



ISHKA LIVE WEBINAR
The Aviation Balancing Act
Insights and Strategies for 2024

Thursday 25th January 2024

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Your presenters



Eddy Pieniazek
Head of Advisory



Paul O'Driscoll
Head of Advisory
Americas



Stuart Flaye
Senior Consultant



Eduardo Mariz
Senior Analyst &
Sustainability Lead

Agenda

Part 1

The Macro View – Ishka Vista 2024

Signals and Indicators – Some observations for 2024

The Metal – A \$100 billion question

(when) will the manufacturers get back to 'full' production...

The Metal – Focus on Stored aircraft

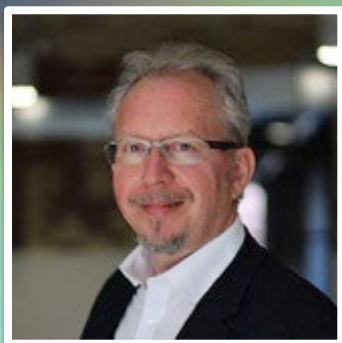
What is parked, and how much of it will be needed in future

Live Q&A: put your questions to the team

Part 2

Sustainability answered....with SAVi

Live Q&A: another chance to put questions to the team



Eddy Pieniazek
Head of Ishka Advisory

The Macro View – Ishka Vista 2024

Signals and Indicators – Some observations for 2024

An improving picture. But not without its talking points



	2023 forecast	2023 result	2024 forecast
Environment			
Regulatory			
Geopolitical			
Macroeconomic			
Production Rates			
Airlines			
Passenger Demand/Yields			
Financing Conditions			
Lessors			
OEMs			
Aircraft Values			

Colour Coding: Red = Weak, Amber = Concern, Yellow = Stable, Green = Positive/ahead of expectations

China market evolution



2023 Deliveries to China*

Type	Number	Total
A319N	6	
A320N	30	
A321N	34	
A350	16	
AIRBUS		86
ARJ21	17	
C919	2	
COMAC		19
B787	1	
B777F	8	
BOEING		9
Total		114

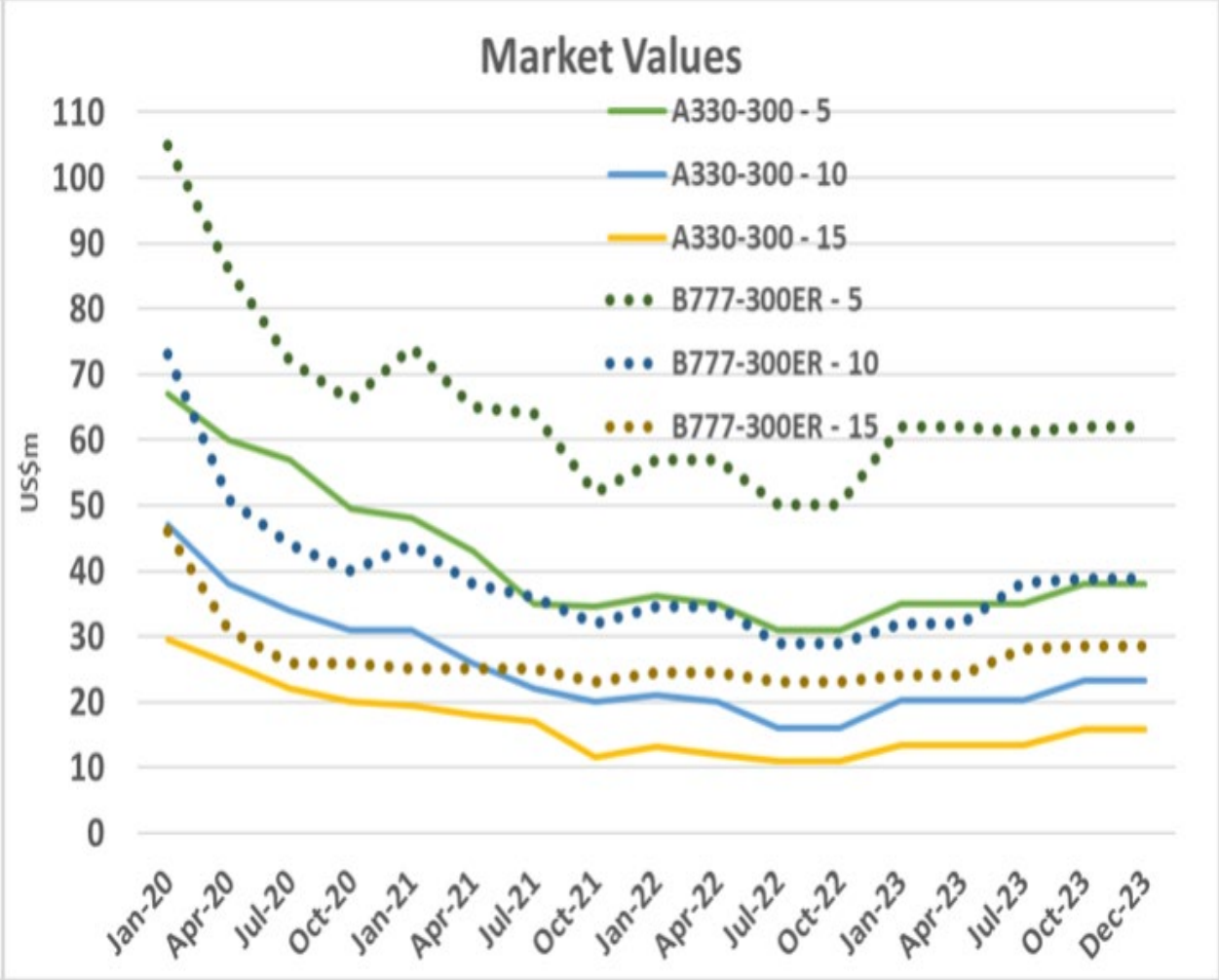
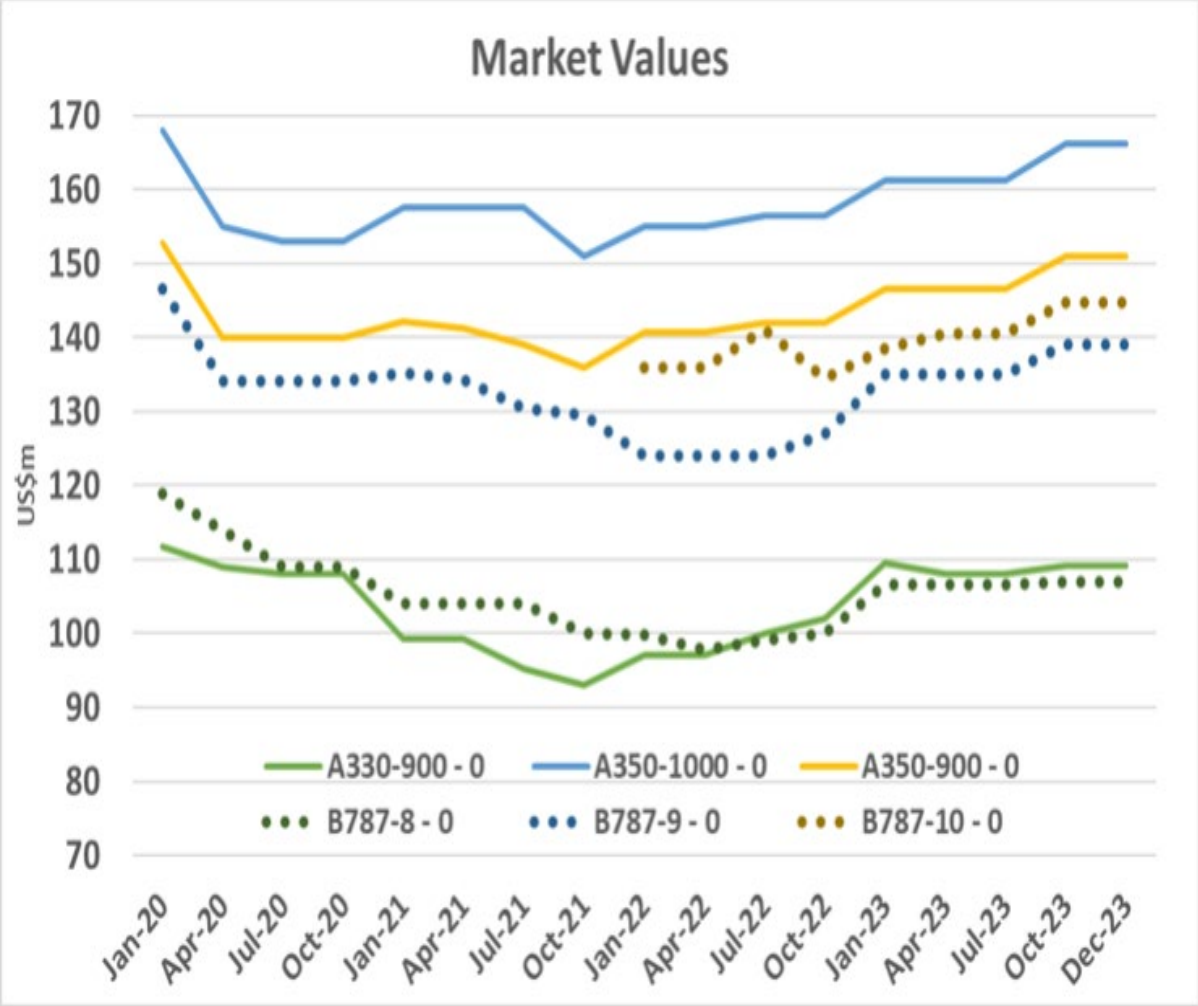
China's leased fleet ownership	2019	2023	% change
Aircraft leased to Chinese Airlines	1,761	2,137	21%
Leased from Chinese lessors	898	1,288	43%
Leased from Rest of World lessors	863	849	-2%
Source: Ishka Analysis Data @ end November each year			

