ISSN 2667-8624
Fiyat: 120 TL - Price: US$ 5,99
VOLUME 5 - ISSUE 21 - YEAR 2023

AVIATION TURKEY

An Exclusive Interview with
Hussein Dabbas
General Manager, Institutional Relations, Africa & Middle East of Embrarer

CEO of TAV Airports
Serkan Kaptan
"We are undertaking the largest investment program in the history of TAV Airports."

Pegasus Takes Delivery of its 100th Aircraft
Cumhuriyet

An Exclusive Interview with
Linn Tonsberg
Managing Editor, Middle East of Air PB

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VOLUME 5 - YEAR 2023 - ISSUE 21
ISSN 2667-8624

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Basım Tarihi
Kasım-Aralık 2023

Yayın Türü
Süreli

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A Route to Net Zero European Aviation

ASD fact and figures report for 2023 has recently published. According to the report, world passenger traffic began to return to normal in 2022, with global total traffic (measured in revenue passenger kilometres) reaching 69% of pre-pandemic (2019) levels for the entire year. In Europe, traffic surged by 132% compared to 2021. This resurgence was reflected in significant rebounds in both industry turnover and employment.

Civil aeronautics turnover reached €114bn in 2022, marking an 11.1% increase over the €102.6bn reported in 2021. The sector accounted for 44% of the total industry turnover in 2022. The notable growth in this regard was seen in the helicopter and commercial aircraft segments, evident from higher delivery figures.

Despite the challenges posed by a tight labour market and a shortage of high-skilled workers, sector employment increased by 6.0% in 2022, reaching a total of 348,000 jobs.

Compared to pre-pandemic (2019) levels, 2022 turnover was 2.3% higher, and 2022 employment was 6.1% higher.

However, at a time when demand surged new challenges arose. These included supply-chain bottlenecks, shortages of critical raw materials and electronic components, as well as trade restrictions due to sanctions on Russia. Additionally, soaring inflation and escalating energy costs further complicated the situation.

Addressing these complex and inter-woven challenges is crucial for the industry to increase production and meet demand, and to ultimately deliver on the industry's mission, which is to connect people, cultures and economies.

Amid this backdrop, a relatively lesser-known fact underscores the paramount importance of air transport: while air transport carries around 1% of the volume of world trade shipments, it represents over 35% by value – meaning that goods shipped by air are high-value commodities, often perishable or time-sensitive.

The aviation sector, alongside the related tourism industry, serves as a vital engine for employment, supporting nearly 88 million jobs across the globe. Of this, 11.3 million employees work directly in the industry in various capacities.

Civil aviation has already shown a track record of reducing its environmental footprint over the years. The current generation of jet aircraft are 80% more fuel efficient per seat kilometre than the first jets built in the 1960s. Each new generation of aircraft typically reducesCO_2 emissions by around 15–20%. Newergeneration aircraft generally burn around 3 litres of fuel per 100 passenger kilometres.

The independent report by the Royal Netherlands Aerospace Centre and SEO Amsterdam Economics shows how a combination of actions

from all stakeholders – including the EU and national governments – in four key areascould achieve substantial CO2 emissions reductions in line with EU climate goals. These include: improvements in aircraft and engine technologies (including hybrid, electric and hydrogen propulsion); using sustainable aviation fuels (SAFs) both for fixed- and rotary-wing platforms; improvements in air traffic management (ATM) and aircraft operations; and the implementation of economic measures to drive sustainability within the aviation industry.

The aviation sector is making progress on carbon reduction initiatives by designing and testing new generations of single-aisle aircraft with lower fuel consumption per seat and operating on longer range. The key solution for the industry, however, is sustainable aviation fuel (SAF) and development of the hydrogen ecosystem. Currently, SAF accounts for less than 0.1% of all aviation fuels consumed. Increasing the use of SAF to 10% by 2030, which would be in line with the net zero carbon emissions goal, will require a significant boost of investment in SAF production capacity as well as supporting policies in the form of fuel taxes or low-carbon fuel standards.

