



A NEW PERSPECTIVE



**5-YEAR NEW & PRE-OWNED BUSINESS AVIATION
MARKET FORECAST 2019 - 2023**

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FOREWORD



The business aviation industry is valued in excess of USD \$26B based on 2018 new delivery and pre-owned sales alone. As such, this year we believe the time is right for our forecast to take a leap forward. By leveraging more of our own proprietary data and past transactional databases, we are producing a truly unique market forecast – the first of its kind to take to such a precise, comparative and quantified look at both new and pre-owned business aircraft transactions. What we see emerging, despite more conservative new delivery predictions, is a dynamic pre-owned market poised for continued and significant growth.

All this, of course, has only been possible through our privileged position in the industry, made real by the belief and loyalty of our customers, partners and friends worldwide. If you are reading this you have very likely played a part in its existence. In humbly thanking you all, I am proud to present this year's report – the industry's first ever 5-Year New & Pre-Owned Business Aviation Market Forecast.

Jahid Fazal-Karim
Chairman of the Board, Jetcraft

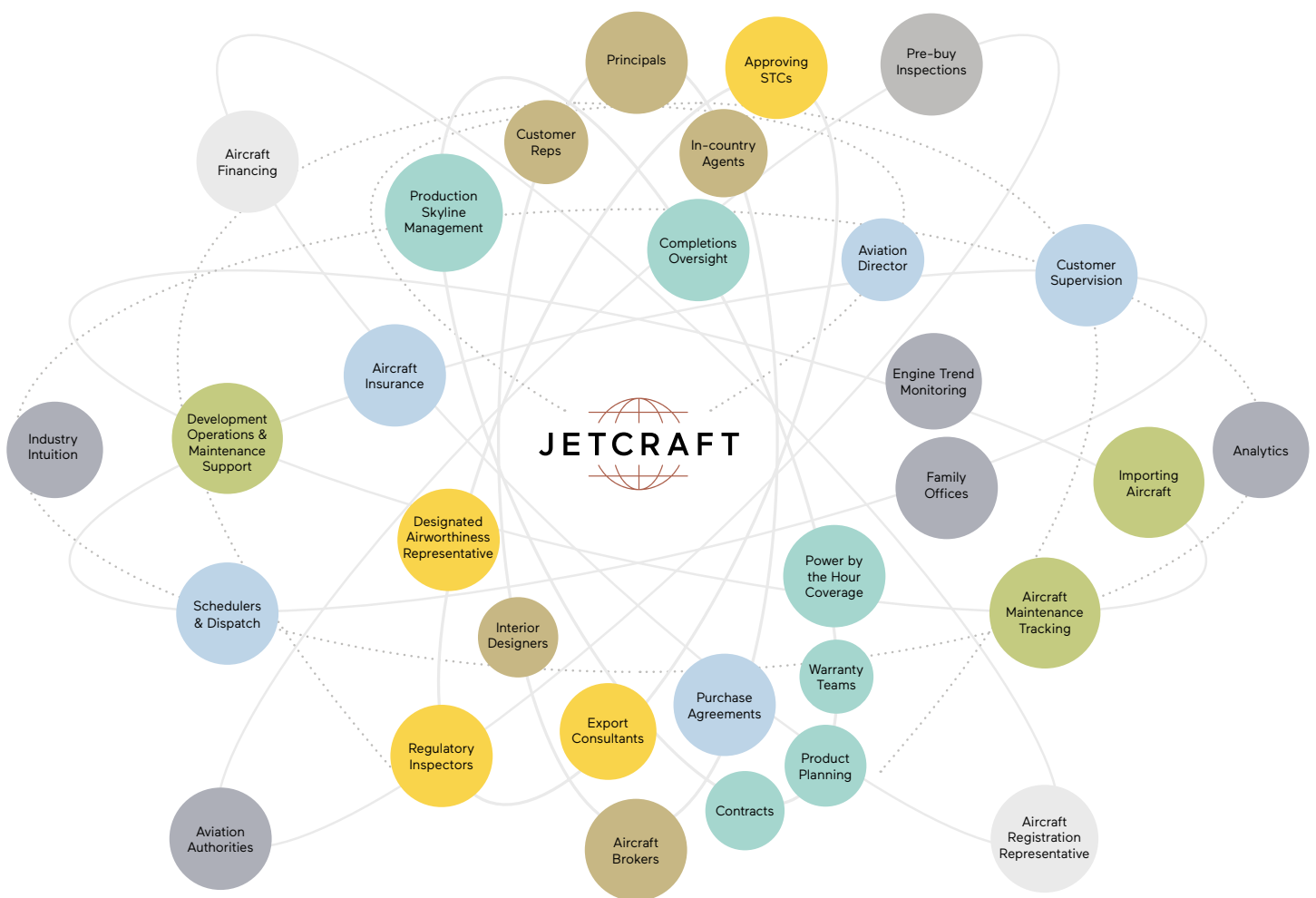


THE JETCRAFT PERSPECTIVE



Our vision spans every aspect of the industry, with more than fifty-five years in both new and pre-owned aircraft sectors and thousands of transactions completed. Due to our unique position, situated between a traditional broker and an OEM, Jetcraft possesses a broader viewpoint than most in business aviation, allowing for an unparalleled depth

of understanding and analysis of the dynamic drivers of our market. From this privileged vantage point comes the strength and confidence to make even more precise and qualified predictions, producing a market outlook that truly advances understanding and anticipation of our industry and the future we face.



A FRESH OUTLOOK

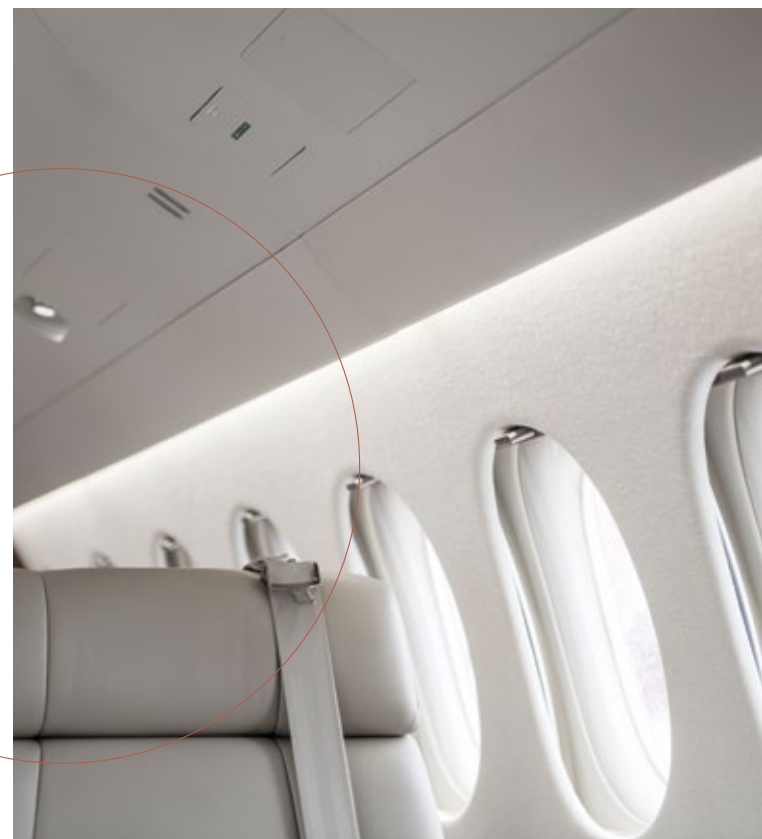
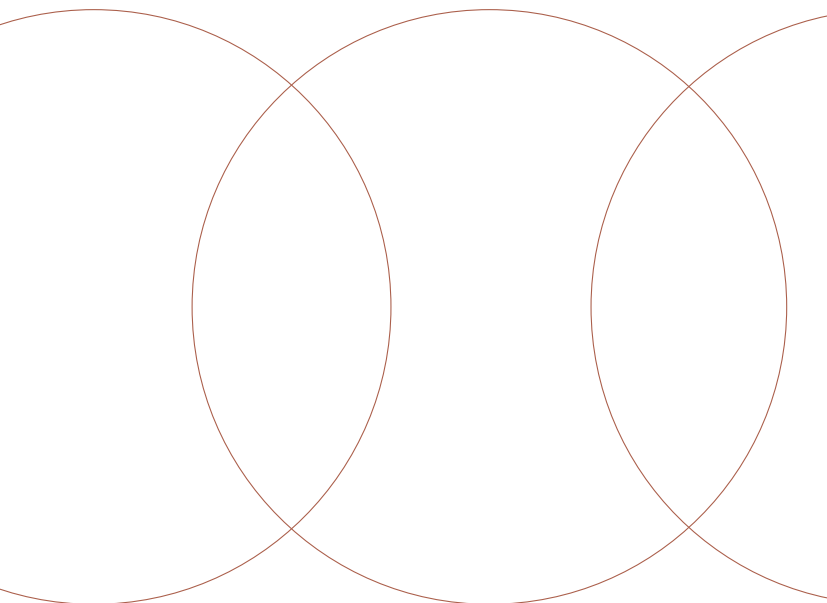


The global economic instability of recent years demands not only a re-evaluation of the way we look forward, but also a new breadth and sharpness of analytic vision, if we are to continue to lead in market insight as we do in business aircraft sales, marketing and ownership strategies. Key among this year's changes is our shift from a 10-year to a 5-year outlook, more in line with the current aircraft ownership experience.

Other standout differences include: adjusting the overall population of aircraft analyzed to better align with our expertise; classifying New Deliveries as transactions only from date of Entry Into Service; and retrospectively normalizing classifications prior to 2012, when all aircraft built were considered as New Deliveries. Importantly, we're leveraging more bespoke data for a truly consolidated outline of what we see the pre-owned market doing.

JETCRAFT IS THE FIRST TO

- FORECAST THE PRE-OWNED MARKET BY UNITS/REVENUE
- ASSIGN A VALUE TO THE PRE-OWNED MARKET
- ANALYZE AND PREDICT RETIREMENTS



EXECUTIVE SUMMARY

11,765

PRE-OWNED TRANSACTIONS
REPRESENTING

\$61.0B

IN REVENUE FORECAST
OVER THE NEXT 5 YEARS

3,444

NEW DELIVERY UNITS
REPRESENTING

\$90.5B

IN REVENUE FORECAST
OVER THE NEXT 5 YEARS

- BUSINESS AVIATION SALES ARE PREDICTED TO REACH **\$29.9B** PER ANNUM BY FY2023
- PRE-OWNED TRANSACTIONS ARE GROWING AT PROPORTIONATELY FASTER RATES THAN NEW DELIVERIES
- GROWTH IN THE PRE-OWNED VALUE PROPOSITION AND INCREASED DEMAND FOR OUT-OF-PRODUCTION AIRCRAFT ARE OCCURRING DUE TO EASIER, MORE ACCESSIBLE AND LESS COSTLY REFURBISHMENT OPTIONS
- THERE CONTINUES TO BE A CLEAR SHIFT UNDERWAY BETWEEN THE SEGMENTS IN NEW DELIVERIES - TOWARDS LARGE AIRCRAFT AND AWAY FROM LIGHT JETS
- NEW DELIVERY UNITS ARE FORECAST TO FLATTEN OUT AS A RESULT OF AN UPCOMING ECONOMIC DOWNTURN, WHILE PRE-OWNED TRANSACTIONS CONTINUE TO GROW
- THE BUSINESS AVIATION FLEET IS PREDICTED TO GROW BY **12.1%** OVER THE NEXT 5 YEARS
- THE AVERAGE RETIREMENT AGE OF A BUSINESS AIRCRAFT IS **32** YEARS OLD
- AS NEW AVIONIC MANDATES ARE IMPLEMENTED, **1,051** BUSINESS AIRCRAFT RETIREMENTS ARE PREDICTED OVER THE NEXT 5 YEARS

168 BUSINESS AIRCRAFT MODELS EVALUATED



This year's business aviation market forecast explores historical data related to aircraft produced or in development up to FY2018 – 168 business aircraft models in all – across the four key segments of Light, Midsize, Large and Commercial aircraft. Aircraft are categorized based on typical range (nm), cabin size (cu ft), and price (US\$).

