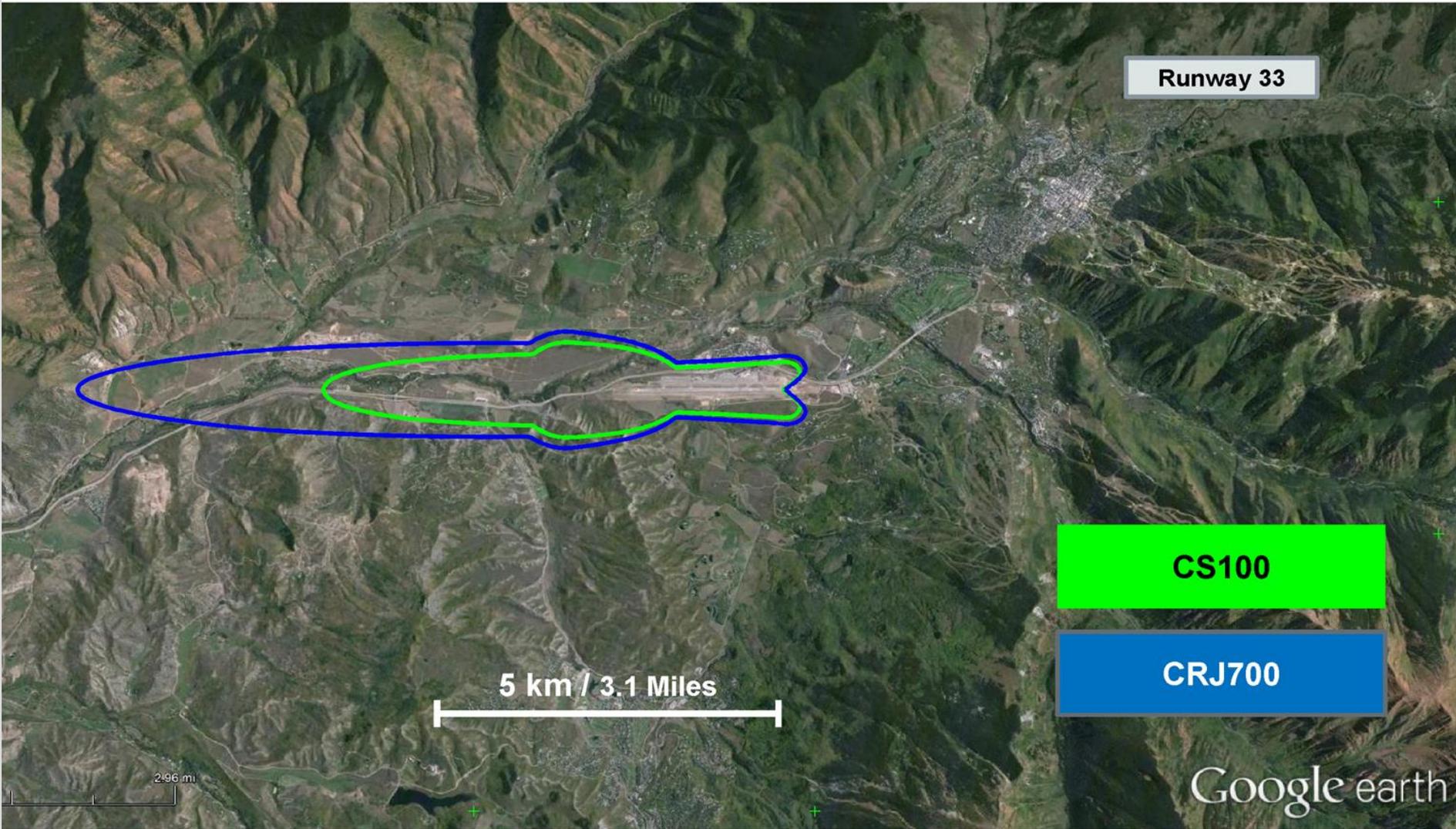
How Bombardier's CSeries is ushering in a new era of super quiet jets