The European air transport sector strongly encourages the wider promotion of SAF around the world. ASD and its Destination 2050 partners call on states and the wider aviation industry across all world regions and at global level to join forces and rally around ambitious and credible SAF objectives – to ensure aviation globally remains on track to attain the ICAO long-term aspirational goal (LTAG) of global net zero carbon emissions for aviation by 2050.

Enjoy the issue...

Ayşe Akalın
Editor in Chief

"E195-E2 is the quietest and most efficient aircraft in the single-aisle category."

An Exclusive Interview with Hussein Dabbas, General Manager, Institutional Relations, Africa & Middle East of Embrarer

Ayşe Akalın: First of all, thank you for sparing time for our readers. Can we start our interview with getting an overview of 2023's first 9 months from Embraer's E195-E2 commercial jet's point of view in terms of the number of deliveries and new orders? What can you tell us about Embraer's share in global airliner market for aircraft below 150 seats?

Hussein Dabbas: 2023 has been a great year for Embraer, strongly emerging from the pandemic with more orders and increased deliveries ensuring a book-to-bill above one for the year. We have 71 new orders with the likelihood of more deals still to come in 2023, And we will achieve our guidance of between 65 and 70 deliveries by year end of the year. Embraer is the market leader in aircraft with fewer than 150 seats, the most robust and broad family of aircraft in the segment, spanning across the E175 to the E195-E2.

Ayşe Akalın: Can you inform us about Embraer's current E195-E2 final assembly line in Brazil and its annual production capacity? Considering the fact that the E-Jets have established their role as the world's third-largest force in the global airliner market do you have a plan to establish more final assembly lines in other countries?

by Ayşe Akalın

Hussein Dabbas: Our current final assembly line in Brazil is a hybrid one, where we produce the E175, the E190-E2 and the E195-E2 as required. We have the capacity to produce over 100 aircraft per year. The establishment of other final

assembly lines around the world is something we are looking at, within a wide-ranging scope of potential partnership opportunities. We have done this in the past in China, with a plant in Harbin, and we're actively exploring these opportunities.

Ayşe Akalın: As the largest aircraft in the E-Jet E2 family, the E195-E2 has been designed to maximize returns and efficiency on high-density routes. Where do you see the strong points of E195-E2 and how does it differ from its competitors?

Hussein Dabbas: The E195-E2 similar cost per seat and 25-30% smaller cost per trip versus large narrowbody aircraft, gives the aircraft a level of versatilty within the industry that is unique. On high-density routes, it enables more frequencies through the day – very convenient for passengers and leads to higher yields for operators – all without compromising on cost.

The E195-E2 is also a formidable aircraft for low and medium density routes – allowing airlines to feed their hubs with passengers from cities that otherwise would not be connected to the network (or poorly connected, with just a few flights per week).

In summary, the E2 is the best aircraft to enable airlines to explore, grow, and maintain new markets with minimum risk – and maximum profit. Making it the best complement to larger narrow-bodies

Ayşe Akalın: As the largest member of the E-Jet family, E195-E2 can accommodate between 120 and 146 passengers and is powered by two Pratt & Whitney PW1900G Geared Turbofans providing up to 23,000 pounds of thrust. The engine is part of the PW1000G family, which can also be found on other aircraft, including the Airbus A220 and Airbus A320neo. However, the technical problem experienced with the Pratt & Whitney PW1500G Engines on A220 fleet and PW1100G Engines on the A320neo Familymade things difficult. Can you elaborate on the current status of engine problem, how the engine problem affects Embraer and the E195-E2 fleet and ongoing discussions with P&W on this issue? When do you expect PW1900G engine problems to be fixed?

Hussein Dabbas: Our aircraft are significantly less affected by these issues for a number of reasons, one of which comes from a key differentiator for the E2 program as whole – the E2 is a significantly lighter aircraft than the A220, and therefore less demanding on the engine at all times, but especially in the climb. The E190-E2 and E195-E2 have a maximum takeoff weight (MTOW) of 56.4 tons and 61.5 tons, respectively, compared to the A220-100 and A220-300's 63.5 tons and 70.9 tons, respectively.