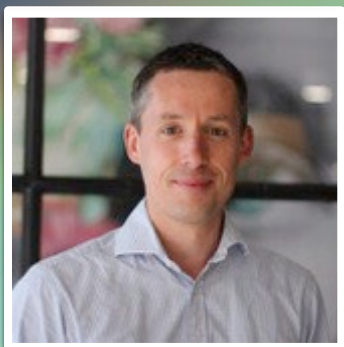
COMAC – No.2 OEM for Deliveries to China in 2023

Leased fleet is growing – with Chinese lessors playing a bigger role

Boeing comeback in 2024?

Widebody Market Recovery is lagging but improving





Stuart Flaye
Senior Consultant

Production and Deliveries 2024

The \$100 billion question

Production rates



Aircraft	Pre-shock rate	Current Rate	Future Plans
A220	5	5/6	Aim was ~9/mo by the end of 2023. Is a full rate of 14/mo between the two plants by 2025 achievable?
A320	60-63	~50	Questions over whether it can hit 65/mo by the end of 2024. A rate of 75/month by 2026 remains the target.
A330	3.5	3	Still planning on a rate of 4/mo in H2 2024
A350	10	~5	Looking at 6/mo in 2024, into 2025 Aim for was for 9/mo at the end of 2025. and now looking at 10/mo in 2026
737 MAX	42 / 0	31+	Had been targeting a rate of 38/mo by the end of 2023. Guidance was to achieve rate 50/mo by the end of 2025, with rate breaks during 2024 and 2025.
767	3	3	No change
777/777X	5	3	Increase to 4/mo in 2025/2026
787	14	5	Plan to increase to 10/mo in 2025/2026
ATR	65 (Per year)	4	Is set to grow to 5/mo in 2024. Ambition to ramp up production to 80 aircraft/year by the second half of the decade
Embraer	90 (Per year)	65-70 (per year)	Commercial aircraft deliveries should exceed 80 in 2024 and return to around 100 by 2025 or 2026

Delivery forecast 2024



	2023 Deliveries Forecasted	2023 Deliveries Actual	2023 Approx. Market Value	2024 Delivery prediction	2024 Approx. Market Value
Airbus					
A220	70	68	\$2,550m	75	\$2,911m
A320 family	620	571	\$33,689m	647	\$39,509m
A330	34	29	\$3,161m	35	£3,949m
A350	72	64	\$10,048m	70	\$11,375m
Total	796	732	\$49,448m	827	\$57,743m
Boeing					
737	408	387	\$20,124m	532	\$28,632m
747	1	1	\$169m	-	-
767	19	18	\$1,224m	19	\$1,337m
777	26	26	\$3,822m	28	\$4,260m
787	84	73	\$9,563m	105	\$14,236m
Total	538	505	\$34,902m	684	\$48,466m
Embraer	68	60	\$1,980m	68	\$2,262m
ATR	48	35	\$735m	48	\$976m
Overall Total	1,450	1,332	\$87,065m	1,450	\$109,960m



