EMBRAER

REINVENTING THE AVIATION LANDSCAPE IN MALAYSIA

TOWARDS A SUSTAINABLE FUTURE

GREETINGS FROM EMBRAER

RAUL VILLARON
Vice President, Asia Pacific, Embraer Commercial Aviation

Dear Colleague,

Borders are reopening, the world is travelling again, and I'm pleased to see our industry on the road to recovery. The last two years have shown us just how essential commercial aviation is in maintaining critical supply lines, economic development, tourism, and employment.

The pandemic also prompted airlines to review their fleet strategies and focus on sustainability initiatives. Capacity management has never been more critical as consumers adjust their travel habits, traditional demand patterns are reset, and the industry goes green.

It's why we believe our family of E-Jets E2s is ideal for the post-covid landscape, particularly in Malaysia. The aircraft are the ideal size to establish better connectivity throughout the country and tap into the tremendous potential to grow the market. Their outstanding economics and environmentally responsible features are the best of any aircraft in their category.

We see an opportunity to add more than 100 new routes to Malaysia's air network with our E2s. That expansion would create around 25,000 new jobs and pump some US$700 million into the national economy.

I invite you to review this brochure and discover why we believe our E2s are the right airplanes for Malaysia, right now.

E-JETS E2: RIGHT-SIZED WITH UNBEATABLE ECONOMICS FOR SUSTAINABLE GROWTH

100-150 seats single-aisle jets; perfect sized to match domestic and intra-regional demand

Lowest trip cost of all single aisle aircraft

Same cost per seat as compared to new generation narrow-body aircraft

Capability to unlock 110 new routes, improving connectivity in the region

Opportunity to develop Subang into a major urban regional aviation centre, generating more jobs and stimulating economic development

Range capability to cover more than 99% of Malaysia's narrow-body aircraft routes (350,000 annual flights)

Potential to create 25,000 additional jobs and contribute $700 Million gross value to Malaysia's economy

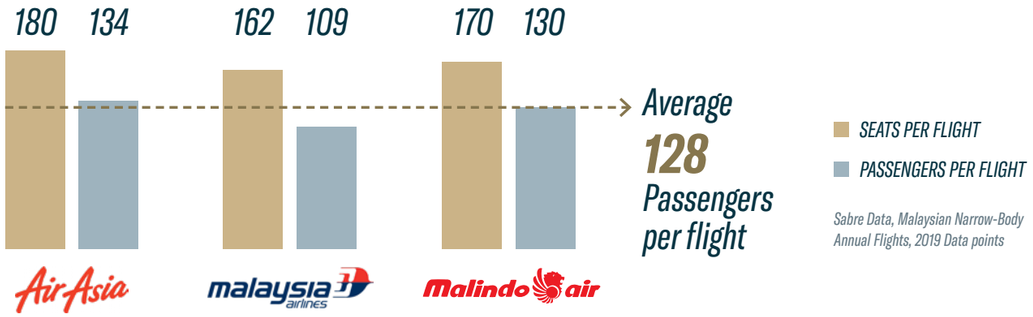
Greenest and quietest new generation aircraft, enabling improved connectivity with a smaller carbon footprint

Strong support of leading lessors and banks

Large customer base, featuring 80+ airlines in over 50 countries with 1,600+ E-Jets delivered