While not immune to the issues, we have not been affected at the same level that you've seen on the A320neos and the A220s – around three times less affected (as confirmed by our fleet in service statistics).

Also, as the E2 entered service only in 2018 it was therefore equipped with later more mature engine configurations than was offered to earlier users.

In normal circumstances these issues would be managed through use of spare engines etc., however the supply chain and MRO capacity issues affecting the whole industry have made this more challenging. We are working closely with P&W to mitigate issues and we are also adding GTF MRO capability at OGMA, Embraer's MRO facility in Portugal.

Ayşe Akalın: At İstanbul Airshow (AIREX) 2022, Embraer displayed E195-E2 commercial jet. As demand for air travel soars following the pandemic, Turkish Airlines (THY) is said to on course to order 30-40 regional aircraft to support its continued growth. Turkish Airlines was previously interested in both the Airbus A220 and Embraer E195-E2 commercial jets. Can you elaborate on the technical features of E195-E2 single aisle aircraft and why and on how it is well-suited to Turkish Airlines regional operation?

Hussein Dabbas: Turkish Airlines already operates from IST airport to more international destinations than any airline in the world. However, the true strength of a hub is defined by how well those destinations are connected with each other. Adding E195-E2 to the fleet, to complement narrow and widebodies, would support the airline in increasing number of frequencies, especially on short and mid-haul routes across the region. This in turn would shorten the connecting times for transfer passengers, enhancing customer experience and unlocking new passenger flows.

This strategy wasn't possible in the congested Ataturk airport, but development of the new IST airport has provided Turkish Airlines with new market possibilities.

The E2 is the most efficient and optimised aircraft to fulfill the under 150 seat mission. For that reason, within its segment, its performance and economic metrics are unbeatable, no matter how you look at the numbers.

Because of its similar seat costs compared to larger NBs, such as the A320neo, it can be successfully deployed in most markets these aircraft operate, complementing their capacity by adding the flexibity to dynamically match capacity to demand, and therefore maximise yield. Additionally, because of its much, much lower cost per trip, it can do so much more cost effectively. It is this unique capability that led to naming the aircraft, the 'Profit Hunter'.

Those impressive cost numbers are based, in the main, on fuel burn, and therefore also make the E2's environmental credentials unbeatable. Both in terms of emissions and noise, the E195-E2 is the quietest and most efficient aircraft in the single-aisle category.

No new-generation aircraft in the segment is more versatile, cheaper to operate, easier and less costly to maintain, or more environmentally advanced than the E195-E2. No other aircraft can open new markets more efficiently and with fewer risks; no other can efficiently feed a hub with the number of frequencies that will maximize connectivity benefits; no other can complement the operations of larger narrowbodies to ensure that airlines will be able to deploy flights year-round efficiently matching capacity and demand.

Ayşe Akalın: What are your predictions for commercial aviation in Türkiye in terms of growth, challenges and opportunities? How do you see the commercial airplanes market developing in Turkey and how does Embraer provide support services in country?

Hussein Dabbas: Türkiye has a unique and rapidly growing place in the global air transport arena. Crossing the 200M passenger mark pre-COVID was a remarkable achievement. Added to the quickest post-COVID traffic recovery among all European countries, strongly supported by diversified traffic sources, this proved the resilience and further growth potential of the Turkish market. There are many reasons to be positive about the future of the industry in Türkiye, which is why Türkiye is one of the countries we are talking to about future industrial collaboration.

Not only is the country a top tourist destination, it also has a privileged geographical location at the crossroads of the world, allowing it to efficiently connect passengers globally. Türkiye also has a thriving domestic market, as well as an established and respected aerospace industry of its own.