Paul O'Driscoll

Head of Ishka Advisory Americas and Certified ISTAT Appraiser

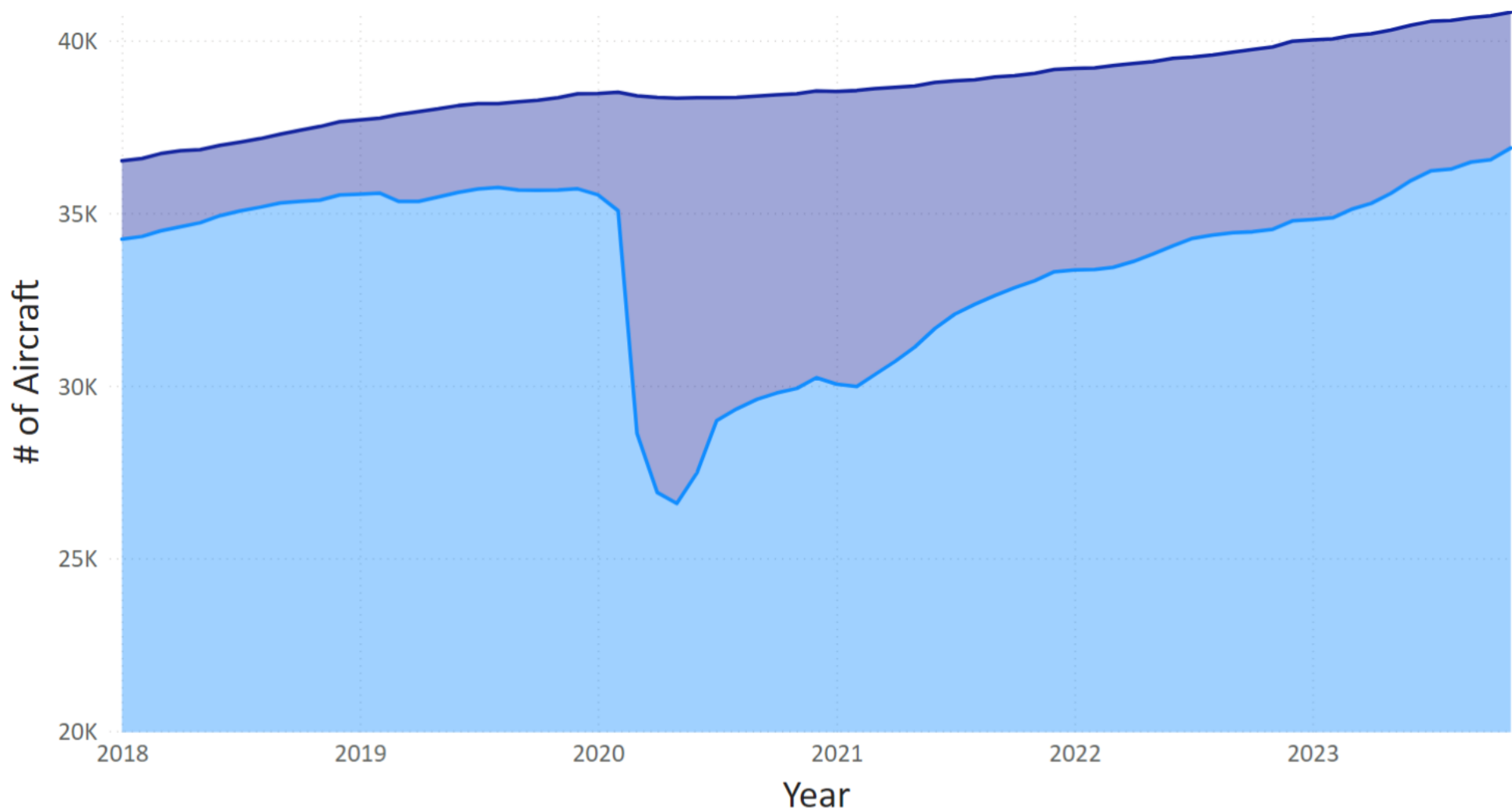
The Metal – Focus on Stored aircraft

What is parked, and how much of it will be needed in future

Global GDP has grown 20%; global active fleet growth 3.3%



STATUS ● In Service ● Inactive



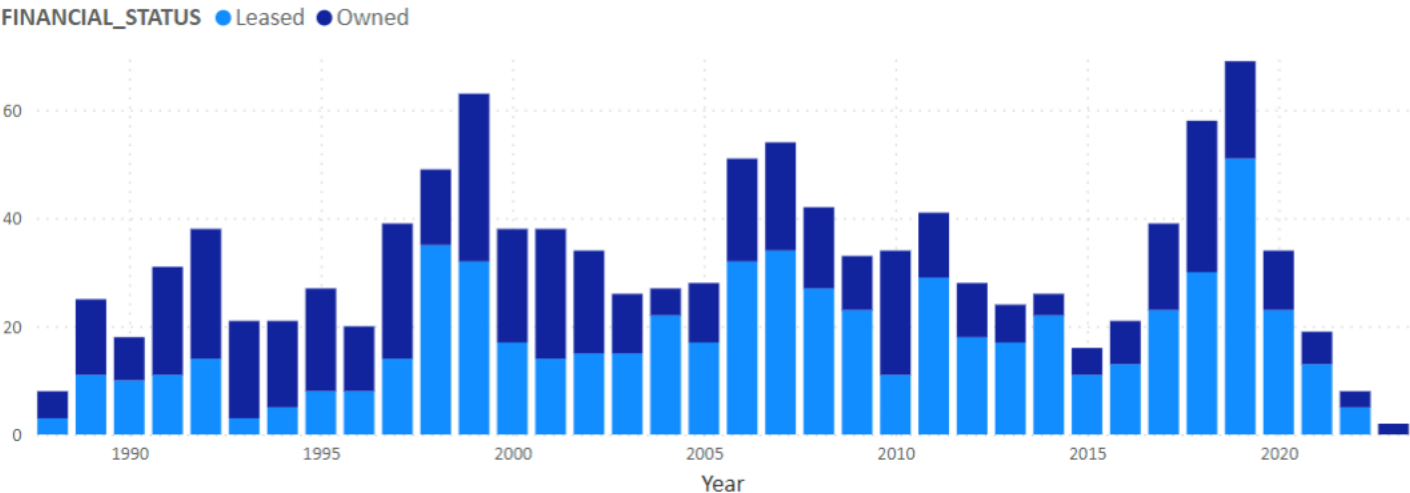
With a structural aircraft shortage why are there nearly 50% more aircraft in storage today v 2019?

What will happen to these aircraft?