LIGHT

Beechcraft Premier I / IA Series
Beechcraft Hawker 800 Series
Beechcraft Hawker 900 Series

Bombardier Learjet Series

Cessna Citation 500 Series
Cessna Citation 510 Series
Cessna Citation 525 Series
Cessna Citation 550 Series
Cessna Citation 560 Series
Cessna Citation 650 Series

Cirrus SF50 (Vision Jet) Series

Dassault Falcon 20 / 10 / 100 Series

Embraer Phenom 100 Series
Embraer Phenom 300 Series

Honda HondaJet Series

Pilatus PC-24 Series

LARGE

Bombardier Global 5000 / 5500 Series
Bombardier Global Express / XRS Series
Bombardier Global 6000 / 6500 Series
Bombardier Global 7500 / 8000 Series

Dassault Falcon 900 Series
Dassault Falcon 6X Series
Dassault Falcon 7X Series
Dassault Falcon 8X Series

Gulfstream GIV / GIV-SP Series
Gulfstream G300 / G400 Series
Gulfstream G350 / G450 Series
Gulfstream G500 Series
Gulfstream GV Series
Gulfstream G550 / G500 Series
Gulfstream G600 Series
Gulfstream G650 / G650ER Series

MIDSIZE

Beechcraft Hawker 4000 Series

Bombardier Challenger 300 Series
Bombardier Challenger 600 Series

Cessna Citation 680 Series
Cessna Citation 700 Series
Cessna Citation 750 Series
Cessna Citation Hemisphere Series

Dassault Falcon 50 Series
Dassault Falcon 2000 Series

Embraer Legacy 450 Series
Embraer Praetor 500 Series
Embraer Legacy 500 Series
Embraer Praetor 600 Series
Embraer Legacy 600 / 650 Series

IAI Astra Series

Gulfstream GII / GIII Series
Gulfstream G100 / G150 Series
Gulfstream G200 / G280 Series

COMMERCIAL

Airbus ACJ Series
Airbus ACJneo Series

Boeing BBJ Series
Boeing BBJ 747 / 767 / 787 Series
Boeing BBJ MAX Series

Bombardier Challenger 850 Series

Embraer Lineage 1000 Series

PRODUCT LINE-UP



The 5-year forecast begins in January 2019, taking into consideration speculative aircraft models as well as those both in and out of production. Aircraft models were analyzed both individually and collectively by segment type in the identification of market trends and development of the forecast. The following charts represent our coverage universe. Over the years, Jetcraft has amassed vast amounts of data on customer buying preferences, loyalty rates and “trade-even” versus “trade-up” patterns based on this segmentation. Forward-looking speculation regarding new aircraft development programs, as yet unannounced by an OEM, is based entirely on our insight and analysis, and is in no way derived from privileged information.

CURRENT PRODUCT LINES AS OF FY2018

	LIGHT			MIDSIZE			LARGE			COMMERCIAL
	Very Light	Light	Super Light	Midsize	Super Midsize	Medium	Large	Long Range	Ultra Long Range	Converted Airliner
BOMBARDIER		LEARJET 70	LEARJET 75		CHALLENGER 350	CHALLENGER 650	GLOBAL 5000	GLOBAL 6000	GLOBAL 7500	CHALLENGER 850
CESSNA	M2	CJ3+ CJ4	XLS+	SOVEREIGN+ LATITUDE	LONGITUDE					
DASSAULT					FALCON 2000S	FALCON 2000LXS	FALCON 900LX	FALCON 7X	FALCON 8X	
GULFSTREAM					G280		G450 G500	G550	G650	
EMBRAER	PHENOM 100EV	PHENOM 300E		LEGACY 450	LEGACY 500	LEGACY 650E				LINEAGE 1000E
OTHER	HONDAJET CIRRUS SF50	PC-24								ACJNEO BBJ MAX

DEVELOPMENTAL PRODUCT LINES AS OF FY2019

	LIGHT			MIDSIZE			LARGE			COMMERCIAL
	Very Light	Light	Super Light	Midsize	Super Midsize	Medium	Large	Long Range	Ultra Long Range	Converted Airliner
BOMBARDIER					CHALLENGER 550**		GLOBAL 5500	GLOBAL 6500	GLOBAL 8000	
CESSNA			CJ5**			HEMISPHERE 2.0**				
DASSAULT						FALCON 2000X**	FALCON 6X		FALCON 9X **	
GULFSTREAM					G380**			G600	G700**	
EMBRAER		PHENOM 350**		PRAETOR 500	PRAETOR 600		PRAETOR 800**			
OTHER		HONDAJET 2**								

Note – Developmental product lines represented are in-development aircraft as formally announced by the OEM, while those with twin asterisks (**) are speculative and assumed by Jetcraft to be in development.

5-YEAR NEW & PRE-OWNED BUSINESS AVIATION MARKET FORECAST 2019 - 2023



PRE-OWNED TRANSACTIONS

HISTORICAL & PROJECTED PRE-OWNED TRANSACTIONS TRACKED AGAINST ANNUAL REVENUES

9,389

PRE-OWNED TRANSACTIONS
OVER LAST 5 YEARS

11,765

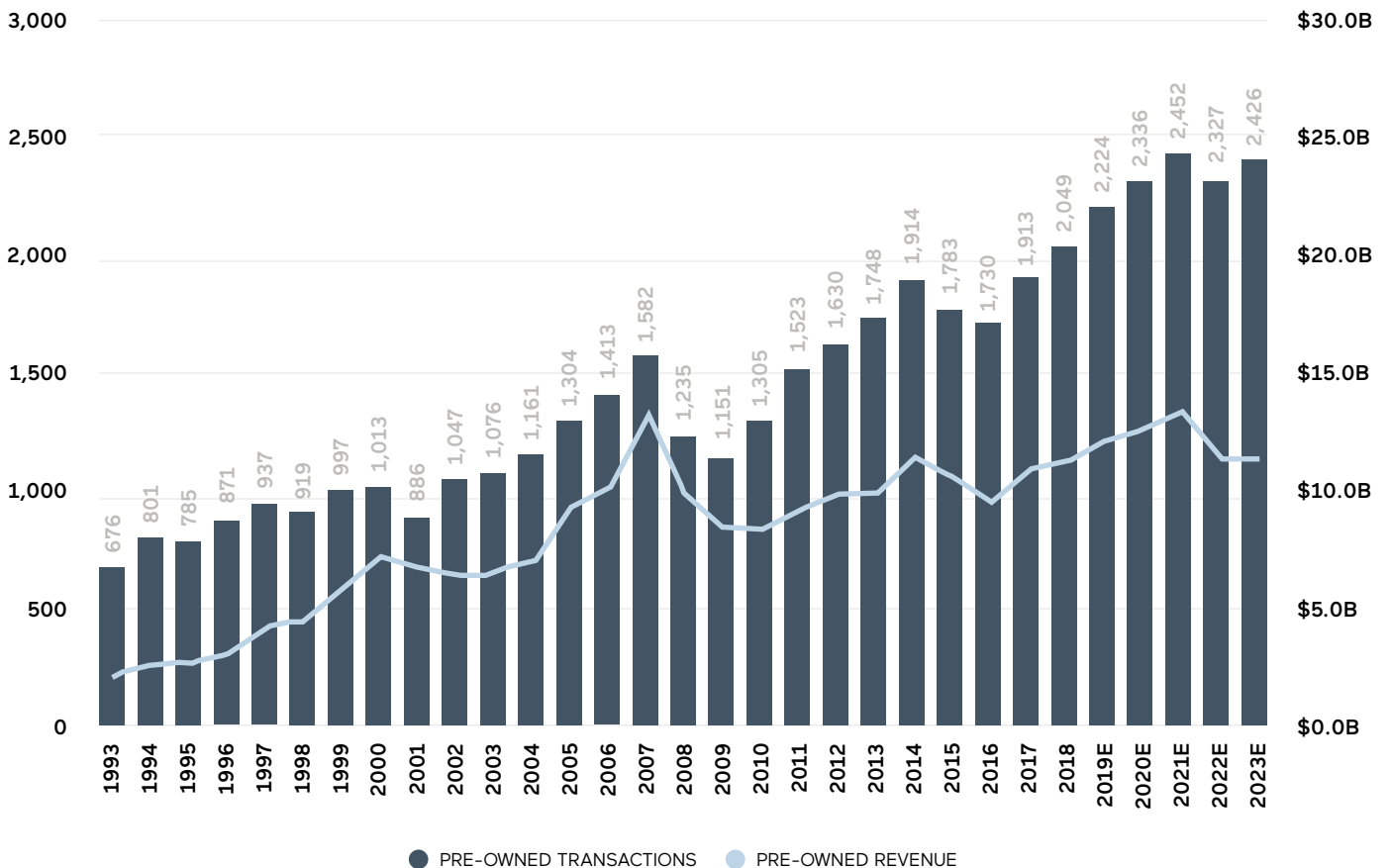
PRE-OWNED TRANSACTIONS FORECAST
OVER NEXT 5 YEARS

\$53.6B

PRE-OWNED REVENUE
OVER LAST 5 YEARS

\$61.0B

PRE-OWNED REVENUE FORECAST
OVER NEXT 5 YEARS



NEW DELIVERY UNITS

HISTORICAL & PROJECTED NEW DELIVERY UNITS TRACKED AGAINST ANNUAL REVENUES

3,442

NEW DELIVERY UNITS
OVER PAST 5 YEARS

3,444

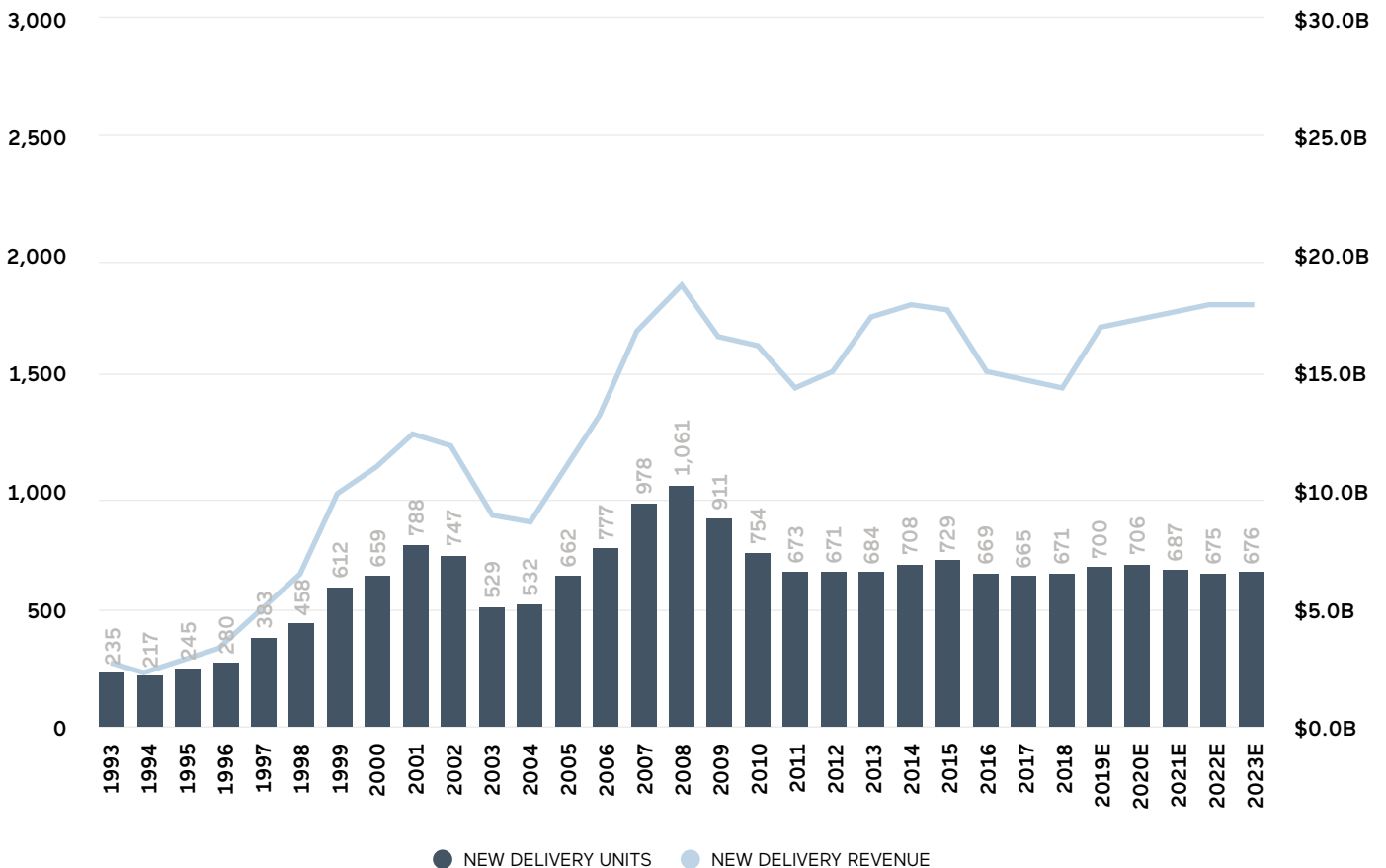
NEW DELIVERY UNITS FORECAST
OVER NEXT 5 YEARS