THE NEED FOR REINVENTION

EVEN BEFORE THE PANDEMIC THERE WAS A MISMATCH BETWEEN CAPACITY AND DEMAND

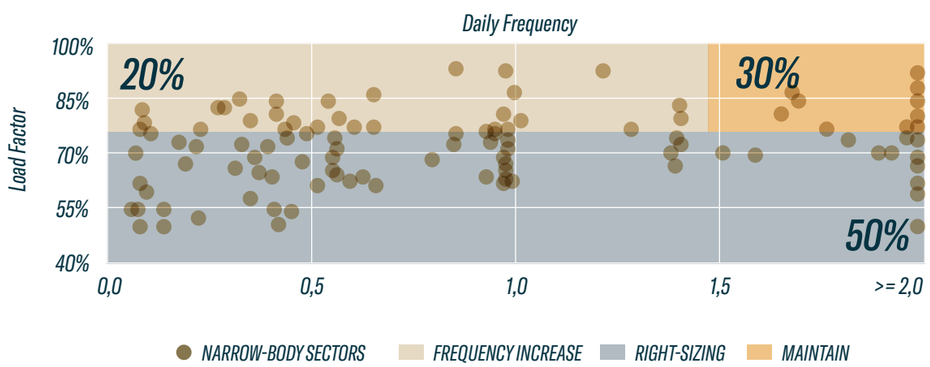


Sabre Data, Malaysian Narrow-Body Annual Flights, 2019 Data points

SCOPE FOR NETWORK OPTIMIZATION

Over more than 360 thousand narrow-body operations in 2019, 50% of them had between 90 and 135 passengers per flight, on average an aircraft occupation of below 76%. Using this data we see an immediate opportunity to right-size these low load factor sectors to a regional aircraft, achieving better efficiency and therefore better profits given the reduced cost of a smaller jet aircraft.

Another important point to take notice of is that there are 20% of narrow-body sectors with high load factors but low frequencies (less than 1.5 daily flights) which is presumably because, while there is adequate demand to fill one narrow-body flight, it would be impossible to fill two daily flights. The regional jets have the perfect capacity and are key assets for increase frequencies, offer a better schedule to passengers, and maintain lower costs and sustainable profits.

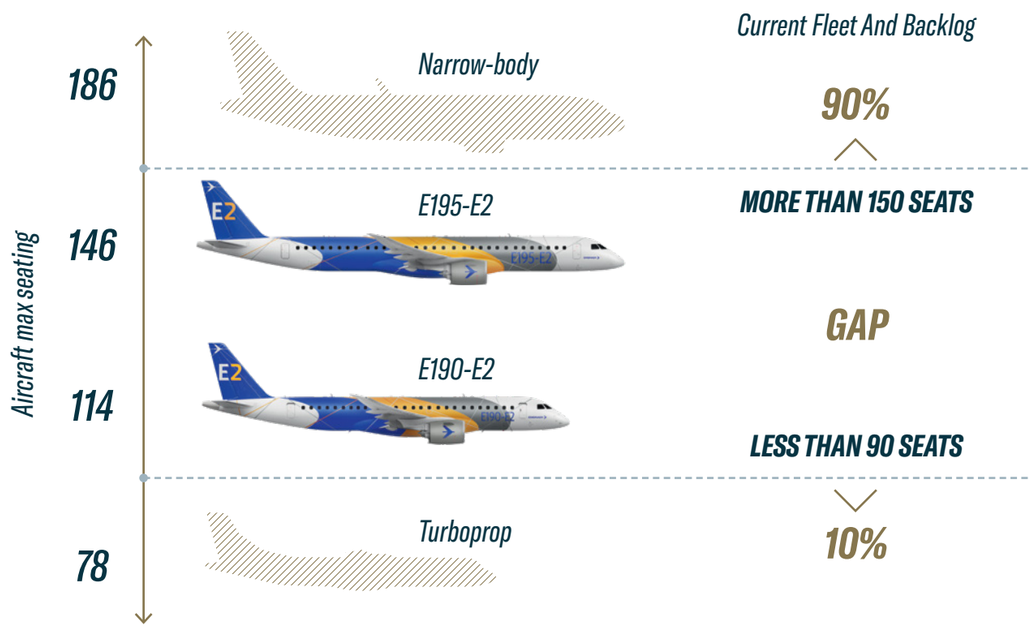


MALAYSIAN AIRLINES ARE HEAVILY INVESTED IN LARGE NARROW-BODY AIRCRAFT AND LACK FLEXIBILITY

Currently, 90% of Malaysia's fleet and backlog comprises of aircraft with more than 150 seats. An imbalanced fleet mix might pose a threat for the country's connectivity and to have optimized schedules for passengers. Flexibility is now more than ever essential to airlines and economies. Having a versatile fleet that can easily adapt to different demand levels is key to sustainable growth.

The E2s are perfectly positioned to complement the current fleet and can serve 99% of the current narrow-body network. The E2 family offers airlines the flexibility needed - helping them to restore the network, right-size, increase frequencies and better cope with cyclic fluctuations in the aviation business.