Narrowbody storage analysis – 2018: 662 vs 2023: 1,187

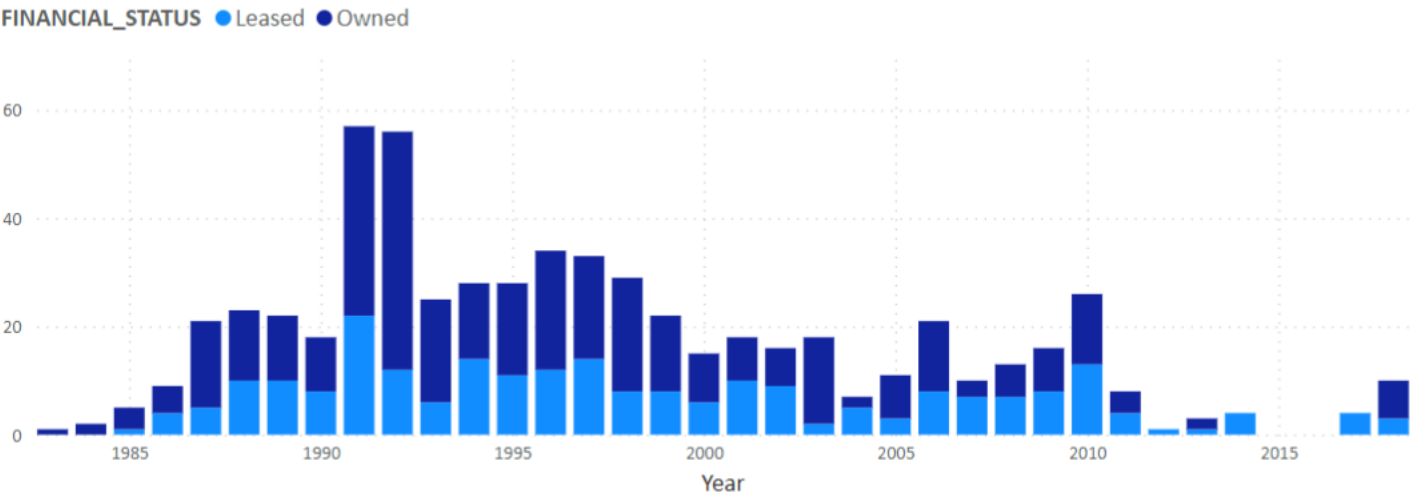


Stored Narrowbodies by Vintage Nov 2023



AIRCRAFT_FAMILY	Leased	Owned	Total
A220	10	14	24
A320	260	159	419
A320neo	132	62	194
A320P2F		1	1
B707		3	3
B717	1	12	13
B727	2	6	8
B737Classic	57	94	151
B737MAX	4	7	11
B737NG	135	101	236
B757	25	32	57
DC8	2	2	4
DC9	19	47	66
Total	647	540	1187

Stored Narrowbodies by Vintage Nov 2018

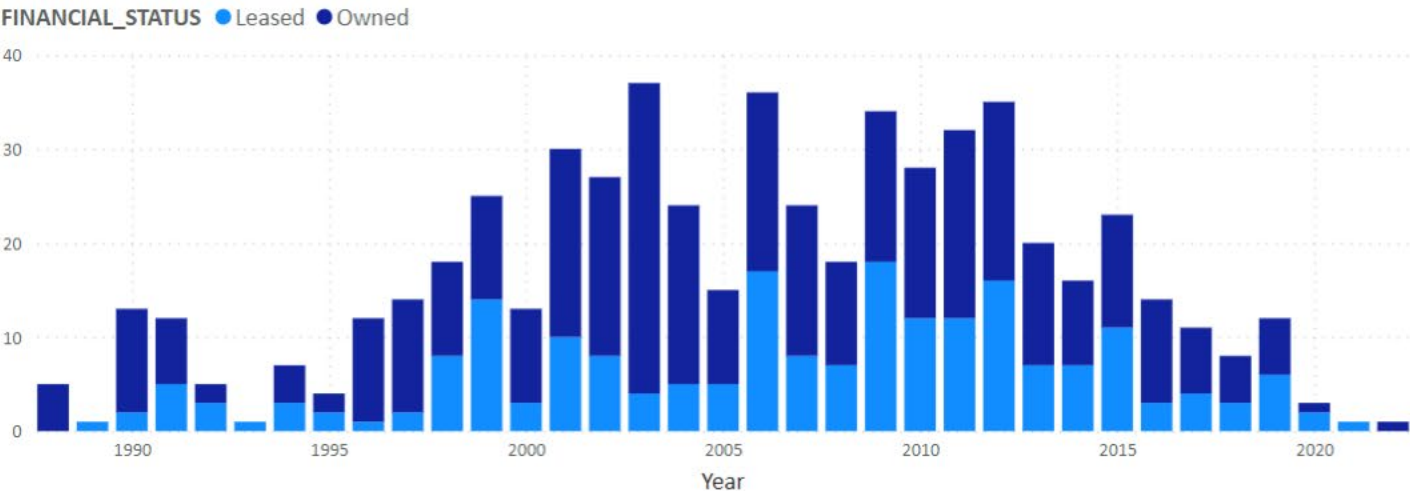


AIRCRAFT_FAMILY	Leased	Owned	Total
A320	70	76	146
A320neo	7	2	9
B707	1	5	6
B717	3		3
B727	6	15	21
B737Classic	65	106	171
B737MAX		2	2
B737NG	27	54	81
B757	8	61	69
DC8		7	7
DC9	65	82	147
Total	252	410	662

Widebody storage analysis – 2028:303 vs 2023:661

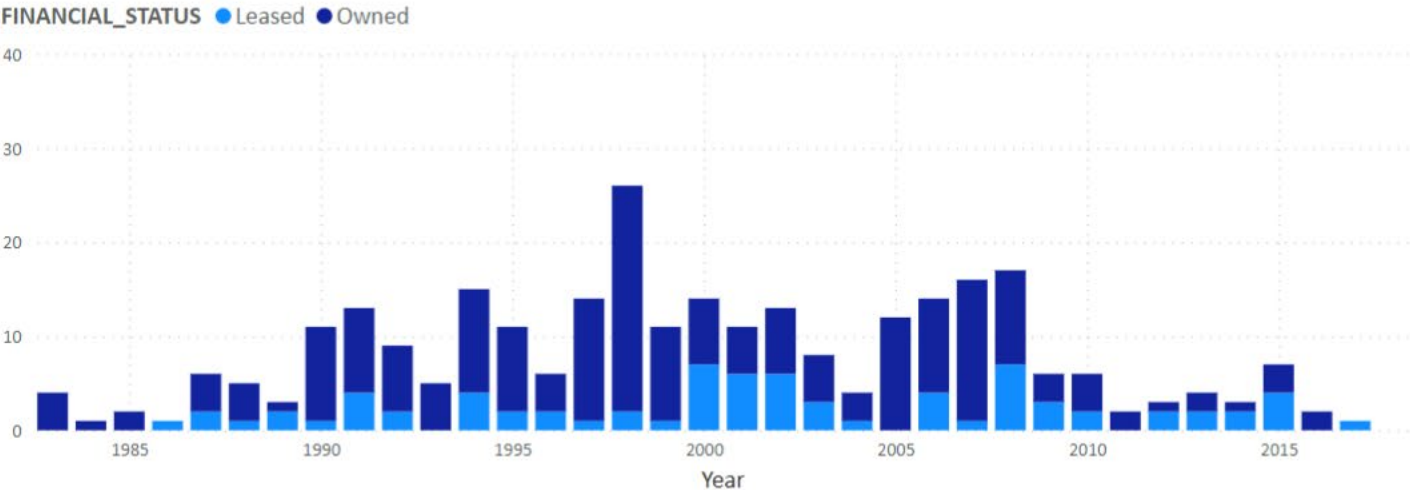


Stored Widebodies by Vintage Nov 2023



AIRCRAFT_FAMILY	Leased	Owned	Total
A300	9	18	27
A330	71	96	167
A340	15	29	44
A350	5	8	13
A380	21	30	51
B747	29	32	61
B767	10	49	59
B777	42	109	151
B787	10	17	27
DC10	5	6	11
Total	217	394	611