\$82.1B

NEW DELIVERY REVENUE
OVER PAST 5 YEARS

\$90.5B

NEW DELIVERY REVENUE FORECAST
OVER NEXT 5 YEARS



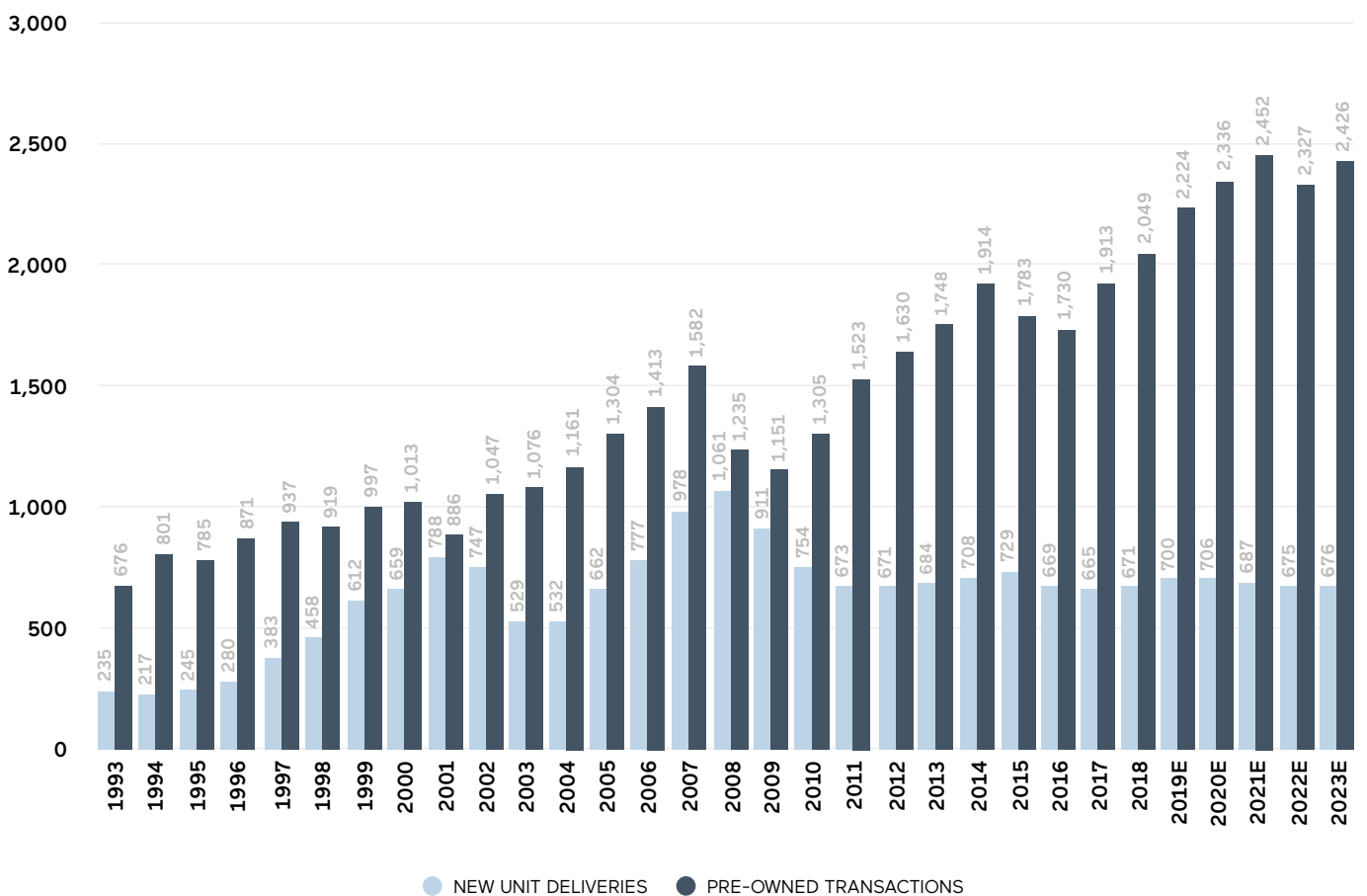
PRE-OWNED TRANSACTION GROWTH RELATIVE TO NEW DELIVERIES

4 times more pre-owned transactions than new delivery units forecast in FY2023

Pre-owned transactions will continue to grow at a proportionately faster rate than new deliveries

U.S. BUYERS HAVE BEEN MOTIVATED BY BONUS DEPRECIATION IN THE PRE-OWNED MARKET. DESPITE SLIGHT DECLINES IN 2015 AND 2016, THE PRE-OWNED MARKET IS POISED FOR CONTINUED STEADY GROWTH THROUGHOUT THE FORECAST PERIOD.

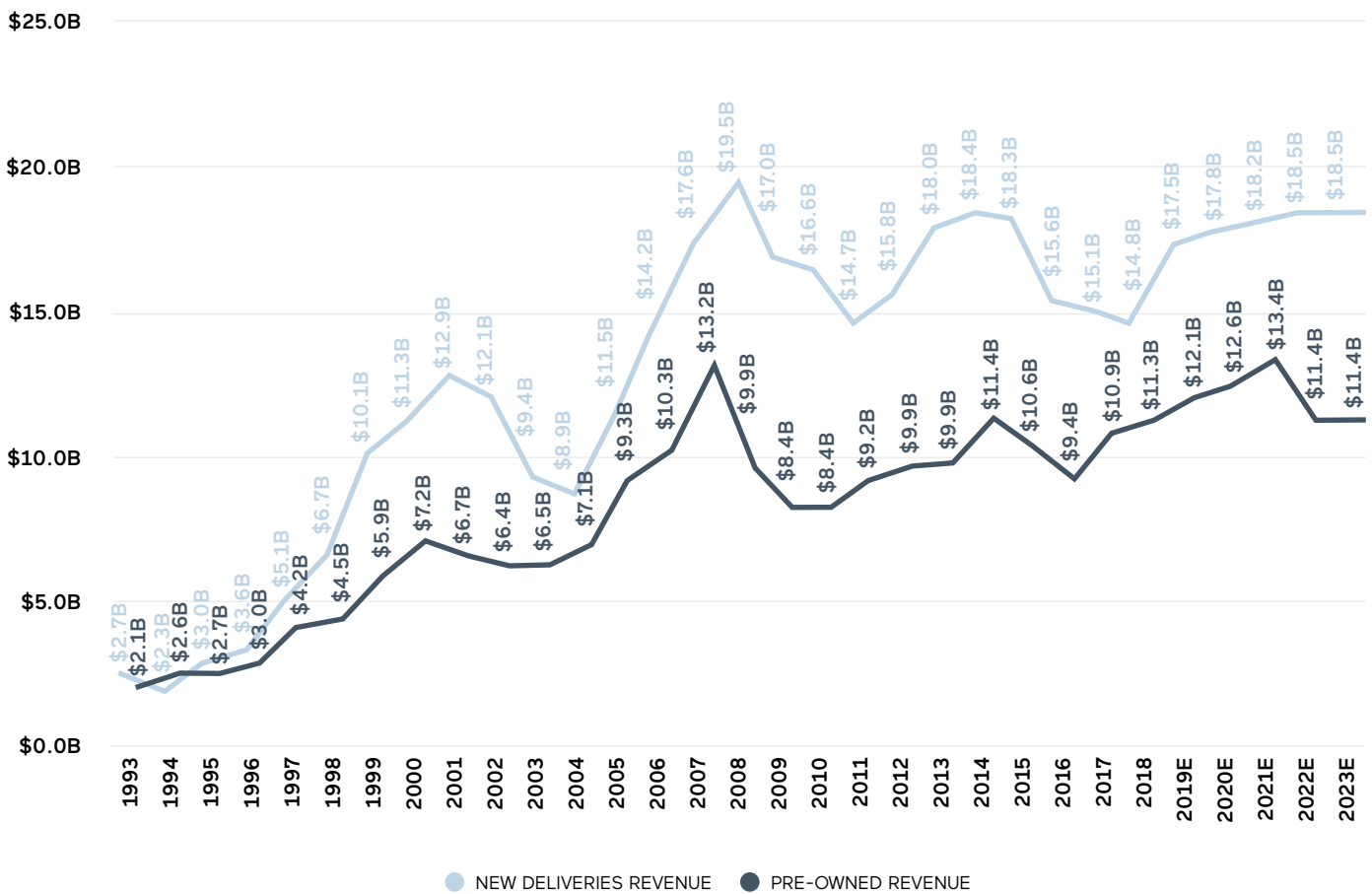
CHRIS BRENNER
Jetcraft, SVP Sales, Americas