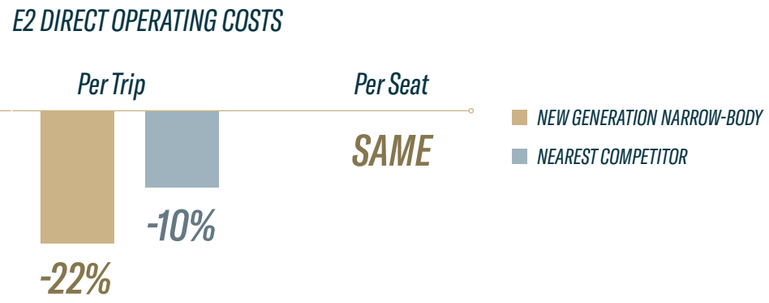
E2 FAMILY IS A PERFECT COMPLEMENT TO CURRENT FLEET



THE KEY FOR REINVENTION

RIGHT-SIZED JET WITH OUTSTANDING ECONOMICS

The E2 Profit Hunter family is a brand-new aircraft design equipped with the operational maturity of the E-Jets family (9+ years and 22 million flight hours). The E2 family is designed to offer the lowest trip costs and the best economics when compared to its competitors making it the ideal aircraft to complement narrow-body aircraft and reduce airline operating costs.



PER TRIP BASIS VS 	New generation narrow-body	Nearest competitor
FUEL COSTS	-18%	-10%
DIRECT MAINTENANCE COSTS	-30%	-15%
AIRPORT, NAV. & LANDING FEES	-22%	-10%
PASSENGER RELATED COSTS	-25%	-9%
CREW COSTS	-11%	Same

Fuel: 1.Lightest narrow bodies = lowest fuel burn | 2.Least drag (aerodynamic optimizations) = lowest fuel burn | 3.Full fly by wire and optimizations = lower fuel burn • Direct maintenance: 1.Least drag = least thrust; least thrust = highest time on wing = lowest engine maintenance costs; 40% higher time on wing than nearest competitor | 2.Highest airframe check intervals (10,000 FH) + learnings from E1 = lowest airframe maintenance costs. • Airport, nav. & landing fees: 1. Lightest narrow-bodies = lowest airport and ATC charges • Passenger related costs: 1. Less seats available to sell = lower passenger related costs • Crew Salary: 1. One less cabin crew = lower crew salary costs.

BENEFITS OF A RIGHT-SIZED AIRCRAFT

1 LOWER OPERATING COSTS
+ RIGHT CAPACITY
= MORE FLEXIBILITY AND PROFITABILITY

$250 MILLION
OPERATING COST SAVINGS PER YEAR

COST SAVINGS

Over 50% of narrow-body markets in 2019 operated with low load factors; E2 provides the desired flexibility and ideal economics for these sectors, yielding in annual operating cost savings of more than $250 million when compared to the current generation narrow-body fleet.

2 LOWER OPERATING COSTS
+ RIGHT CAPACITY
= BETTER SCHEDULES, MORE OPTIONS TO PAX

20,000
ADDITIONAL FREQUENCIES PER YEAR

FREQUENCY INCREASE

E2 enables airlines to increase frequency of key markets due to a reduced cost base and adequate capacity. A total of 20% of Malaysia's narrow-body markets are expected to receive one or more additional daily frequencies. This can benefit the country by enhancing overall connectivity and stimulating traffic. An additional 20,000 flights could be added per year.

3 LOWER OPERATING COSTS
+ RIGHT CAPACITY
= NEW DESTINATIONS, MORE CITY-PAIRS AND CONNECTIVITY

110 NEW ROUTES
5.5 MILLION
ADDITIONAL PASSENGERS PER YEAR

With the lowest operating cost and lesser risk to start a new sector or destination, the E2 is the ideal aircraft to launch new routes, increasing the number of city pairs in the country, stimulating the economy, and contributing to the general development of airports, MRO's and aviation industry supply chain.