Stored Widebodies by Vintage Nov 2018

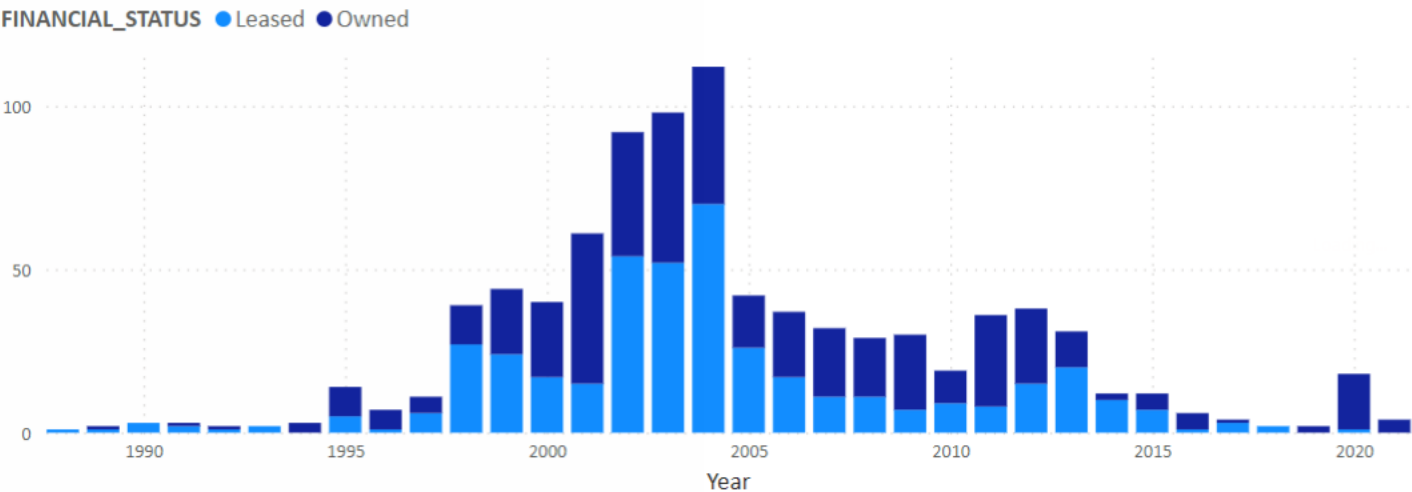


AIRCRAFT_FAMILY	Leased	Owned	Total
A300	1	20	21
A330	12	22	34
A340	13	36	49
A380		2	2
B747	14	48	62
B767	13	33	46
B777	12	47	59
B787	11	7	18
DC10	1	4	5
L1011		7	7
Total	77	226	303

Regional jets storage analysis – 2018: 386 vs 2023: 882

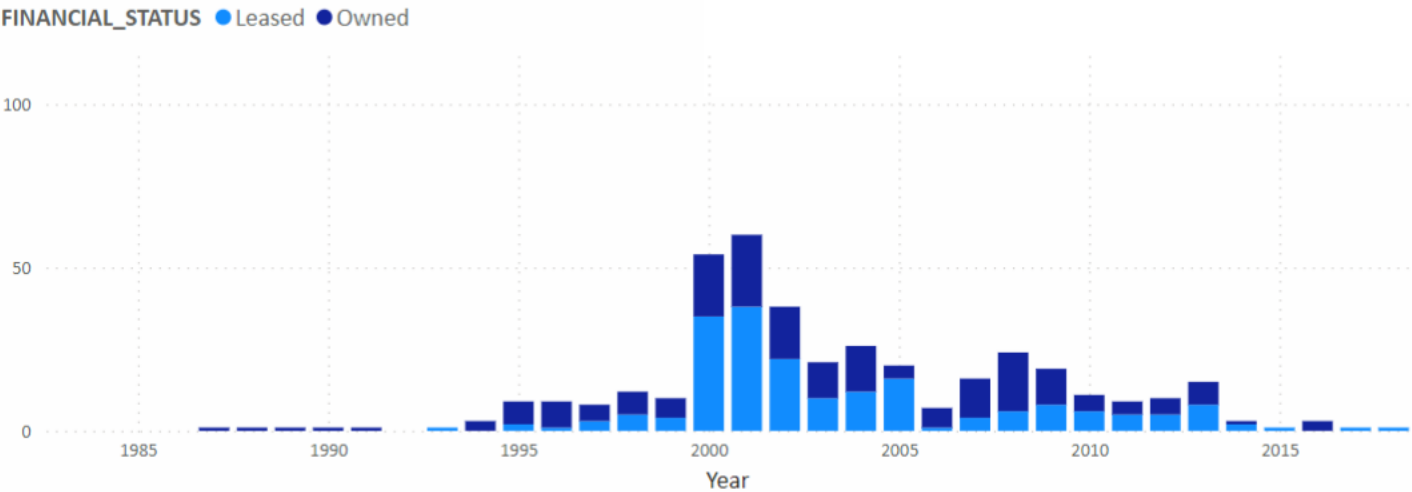


Stored Regional Jets by Vintage Nov 2023



AIRCRAFT_FAMILY	Leased	Owned	Total
ARJ21	3		3
BAE146	23	21	44
CRJ2	96	118	214
CRJ7	56	33	89
CRJ9	33	30	63
CRJX	9	15	24
E290		1	1
E295		1	1
EMB145	138	107	245
ERJ170	9	50	59
ERJ190	36	67	103
SSJ	25	11	36
Total	428	454	882