REVENUE COMPARISON BETWEEN PRE-OWNED TRANSACTIONS AND NEW DELIVERIES

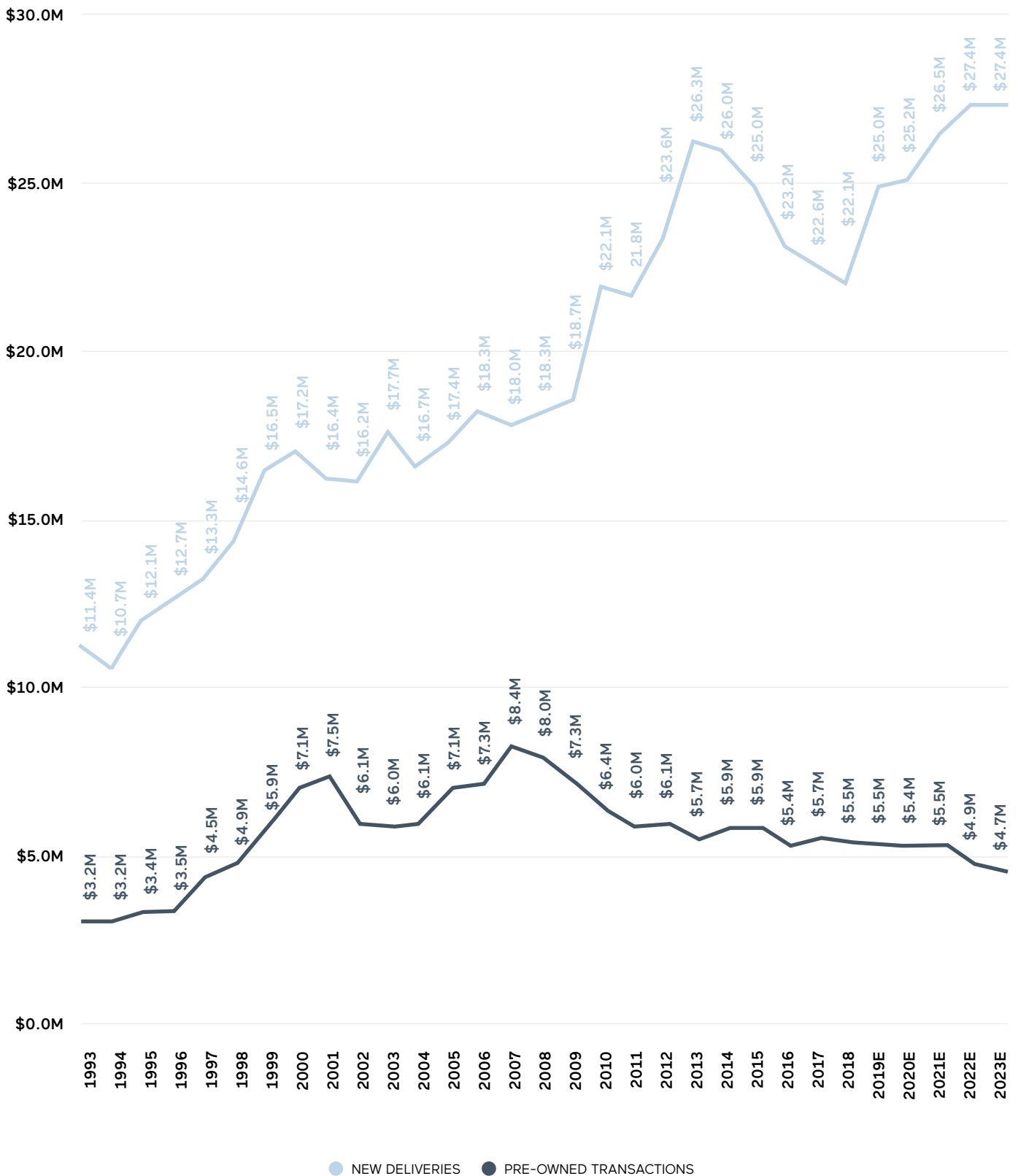
Business aircraft sales, including new deliveries and pre-owned transactions, totalled over \$26.1B in 2018

Projected to exceed \$29.9B in FY2023



AVERAGE TRANSACTION SIZE

HISTORICAL & PROJECTED AVERAGE TRANSACTION SIZE - COMPARING ANNUAL NEW DELIVERIES TO PRE-OWNED TRANSACTIONS



KEY FACTORS AFFECTING THE FORECAST



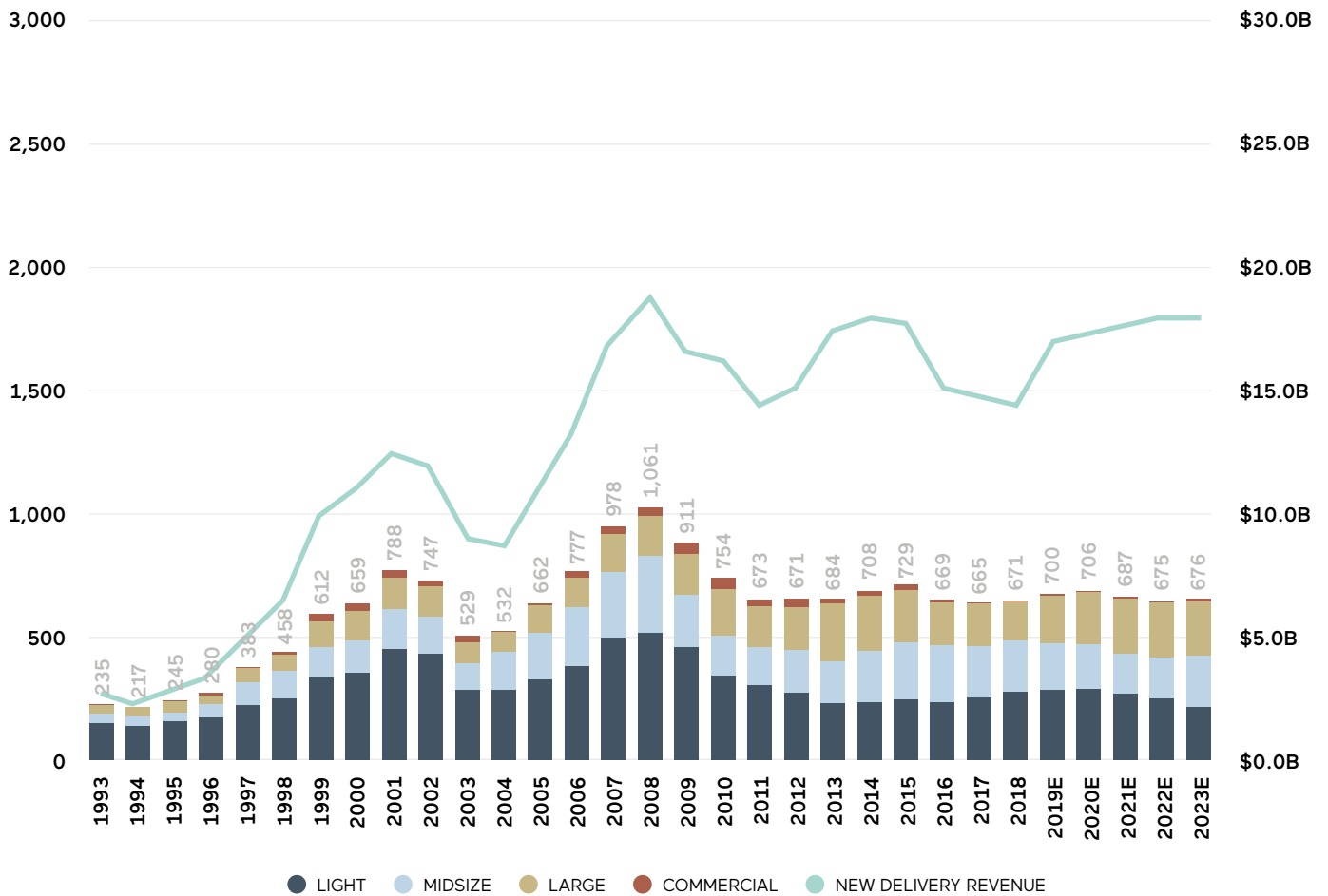
SHIFTING INTEREST BETWEEN SEGMENT CATEGORIES FOR NEW DELIVERIES

Declining interest in Light Jets

Growth in preference for Large Jets

MANUFACTURERS ARE NOW FOCUSING MORE ON PRODUCING AIRCRAFT IN THE MIDSIZE SEGMENT AND ABOVE. THIS WILL RESULT IN LOWER UNIT DELIVERIES BUT PROVIDE HIGHER REVENUES.

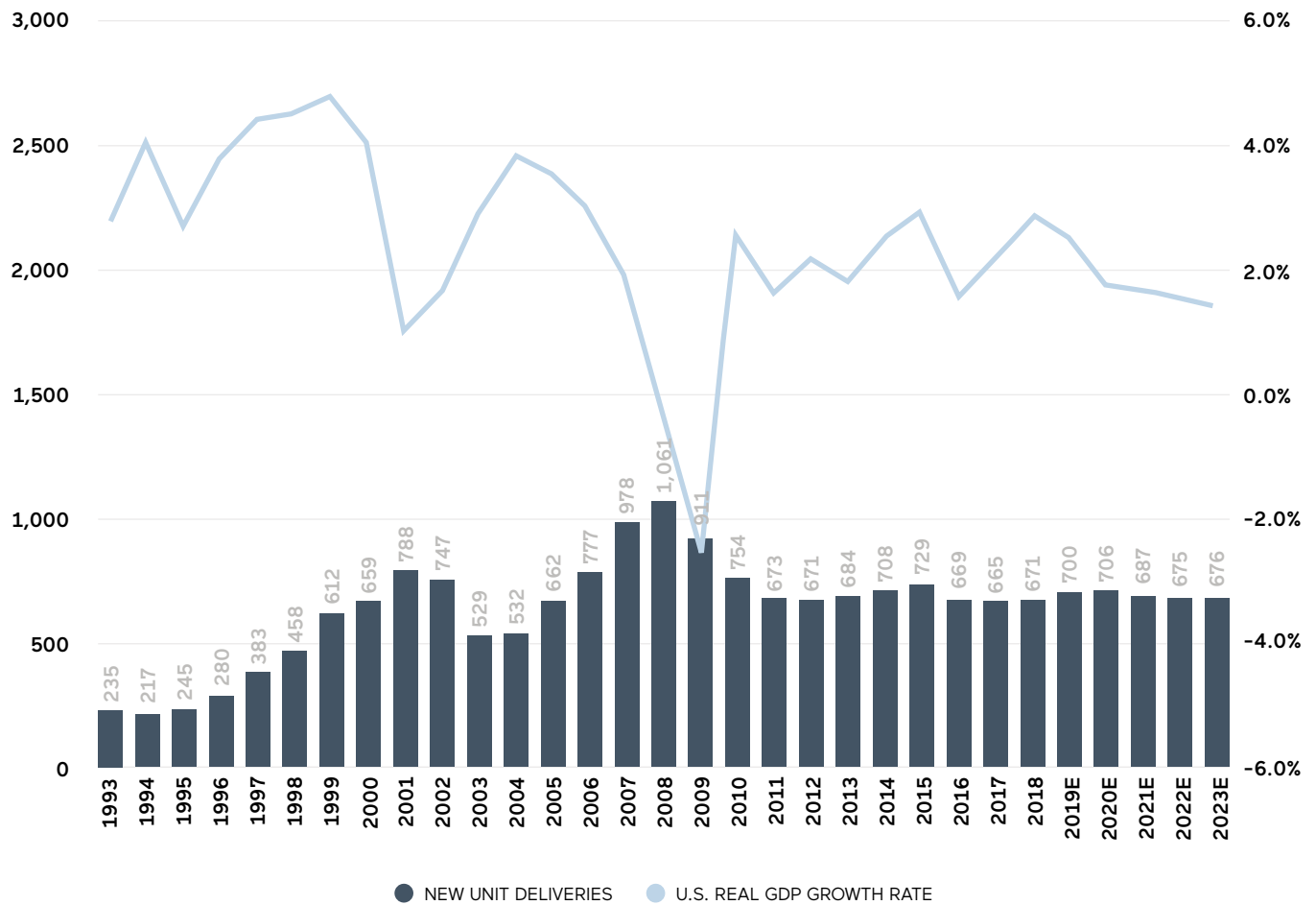
PASCAL BACHMANN
Jetcraft, SVP Sales, EMEA



ECONOMIC OUTLOOK - BUSINESS AVIATION UNIT DELIVERIES TRACKED AGAINST U.S. REAL GDP GROWTH RATE

Economic instability fostering conservatism in unit forecasting

New delivery units historically follow GDP trends



GROWING PRE-OWNED VALUE PROPOSITION



		NEW SUPER LIGHT JET	PRE-OWNED SUPER MIDSIZE JET
AGE & UTILIZATION	Remaining Years	33	23
	Remaining Hours	30,000	27,250
KEY FEATURES	Engine Program	ELIGIBLE	ENROLLED
	Year of Paint & Interior	2018 & 2018	2018 & 2018
	Passenger Seats	8	10
	Internet System	SBB	SBB & GOGO
PERFORMANCE & DIMENSION	Range (NM)	2,000	3,000
	Speed (Mach)	0.75	0.80
	Seated Length (Feet)	13.00	18.00
FINANCIAL	Hourly Operating Cost	\$2,000	\$2,500
	Annual Fixed Cost	\$0.60M	\$0.90M
	Purchase Price	\$10.0M	\$9.0M
	5-Year Net Cash Flow	\$12.2M	\$9.0M