SCOTT DEWEAU | 2/10/9/13 | Last Updated: 20/09/13 7:34 PM ET
More from Scott Deveau | @scottdeveau

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TAKEOFF NOISE FOOTPRINT

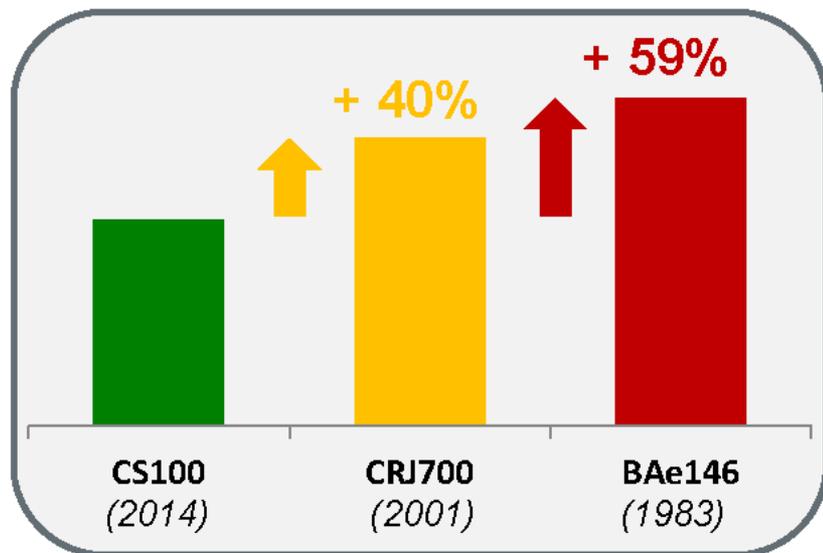
ASPEN-PITKIN COUNTY AIRPORT, COLORADO (ASE)