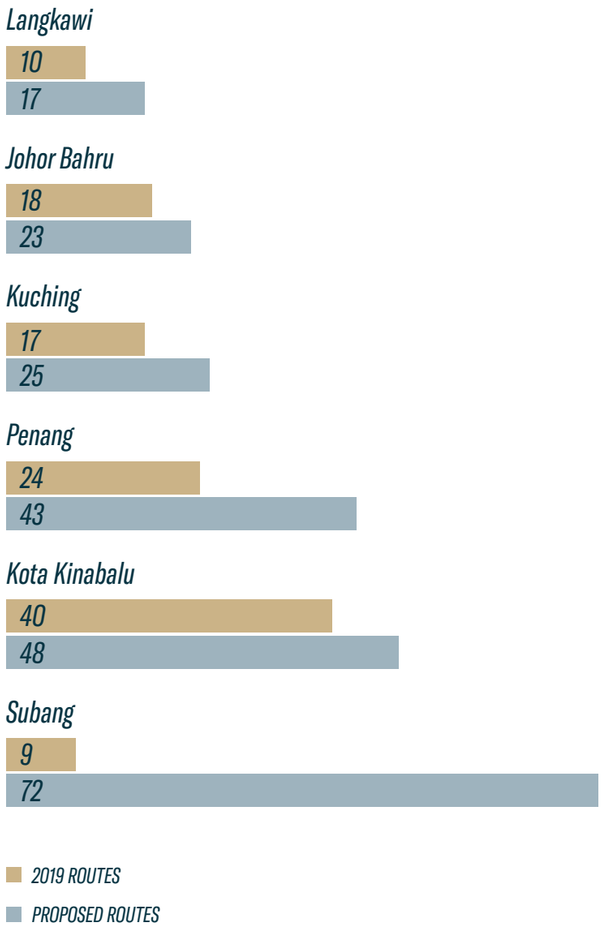
THE IMPACT OF REINVENTION

RIGHT-SIZED AIRCRAFT WILL ENABLE AIRLINES IN MALAYSIA TO:

/ RESTORE NETWORK CONNECTIVITY AND OFFER MORE ATTRACTIVE SCHEDULES TO CUSTOMERS

/ INCREASE NUMBER OF CITY PAIRS AND EXPAND THE NETWORK TO NEW DESTINATIONS, IN A SUSTAINABLE AND PROFITABLE WAY

/ CONTRIBUTE TO WIDESPREAD ECONOMY DEVELOPMENT IN MALAYSIA AND CREATE A GREENER FUTURE, WITH A NEW GENERATION AIRCRAFT THAT ENABLES FLEXIBILITY AND MATCHES THE MARKET NEEDS



100-115
AVERAGE PASSENGERS PER FLIGHT

110 NEW ROUTES
ONLY FEASIBLE WITH REGIONAL JETS

5.5 MILLION
ESTIMATE ADDITIONAL PASSENGERS PER YEAR

25,000 JOBS
CREATED TO SUPPORT THE GROWTH

$700 MILLION
POTENTIAL CONTRIBUTION TO MALAYSIA'S ECONOMY

TRANSFORMING SUBANG INTO A MAJOR URBAN REGIONAL AVIATION CENTRE

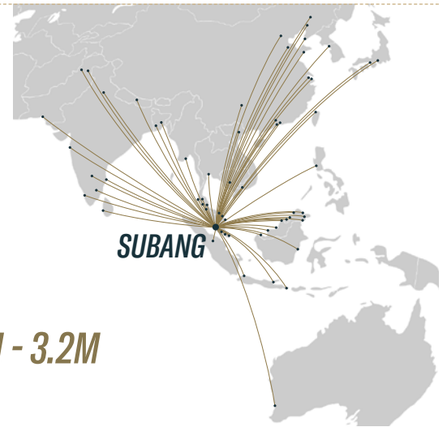
Subang airport offers incredible opportunities due to its strategic position, well-developed infrastructure, and significant prospective demand in the region. The present constraints on scheduled jet services operations limit the region's future expansion. Subang airport has huge potential as shown in the infographic below:

ROUTES **10**

DEPARTURES PER DAY **70**

TOTAL PASSENGERS HANDLED IN SZB **2.3M**

POTENTIAL



NEW ROUTES **72**

DEPARTURES PER DAY **130 - 150**

TOTAL PASSENGERS HANDLED IN SZB **10M - 12M**

ADDITIONAL PASSENGER MOVEMENTS PER YEAR **2.8M - 3.2M**

DIRECT

Jobs **2,500 - 2,800**

Gross Value Added **US$ 125M - 140M**

SUPPLY CHAIN

Jobs **4,600 - 5,200**

Gross Value Added **US$ 110M - 125M**

INDUCED

Jobs **8,400 - 9,500**

Gross Value Added **US$ 165M - 185M**

15,500 - 17,500
Jobs

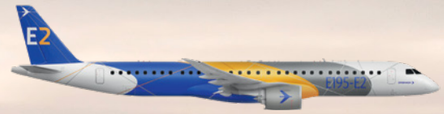
US$ 400M - 450M
Gross Value Added

TOWARDS A SUSTAINABLE FUTURE

IMPROVE CONNECTIVITY WHILE LEAVING A SMALLER CARBON FOOTPRINT

ALIGNED WITH MALAYSIA'S 12MP GOALS

Narrow-body
92 GRAMS OF CO2 PER PAX KM



E195-E2
62 GRAMS OF CO2 PER PAX KM

THE E2 EMITS 33% LESS CO2 WITH AN AVERAGE PASSENGER PER FLIGHT OF 120 PASSENGERS IN MALAYSIA.