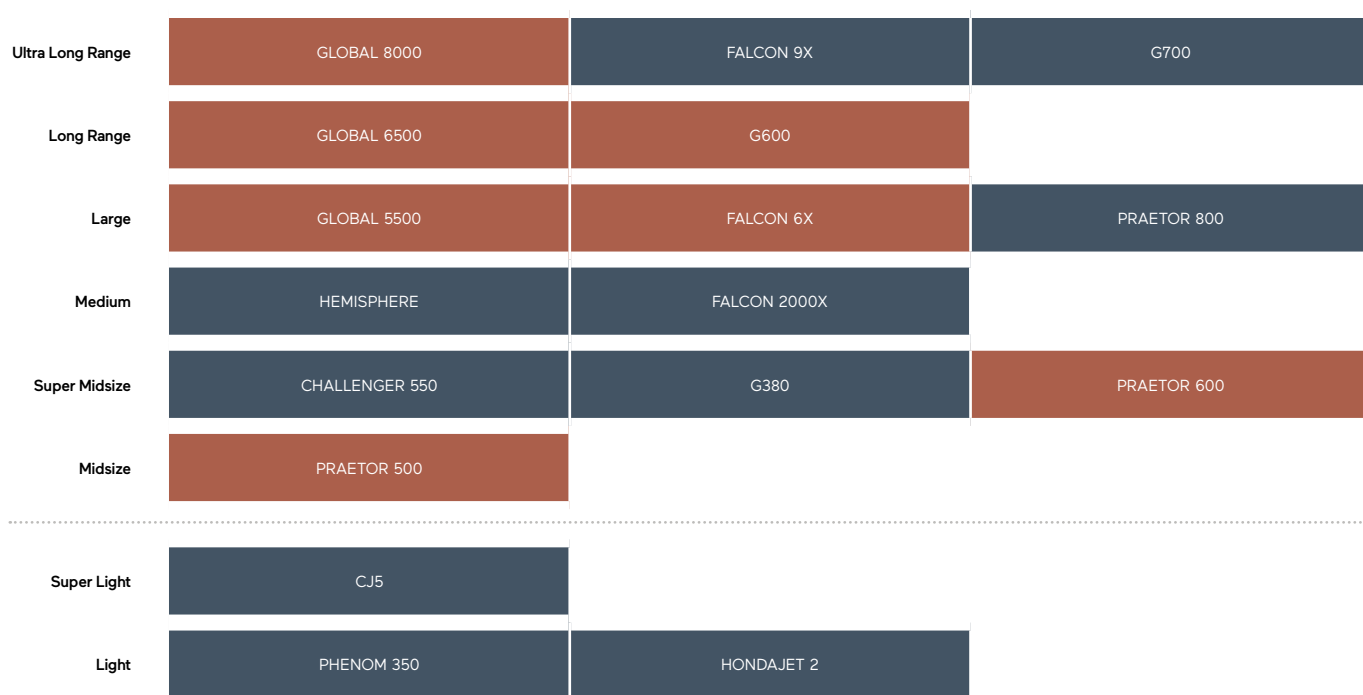
Notes – The “5 Year Net Cash Flow” assumes the following: 300 flight hours per year; hourly and fixed cost provided by the OEM (rounded); residual sale value based on analysis for given model type; no damage or modifications to the aircraft; 100% bonus depreciation in Year 1; depreciation recapture in Year 5; and no financing cost to the aircraft.

Historical buyers of new business aircraft are now more willing to consider pre-owned aircraft. This change in buying pattern is most evident for buyers of new Light Jets who now can buy a pre-owned Midsize Jet for equal or less the price. The following factors can also be attributed to this shift:

- **HISTORICAL RATES OF MARKET DEPRECIATION CAUSING PRE-OWNED PRICES TO REACH MORE COMPETITIVE LEVELS**
- **100% BONUS DEPRECIATION IS NOW BEING APPLIED TO BOTH NEW AND PRE-OWNED AIRCRAFT**
- **INCREASING MRO CAPABILITIES AND COST-EFFICIENCY IN AIRCRAFT REFURBISHMENT**

The table presents the comparative value proposition between a new Super Light aircraft and a pre-owned Super Midsize aircraft. At an average of 300 flight hours per year, a pre-owned Super Midsize Jet customer can fly for over five years without realizing Net Cash Flow greater than that of a new Super Light Jet. The lower acquisition cost and more stable rate of depreciation on an older asset lessen the financial burden on a buyer.

MANUFACTURING TO MEET EVOLVING NEEDS AND BUYING PATTERNS



● IN-DEVELOPMENT AIRCRAFT AS FORMALLY ANNOUNCED BY THE OEM ● SPECULATIVE AND ASSUMED BY JETCRAFT TO BE IN DEVELOPMENT

The majority of business aircraft currently in production and speculatively assumed by Jetcraft belong in the more profitable and more in-demand Midsize and Large segments.

THE TREND TOWARDS LARGER, LONG-RANGE AIRCRAFT IS ESPECIALLY PROMINENT WITH INTERNATIONAL BUYERS OUTSIDE THE U.S. WHOSE MISSIONS ARE MAINLY INTERCONTINENTAL.

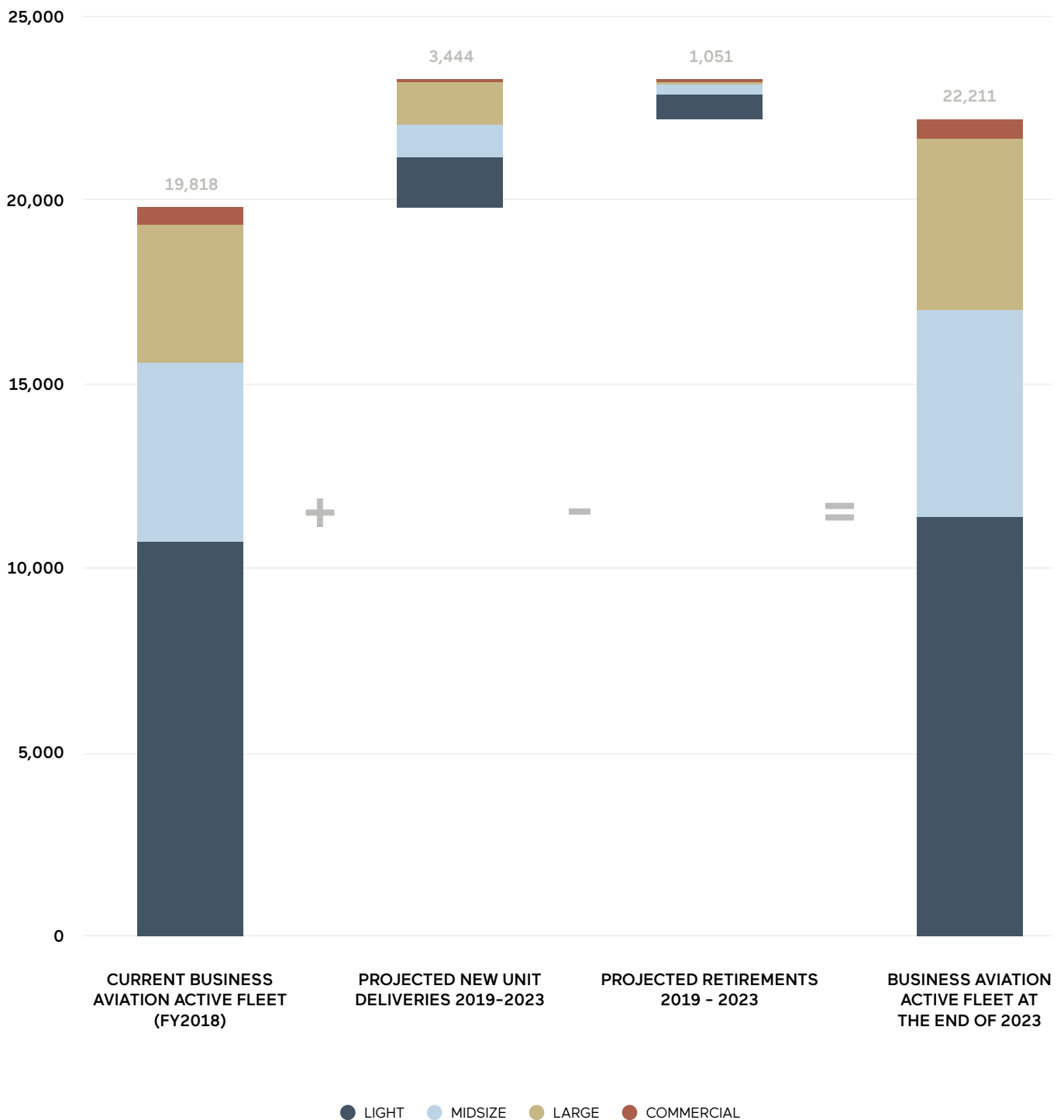
DAVID DIXON
Jetcraft, President, Asia Pacific

ACTIVE FLEET FORECAST



FORECAST GROWTH OF ACTIVE FLEET

CURRENT FLEET AND FORECAST UNIT DELIVERIES MINUS RETIREMENTS (2018-2023)



EVOLUTION OF ACTIVE FLEET AND AIRCRAFT FOR SALE

19,818

ACTIVE FLEET
AS OF DECEMBER 31, 2018

22,211

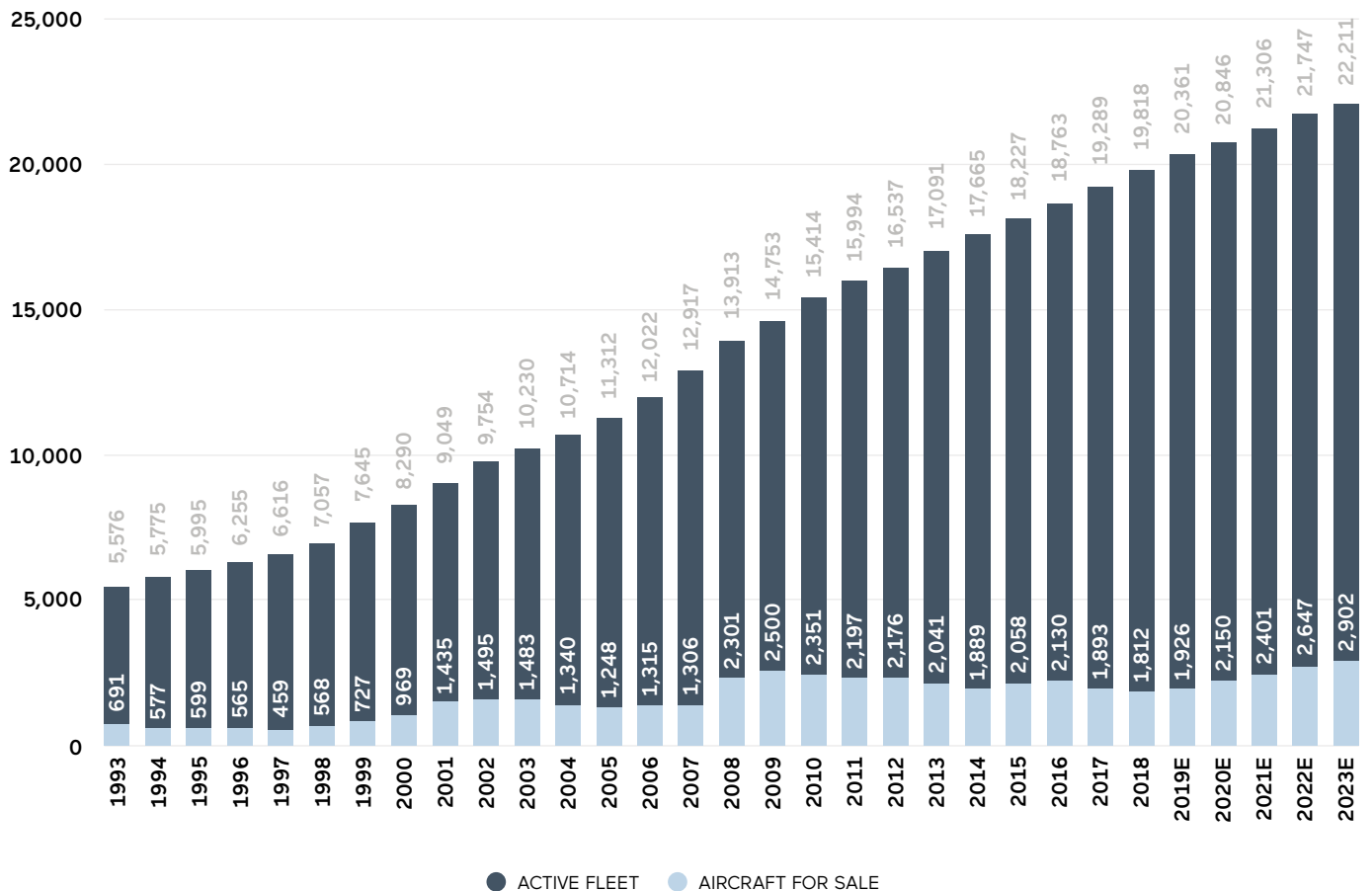
ACTIVE FLEET FORECAST
AS OF DECEMBER 31, 2023