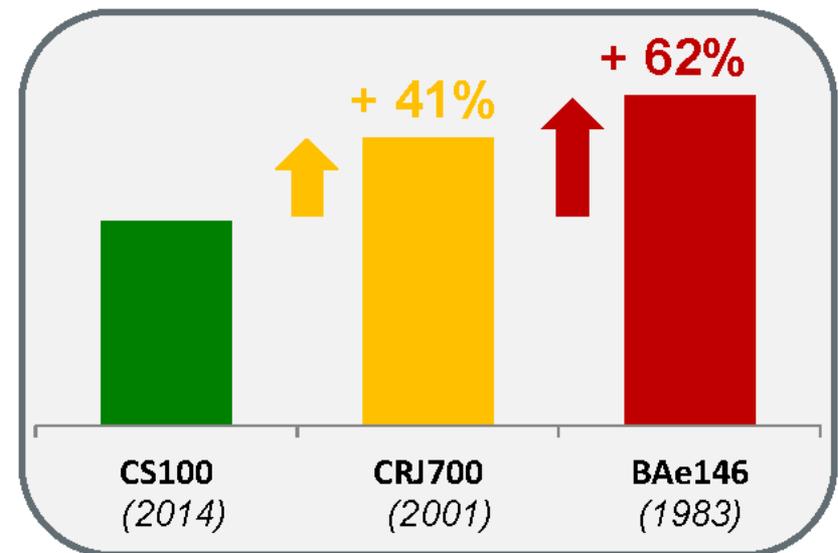
FUEL BURN AND CO₂ EMISSIONS PER SEAT

BENCHMARK CS100 VS PREVIOUS COMMERCIAL JETS AT ASPEN

L/nm/seat or gCO₂/nm/seat



500 nm

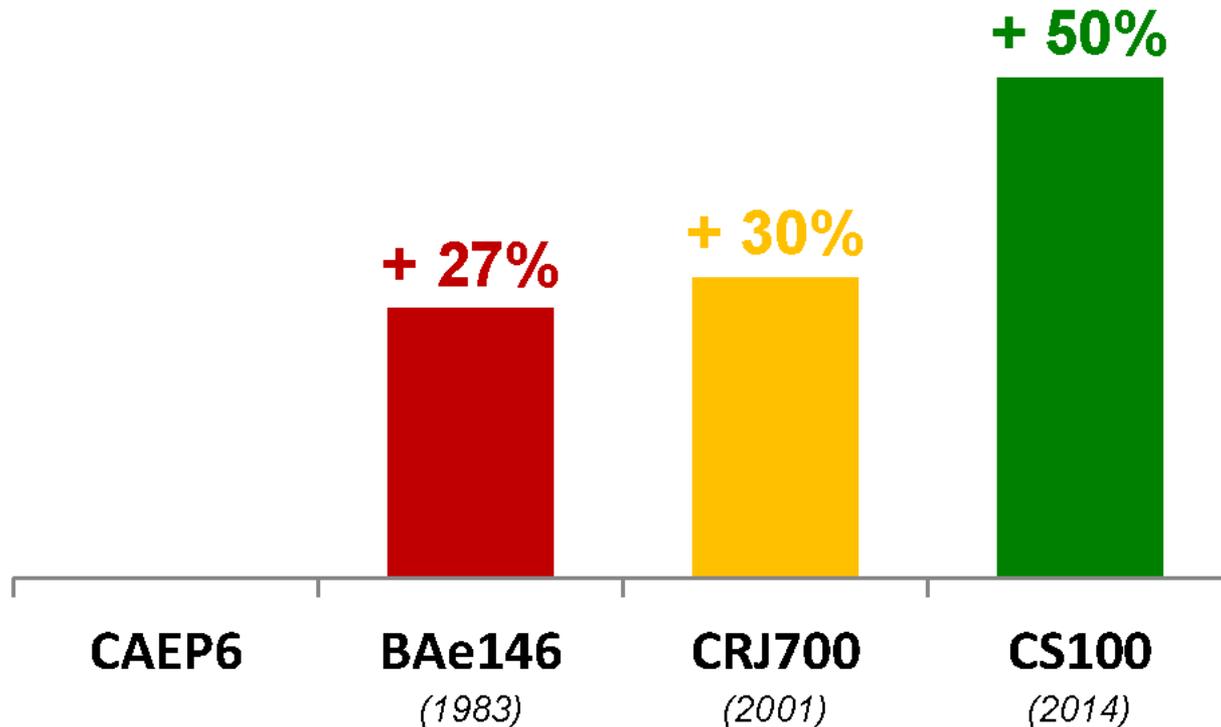


1,000 nm

NO_x EMISSIONS

BENCHMARK CS100 VS PREVIOUS COMMERCIAL JETS AT ASPEN

NO_x Emissions Margin (% to ICAO CAEP6 norm)



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UNMATCHED FLEXIBILITY OF THE CSERIES AIRCRAFT IDEAL FOR LIGHT FOOTPRINT OPERATIONS



Unmatched flexibility



Best-in-class
airfield performance



Increased range
capability out of
challenging airports

BOMBARDIER

the evolution of mobility



ASPEN/PITKIN COUNTY AIRPORT

OWNED AND OPERATED BY PITKIN COUNTY

Conclusions & Recommendations



What We Learned – Phase 1

- CRJ-700
 - Provides 100% of ASE service today
 - Replacing retired 50-seat RJ fleet placing it in high demand
 - US deliveries from 2001 to 2011
 - Estimated operational lifespan 15-17 years
 - First retirements estimated to begin 2018
 - Over half of US fleet anticipated to be retired by 2021



What We Learned – Phase 1 (cont.)

- Future regional jets will be entering into airline service beginning 2014 - 2018
- Next generation, although physically larger, offer
 - Reduce environmental impact (noise, fuel burn/CO₂, Nox)
 - Alternative to fly/drive
 - Improved travel experience
- Operational restrictions preclude future regional aircraft from serving ASE

What We Learned – Phase 1 (cont.)

- To accommodate changing regional jet technology, the following recommendations are proposed for consideration:
 - Proceed to Phase 2
 - Evaluation of airfield and airspace configuration

Staff Recommendation

- Proceed to Phase 2 to further study options that might be available to the community