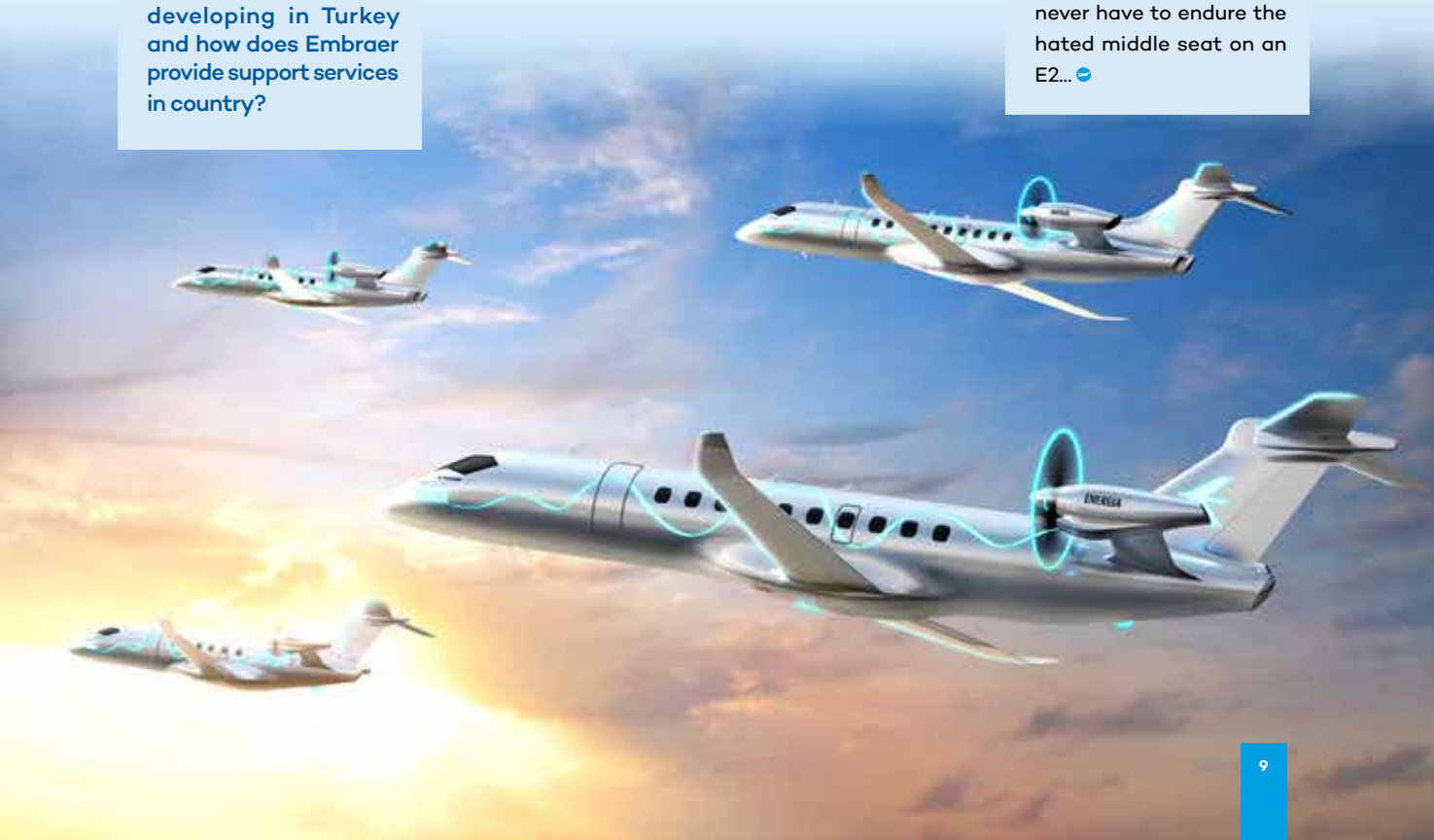
With so many different opportunities, it is easy to see how the most efficient and versatile aircraft in the market – the E195-E2 – can be a major tool to even further extend Türkiye's leadership credentials in the industry.