9.1%

AIRCRAFT FOR SALE
AS OF DECEMBER 31, 2018

13.1%

AIRCRAFT FOR SALE FORECAST
AS OF DECEMBER 31, 2023



SUPPLY OF IN-PRODUCTION AIRCRAFT FOR SALE

1,812

AIRCRAFT FOR SALE
AS OF FY2018

2,902

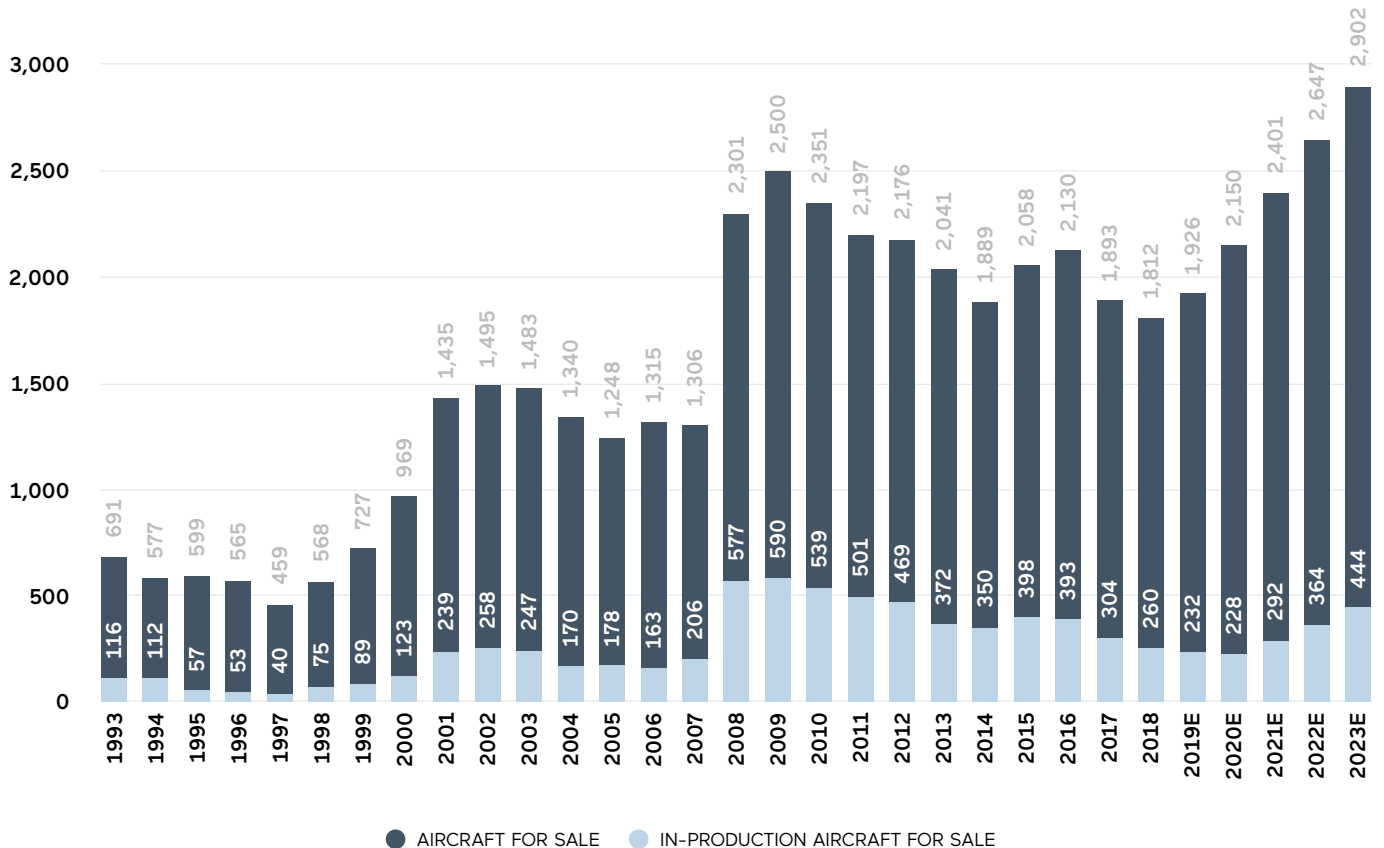
AIRCRAFT FOR SALE FORECAST
AS OF FY2023

14.3%

IN-PRODUCTION AIRCRAFT FOR SALE
AS OF FY2018

15.3%

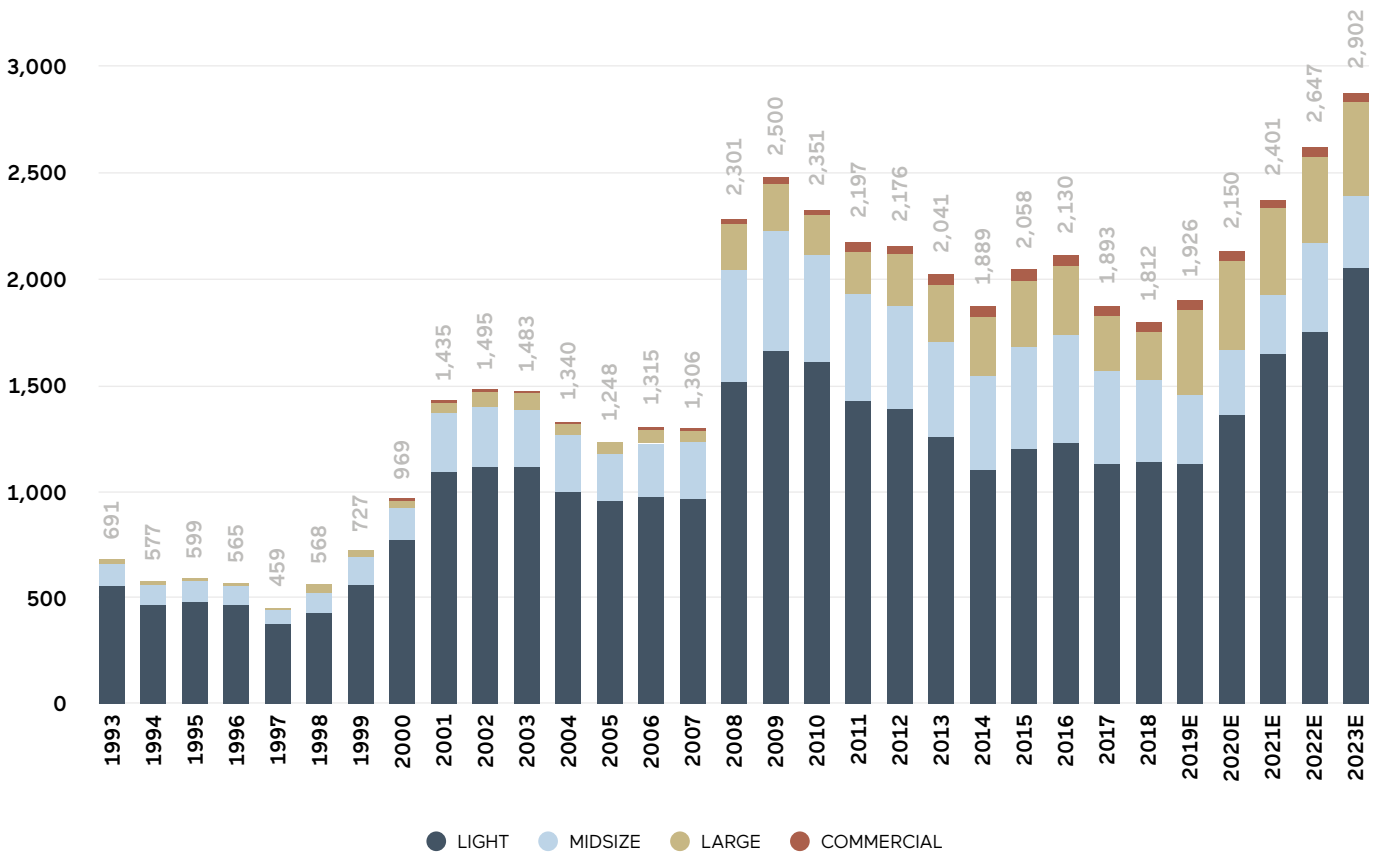
IN-PRODUCTION AIRCRAFT FOR SALE FORECAST
AS OF FY2023



PRE-OWNED AIRCRAFT FOR SALE BY SEGMENT

The number of pre-owned aircraft for sale decreased 27.5% between FY2009 and FY2018.

Projected to increase during the forecast period as light jet owners trade up and owners of new large aircraft transition within this category.