Stored Regional Jets by Vintage Nov 2018



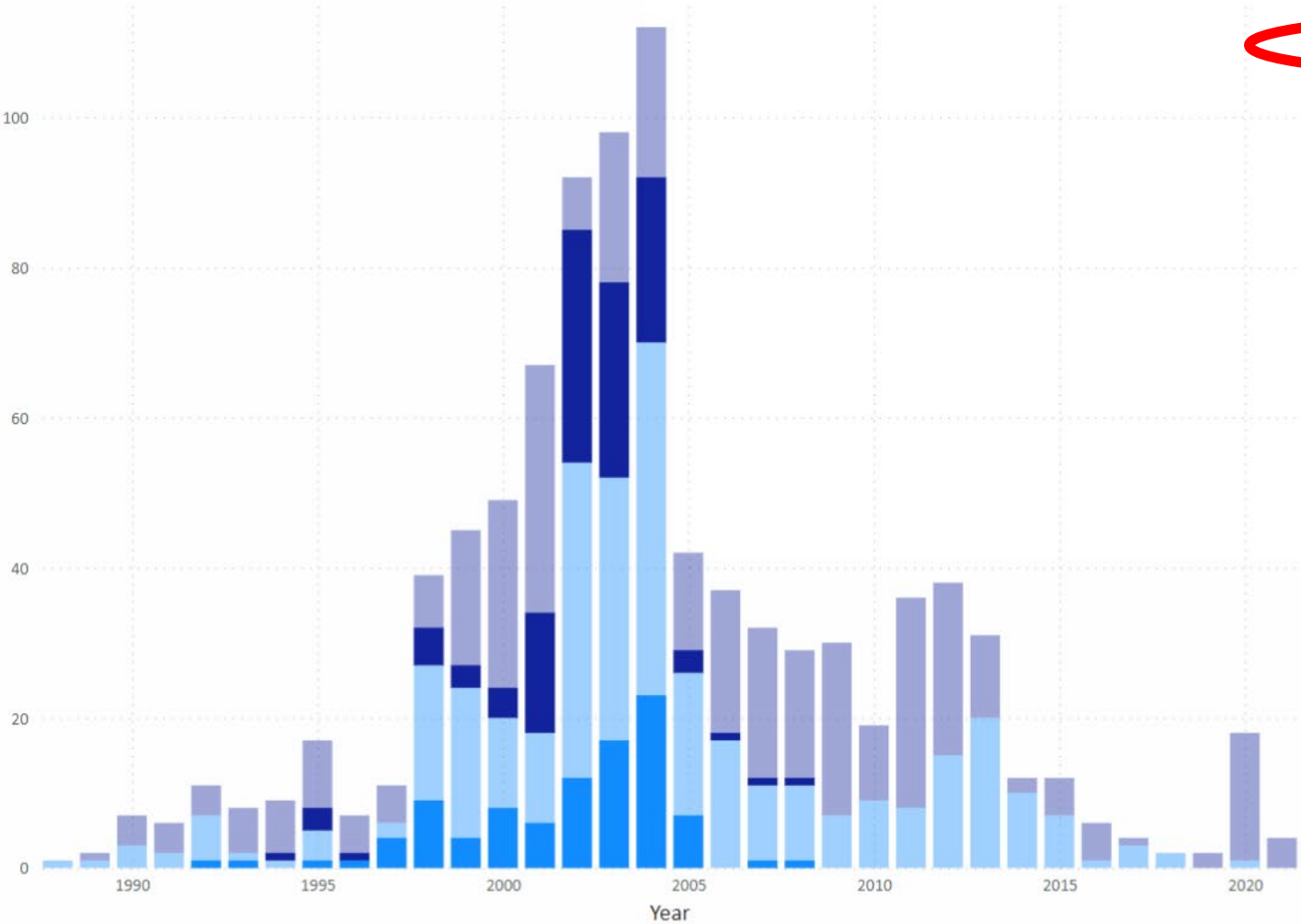
AIRCRAFT_FAMILY	Leased	Owned	Total
ARJ21	2		2
BAE146	7	11	18
CRJ2	71	40	111
CRJ7	15	14	29
CRJ9	7	4	11
CRJX		1	1
EMB145	64	75	139
ERJ170	4	4	8
ERJ190	14	29	43
SSJ	13	11	24
Total	197	189	386

50-seater regional jets have a difficult future – CRJ200



Stored Regional Jets by Vintage Nov 2023

FINANCIAL_STATUS ● Leased ● Owned



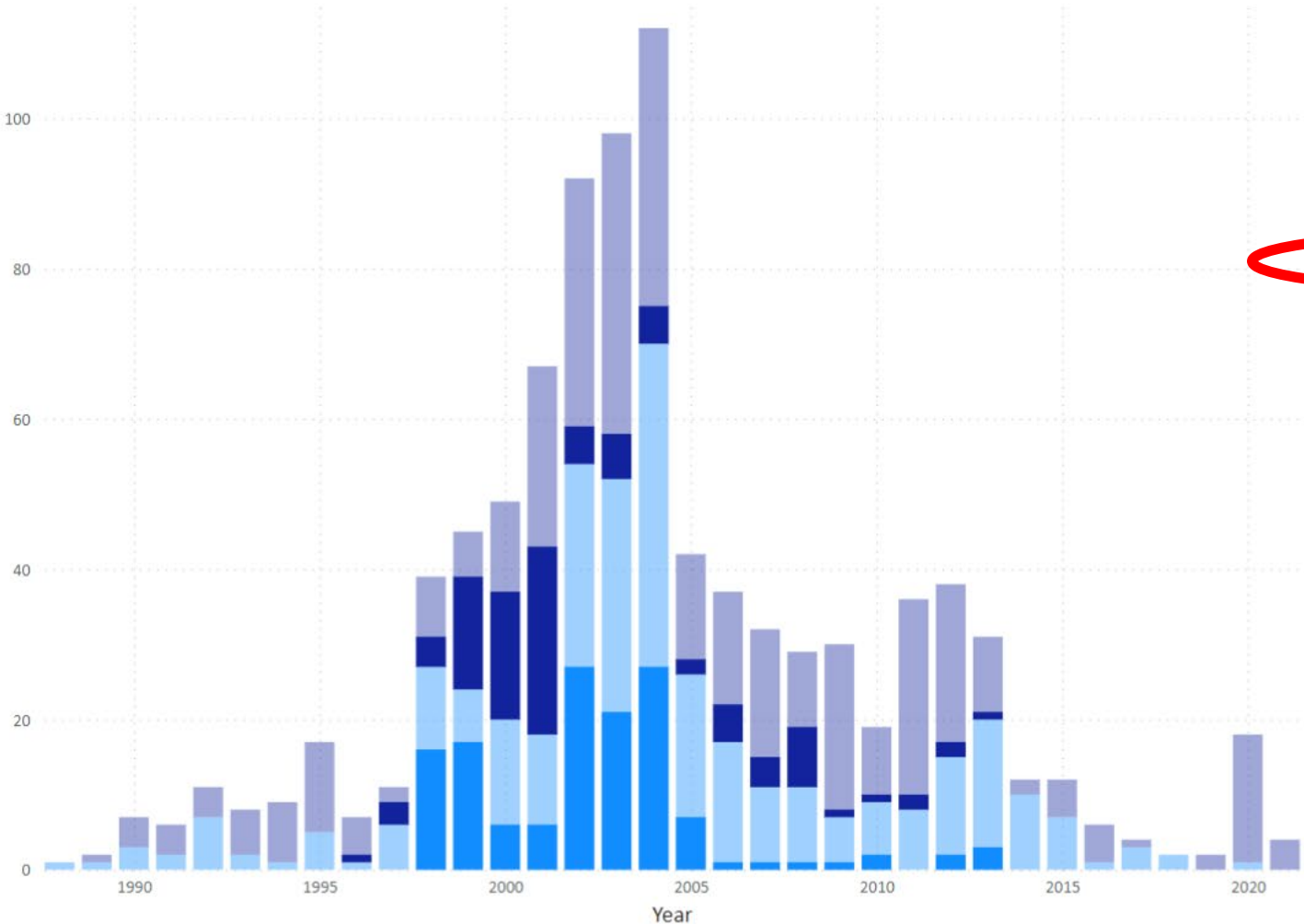
AIRCRAFT_FAMILY	Leased	Owned	Total
ARJ21	3	0	3
BAE146	33	11	44
CRJ2	96	118	214
CRJ7	56	33	89
CRJ9	33	30	63
CRJX	9	15	24
E290	0	1	1
E295	0	1	1
EMB145	138	107	245
ERJ170	9	50	59
ERJ190	36	67	103
SSJ	25	11	36
Total	428	454	882