KUL-BKI | 22,476 trips/year | 3.15g of CO2 emissions per gram of fuel | E2 fuel burn 2,307kg, Narrowbody fuel burn 3,449kg | 900km Sector length

80,000 TONS OF CO2 SAVED YEARLY PER E2

This equals to planting... **~700**

Soccer fields of trees annually

THE GREENEST AND QUIETEST NEW GENERATION AIRCRAFT

		EMISSIONS	NOISE
E2		Ref. NOx Emissions	Ref. EPNdB/ Noise
A220		UPTO +18%	UPTO +3%
OLD GEN	NARROW-BODY AIRCRAFT (B737-800 / A320)	UPTO +50%	UPTO +7%
		The most environmentally-friendly aircraft in single aisle	The quietes aircraft in single aisle

TOWARDS A MORE SUSTAINABLE AVIATION INDUSTRY

Embraer is aligned with the industry's targets to increasing its fuel efficiency in +1.5% per year and reduce emissions in 50% by 2050 from ATAG. It is also aligned with CORSIA to achieve a carbon-neutral growth to commercial aviation, delivering more efficient products and enable more capacity into the market.

COMING NEXT

- ~8-10% OF FUEL PRODUCTION TO BE SAF BY 2030[1]
- FUEL TO BE CERTIFIED WITH BLENDS UP TO 100% SAF
- E2 TO BE DEVELOPED FOR 100% SAF BY 2030

1 Estimating sustainable aviation fuel feedstock availability to meet growing European Union demand (2021 International Council on Clean Transportation)

DESIGNING THE FUTURE

The future of aviation must have a lower impact. It means lower emissions, lower noise levels and lower fuel consumption. To achieve our goals, we're exploring a wide range of bold but viable aircraft designs in our Energia concepts – reimagining and conceptualizing everything from the aircraft's power source to the shape of the airframe – all to achieve the industry-wide goal, which is also in line with Malaysia's 12MP of net carbon neutrality by 2050.

ENERGIA

Our Energia project is exploring a range of sustainable concepts to carry up to 50 passengers. This project is considering a number of energy sources, propulsion architectures and airframe layouts to reduce our carbon emissions by 50% starting from 2030 – a key step in our goal to be net carbon neutral by 2050.

TODAY

E2 - Most efficient single aisle aircraft

2025

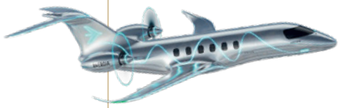
E2 100% SAF

NG Turboprop 100% SAF

2030

Energia Hybrid

2035



Energia H2 Fuel Cell

2040

Energia H2 Gas Turbine

Energia Electric

2045

NG Turboprop H2

E2 H2

2050

OPERATORS AND LESSORS

WORLDWIDE PRESENCE, GROWING FOOTPRINT IN ASIA

80+ Airlines
50+ Countries
1600+ Delivered

ALL LESSORS SUPPORTING THE E-JETS

AERCAP · AeroCentury · AIRCASTLE · Airfleet Credit Corporation · AIR LEASE CORPORATION · ALAFCO Aircraft Leasing & Management · AVIATOR CAPITAL · 航空工业租赁 AVIC LEASING · AVOLON · BBAM · 交银租赁 Bocomm Leasing · CASTLELAKE · 国银航空金融租赁 CDB AVIATION LEASE FINANCE · 招商银行 CHINA MERCHANTS BANK · chorus aviation inc. · FALKO · GA Telesis · GE Capital Aviation Services · GOAL AIRCRAFT LEASING · GOSHAWK · True Noord Regional Aircraft Leasing · HEH · 工银租赁 ICBC LEASING · MACQUARIE · NAC · RegionalOne · 昭和リース · SkyWorld Aviation · SMBC · Tokyo Century · WINGS CAPITAL PARTNERS

EMBRAER

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CREATE.
OUTPERFORM.

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