HISTORICAL & PROJECTED BUSINESS AIRCRAFT RETIREMENT

32

AVERAGE RETIREMENT AGE

2,590

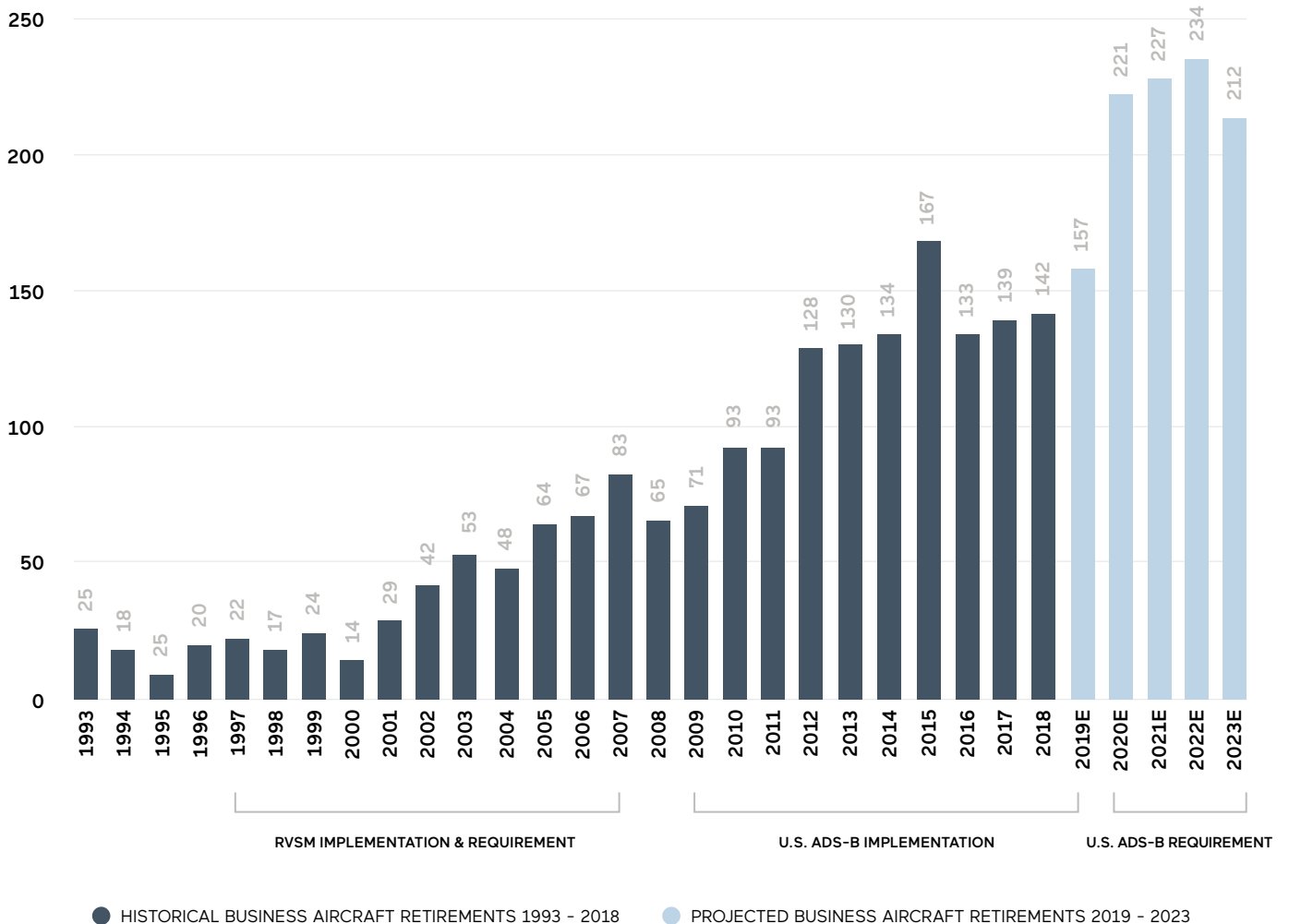
AIRCRAFT AGED +32 YEARS AS OF FY2018

715

ACTUAL RETIREMENTS OVER LAST 5 YEARS

1,051

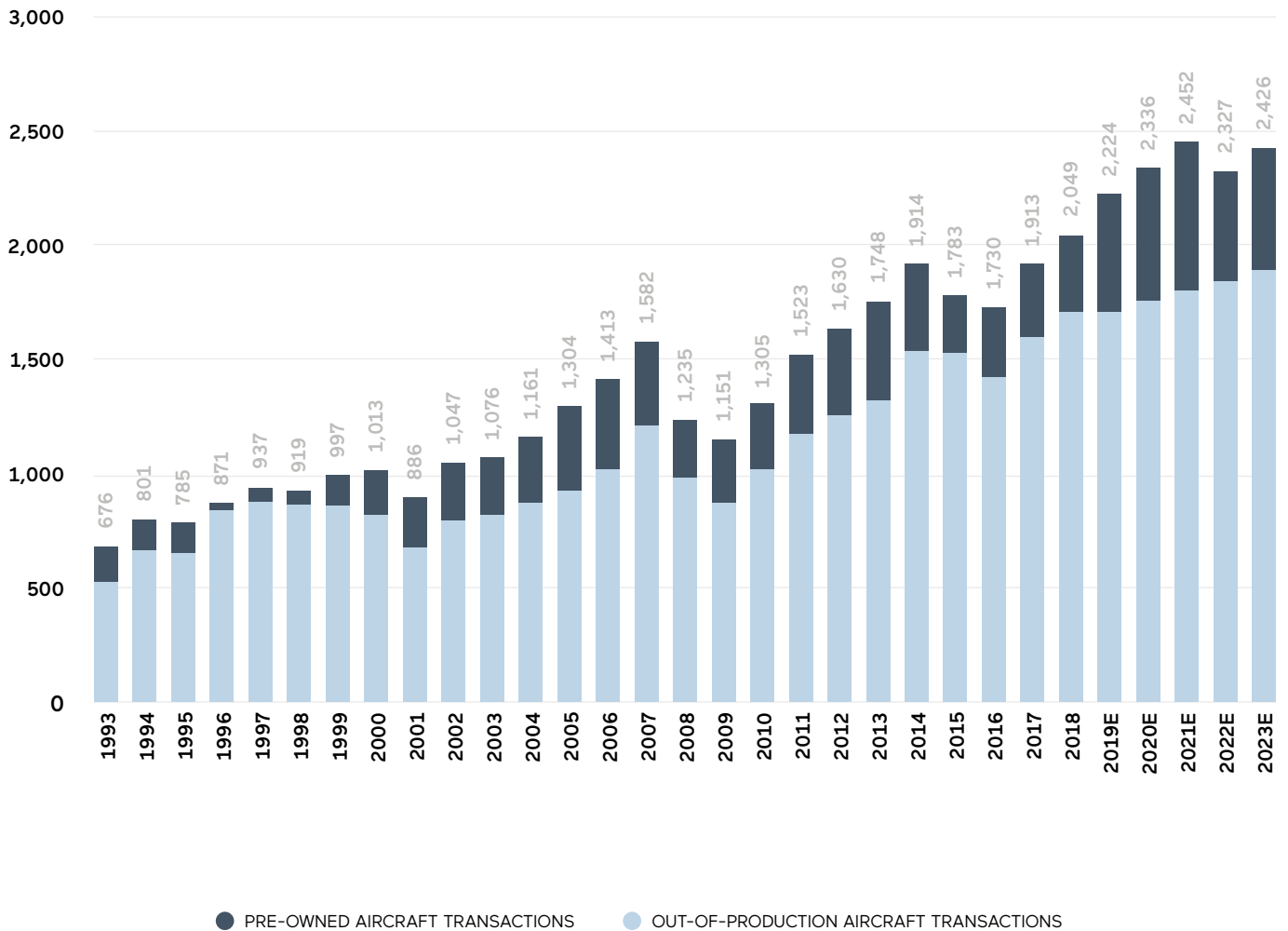
RETIREMENTS FORECAST OVER NEXT 5 YEARS



GROWING DEMAND FOR OUT-OF-PRODUCTION AIRCRAFT

GREATER ACCESSIBILITY, RAPIDITY AND COST-EFFICIENCY OF HIGH-QUALITY REFURBISHMENT IS CONTRIBUTING TO AN INCREASE IN DEMAND FOR OUT-OF-PRODUCTION AIRCRAFT.