50-seater regional jets have a difficult future – EMB145



Stored Regional Jets by Vintage Nov 2023

FINANCIAL_STATUS ● Leased ● Owned



AIRCRAFT_FAMILY Leased Owned Total

ARJ21	3		3
BAE146	23	21	44
CRJ2	96	118	214
CRJ7	56	33	89
CRJ9	33	30	63
CRJX	9	15	24
E290		1	1
E295		1	1
EMB145	138	107	245
ERJ170	9	50	59
ERJ190	36	67	103
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Total	428	454	882

Takeaways



- Tight supply of serviceable aircraft looks likely to continue
- Vast majority of excess stored aircraft likely return to service – with the exception of 50-seat regional jets
- MRO capacity is still a key issue for the industry



Eddy Pieniazek
Head of Ishka Advisory

The Macro View – Ishka Vista 2024

Final thoughts

Focus on 2024



Environment	2023 result	2024 forecast	Key Issues
Regulatory	Yellow	Yellow	Focus on Sustainability, more FAA scrutiny
Geopolitical	Amber	Red	Elections, concerns over conflicts / tensions
Macroeconomic	Yellow	Amber	Some cooling, inflation persisting
Production Rates	Amber	Yellow	Two steps forwards...
Airlines	Yellow	Yellow	Wide range in performance expected
Passenger Demand/Yields	Yellow	Yellow	Margins tighten as pressures mount
Financing Conditions	Yellow	Yellow	Banks prefer new build, Alternatives seek older
Lessors	Amber	Green	Market has moved in their favour
OEMs	Amber	Yellow	Stabilising / Engine issues being addressed
Aircraft Values	Yellow	Green	Older assets to benefit from supply constraints

Colour Coding: Red = Weak, Amber = Concern, Yellow = Stable, Green = Positive/ahead of expectations

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2024

Aviation Finance Market Forecast

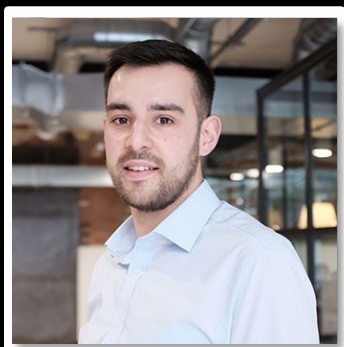
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Part Two: New Horizons: Towards Net Zero

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Eduardo Mariz
Senior Analyst and Sustainability Lead

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Sustainable Aviation Intelligence

Market Talking Points

State Policies

- EU & US moving from legislating to implementing
- Industrial and low-carbon fuel mandates and incentives
- National policies emanating from ICAO LTAG & CAAF/3

SAF Scale-Up

- SAF Offtake Agreements new record-high in 2023
- One year left to start of EU SAF mandate
- SAF investment still not keeping up with Net Zero trajectory

Net Zero by 2050

New Technologies

- Sub-regional and regional sectors set for shifts
- Low and zero-emission aviation to start featuring more heavily in regulatory agendas
- Still lots of questions about larger aircraft

Next two
slides

Reporting and Benchmarking

- Effect on aviation of CSRD & EU Taxonomy
- Sustainable finance deals, KPI 'sandboxes'
- Portfolio benchmarking along intensity reductions / decoupling improvements

Next two
slides

New Propulsion Aircraft & Retrofit Kits

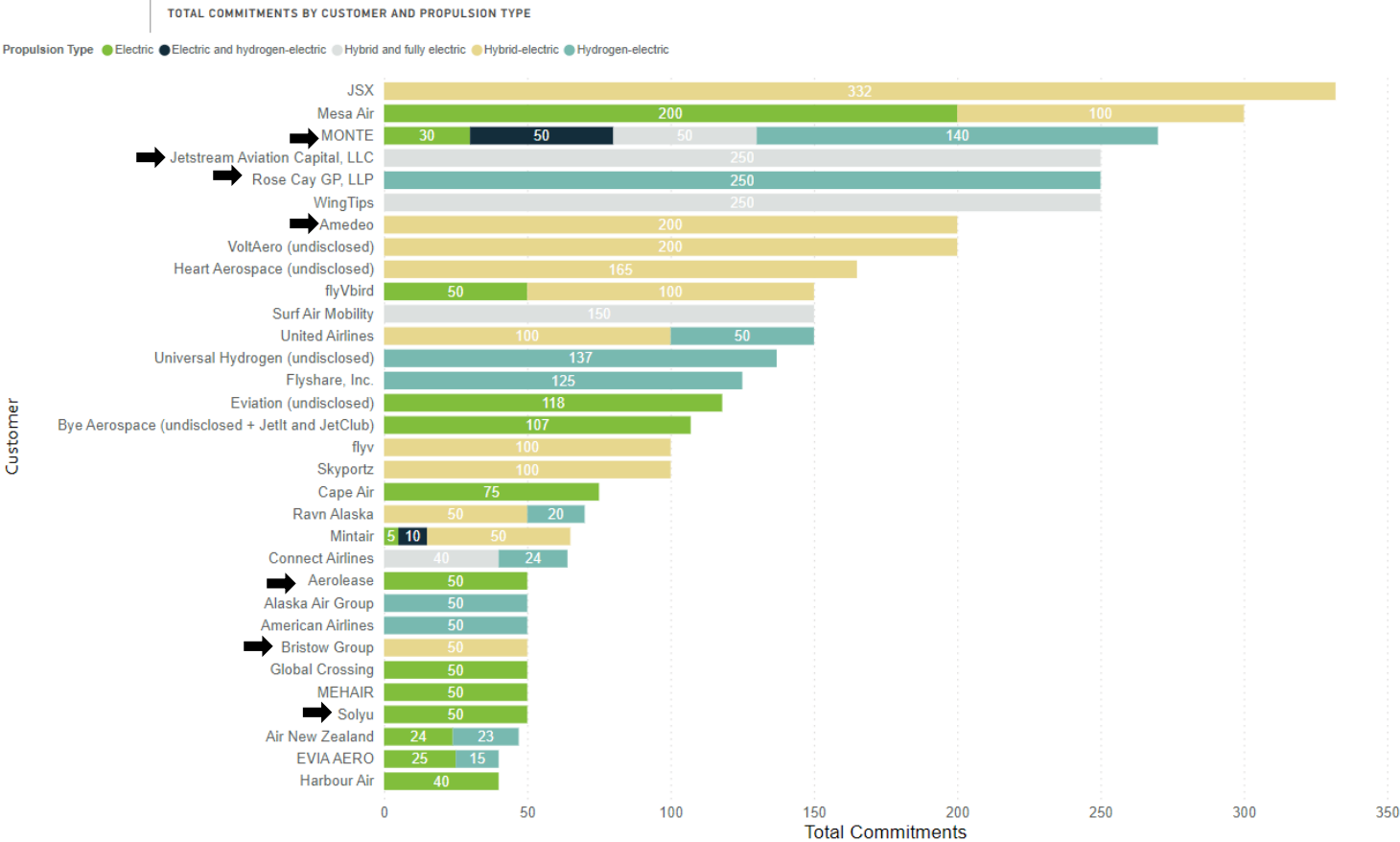
Share by MOU/LOI commitments vs firm orders				
Propulsion type		2021	2022	2023
MoUs and LOIs (incl. options)	↑	89.6%	↓ 77.3%	↓ 74.9%
Firm orders (incl. options)	↓	10.4%	↑ 22.7%	↑ 25.1%
Grand Total		1335	2085	1418

Source: SAVi New Propulsion Tracker

Share of Propulsion Type Commitments by Year				
Propulsion type		2021	2022	2023
Electric	↓	7.3%	↑ 30.8%	→ 20.5%
Electric and hydrogen-electric	↓	0.0%	↑ 2.9%	→ 0.7%
Hybrid and fully electric	↓	0.0%	↑ 35.5%	↓ 0.9%
Hybrid-electric	↑	57.9%	↓ 20.5%	→ 49.2%
Hydrogen-electric	↑	34.8%	↓ 10.3%	→ 28.7%
Grand Total		1335	2085	1418

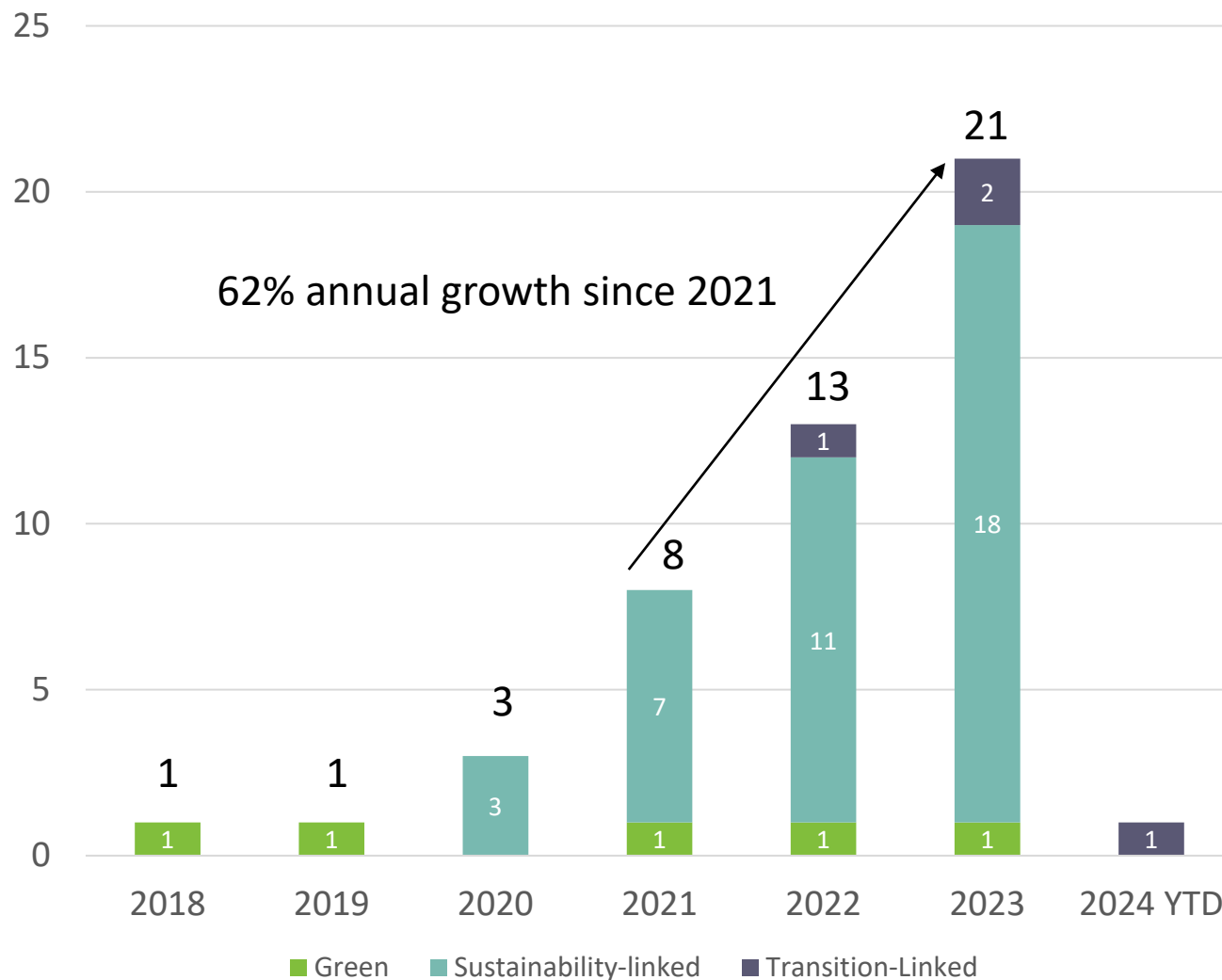
Source: SAVi New Propulsion Tracker

Ishka SAVi's tracks orders and commitments for 51 products by 34 different OEMs and retrofit solution providers. Low-emission and zero-emission propulsion for **fixed-wing aviation** (more than two passengers excluding pilot, not UAM and not e-VTOLs).



Source: Ishka SAVi New Propulsion Tracker

Sustainable Finance Transactions: Growing and maturing



- Another year of strong growth in 2023, maintaining the **62% increase** in publicly announced transactions of 2021 to 2022
- Most deals in 2023 were sustainability-linked loans, with several also incorporating sustainability-linked leases and equity
- **Lessor** issuers for the first time (SMBC Aviation Capital and CDB Aviation)
- Most common **SPTs**: Emissions intensity (11 out of 18), fleet renewal (3 out of 18), and SAF use (2 out of 18).

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Sustainable Aviation Intelligence

- Short-form reports and analysis
- Dynamic data dashboards
 - SAF Tracker
 - SAF Leaderboard
 - Sustainable Finance Deal Tracker
 - New Propulsion Orders & Commitments
- Essential resource library





Thanks for joining us!

For more information on any of the topics on today's webinar,
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