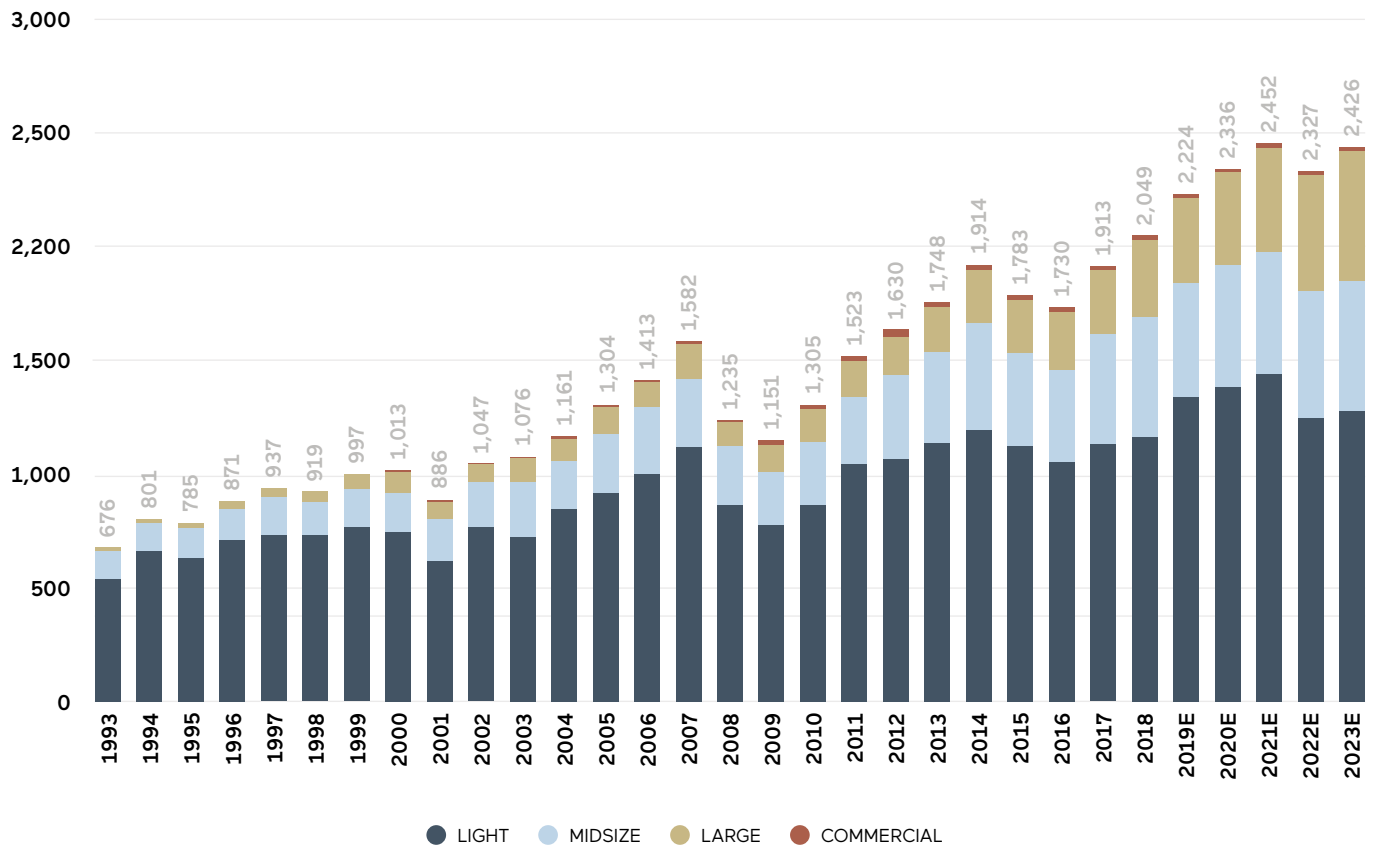
CHAD ANDERSON
Jetcraft, President



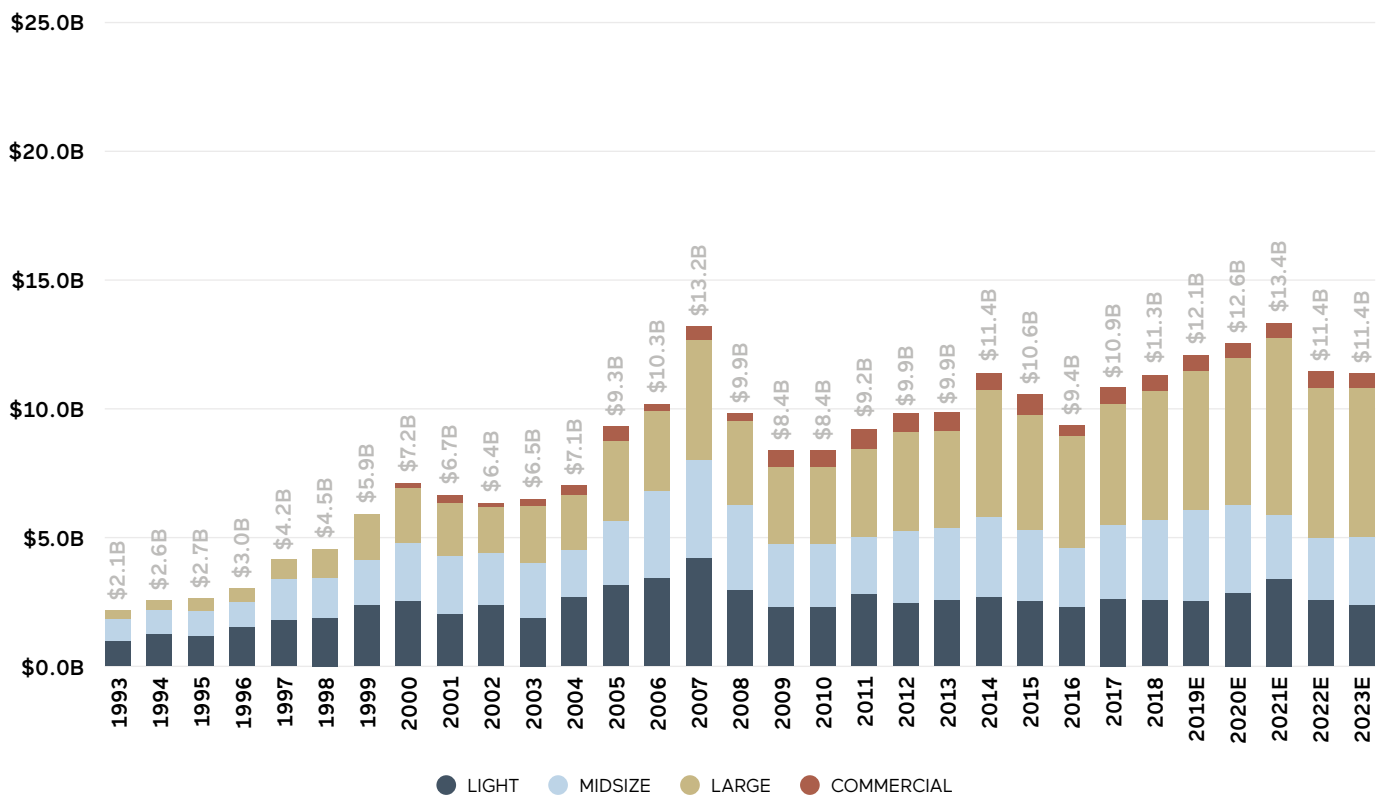
SEGMENT ANALYSIS



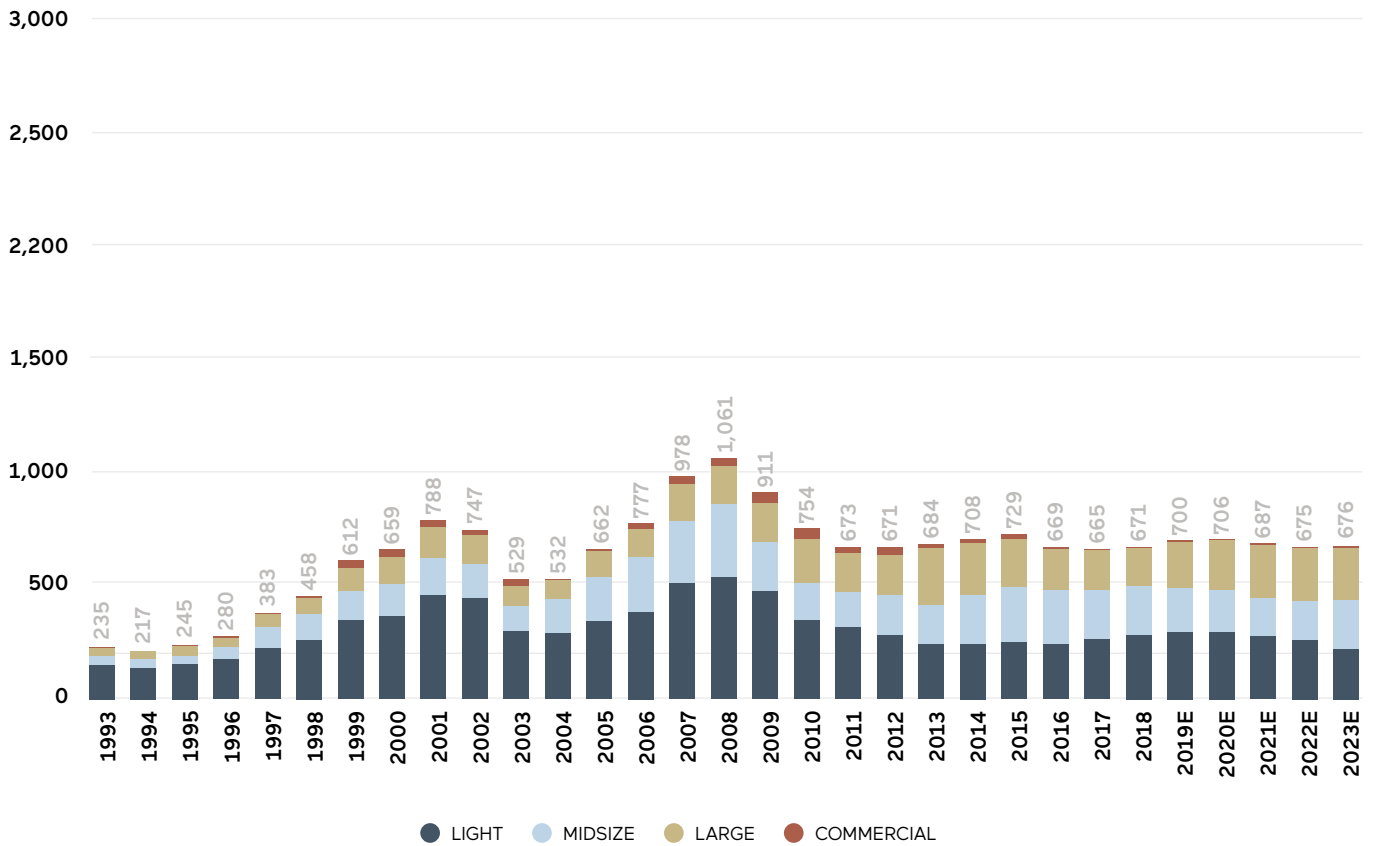
PRE-OWNED TRANSACTIONS BY AIRCRAFT SEGMENT - UNITS



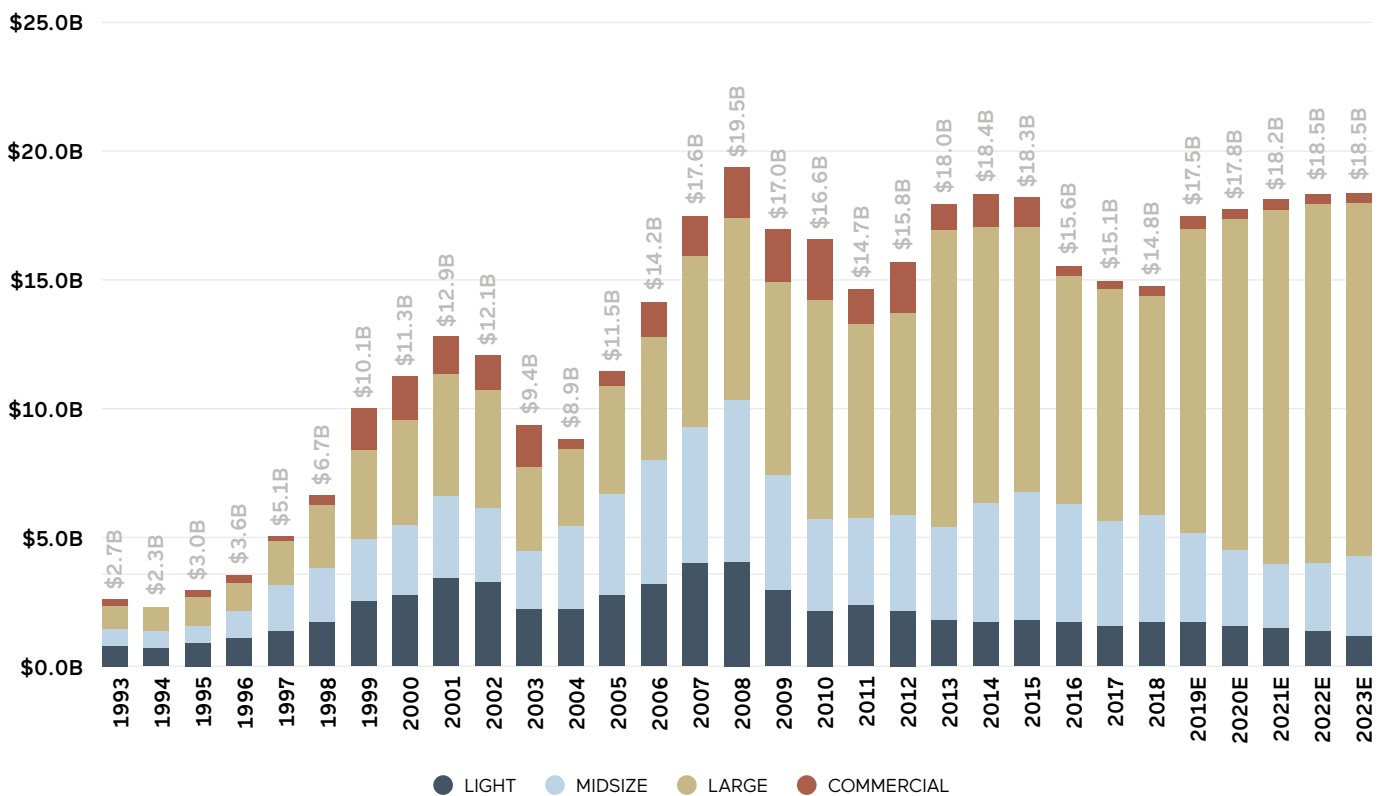
PRE-OWNED TRANSACTIONS BY AIRCRAFT SEGMENT - REVENUES



NEW DELIVERIES BY AIRCRAFT SEGMENT - UNITS



NEW DELIVERIES BY AIRCRAFT SEGMENT - REVENUES



APPENDIX



TOP NEW DELIVERY MODELS IN 2018 BY UNITS SOLD

OVERALL	LIGHT	MIDSIZE	LARGE
1 G650	1 Phenom 300E / EV	1 Challenger 350	1 G650
2 Challenger 350	2 Cirrus SF50	2 Citation Latitude	2 Global 6000
3 Phenom 300E / EV	3 Citation CJ3+	3 G280	3 G550 Falcon 8X
4 Citation Latitude	4 Citation M2	4 Challenger 650	5 G500
5 Cirrus SF50	5 Citation CJ4	5 Legacy 450	6 Falcon 900LX
6 Citation CJ3+	6 HondaJet	6 Falcon 2000LXS / S	7 Global 5000
7 Global 6000	7 PC-24	7 Legacy 500	8 G450 Falcon 7X
8 Citation M2	8 Citation XLS+	8 Legacy 650E	10 Global 7500
9 Citation CJ4	9 Phenom 100E / EV	9 Citation X+ Citation Sovereign+	
10 HondaJet	10 Learjet 75		

TOP PRE-OWNED MODELS IN 2018 BY UNITS SOLD

OVERALL	LIGHT	MIDSIZE	LARGE
1 Citation Mustang	1 Citation Mustang	1 Citation Sovereign / +	1 GIV-SP
2 Hawker 800XP	2 Hawker 800XP	2 Challenger 604	2 G550
3 Citation Sovereign / +	3 Citation Jet	3 Challenger 300	3 Falcon 7X
4 Citation Jet	4 Citation CJ3 / +	4 Falcon 50 / 50EX	4 G450
5 Challenger 604	5 Citation Excel	5 Challenger 605	5 GIV
6 Citation CJ3 / +	6 Phenom 100 / E / EV	6 G200	6 GV
7 Challenger 300	7 Citation ISP	7 Legacy 600	7 Falcon 900B
8 Falcon 50 / 50EX	8 Citation XLS	8 Falcon 2000	8 G650
9 Citation Excel	9 Citation Ultra	9 Challenger 601-3A / 3R	9 Global Express
10 GIV-SP	10 Citation Bravo	10 Falcon 2000LX / EXy	10 Global 5000

SOURCES

- Aircraft Bluebook
- AMSTAT Premier & StatPak
- Bloomberg Business
- Business & Commercial Aviation (B&CA)
- Compustat
- Conklin & de Decker
- Ernst & Young Family Office Guide, 2016
- The Federal Reserve Bank St. Louis (Economic Research)
- Goldman Sachs Global Investment Research
- The International Monetary Fund (IMF)
- JP Morgan
- Knight Frank Wealth Report, 2018 (12th Edition)
- National Bureau of Economic Research (U.S.)
- S&P Global Market Intelligence
- U.S. Department of Commerce
- VREF Publishing, Inc.
- The Wall Street Journal
- Wealth-X, Billionaire Census 2018
- The World Bank
- World Economic Forum Reports

All values in the forecast are represented in \$ USD.

SAFE HARBOR STATEMENT

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