Ayşe Akalın: What can you tell us about the current status of your technological cooperation with Turkish suppliers and Embraer's supply chain here in Türkiye?

Hussein Dabbas: Türkiye has a talented and respected aerospace sector and supply chain that could be phenomenal contributors to the E2 program, as well as to future programs such as Energia. Embraer is also eager to contribute with the Turkish air transportation market with the introduction of the E2. The synergies are surely there, and that's the spirit of the technological cooperation we see in our ongoing discussions.

Ayşe Akalın: Would you like to add anything in the way of a message for our readers?

Hussein Dabbas: Thanks for talking to us today, we hope your readers in Türkiye soon get to enjoy the E2's whisper quiet ride, huge overhead luggage bins, and can luxuriate in the knowledge they will never have to endure the hated middle seat on an E2...



Smarter Skies: How AI Integration will Revolutionize the Aircraft Cabin Experience

This article was originally published by Ed Dryden, President interiors at Collins Aerospace on LinkedIn, November 18, 2023

Artificial intelligence (AI) appears to be everywhere – startups surface seemingly overnight and journalists can't write about it enough as lawmakers scramble to enact regulatory measures. While AI is certainly experiencing a development boom, it may come as a surprise that the concept itself is not all that new.

In fact, English mathematician Alan Turing's pioneering work on computing intelligence began in the 1940s. As far back as 1637, Rene Descartes mused about machines with decision-making power in his book Discourse on the Method, predating the invention of the first fully electric computer by some 200 years.

No, AI is not new, but it certainly feels like it is. Smart systems are increasing fixtures in our everyday lives – from digital assistants, autonomous vehicles, smart-enabled homes and much more.

The intelligent opportunity

I lead Collins Aerospace's interiors business where our focus is on helping our airline customers improve the travel experience for their customers. We support this through clever design, innovative products and thoughtful integration to create cabins that deliver both function and comfort. But what really excites me is the emergence of commercially viable, advanced AI and how we can leverage this technology to take the inflight experience to a whole new level.

Combining our aircraft cabin expertise with intelligent, machine learning technology gives us a unique opportunity to bring holistic cabin solutions to life – think inflight service personalization, seamless technology integration, predictive maintenance and dynamic, bespoke branding.

In the 18+ months I've led Collins' interiors business, I've witnessed firsthand the ingenuity and collaboration it takes to remain on the forefront of cabin optimization – not to mention the relentless pace at which everything continuously evolves. The work being done to make air travel functional, beautiful and comfortable is equal measures art, science and industry insight.

Leveraging intelligent capabilities opens the door to bring exciting possibilities to life for our customers, and ultimately, their passengers. We've come to expect these advancements across other aspects of our lives (in our homes and cars, for example) so why should the air travel experience be any different?

That's the question my team and I have put energy around, and the work is already being done.

Introducing the InteliSence™ system

We recently introduced our InteliSence™ system within a premium suite at the Aircraft Interiors Expo in June. A proprietary AI engine trains the InteliSence system in our labs to recognize specific service and maintenance cues. What's deployed in-flight is not active AI, but rather a system equipped with a pre-determined set of rules that recognizes and computes based on what it's been taught – facilitating everything from predictive

service to increased operational efficiencies and streamlined on-board logistics.

And that's the real beauty of intelligent systems. With a bit of ingenuity and thoughtfulness this technology can amplify existing products, systems and services to levels that far exceed what's possible without it.

Predictive and personalized

And make no mistake, the utilization of advanced AI will change the way we travel. Take the example of the InteliSence system in a premium suite – it's trained to detect the status of specific objects at a seat, programmed to understand potential service needs based on what it detects and then automatically send service triggers to on-board crews.

Need a refill? Chances are the crew is aware and already working on it.

Any number of service needs could be programmed into the system's rule set, along with the ability to automatically optimize the seating environment based on occupant behavior – like reading a book, watching a movie or laying down to sleep.

And while predictive, personalized and automatic in-flight service might be wholly new, it's only the tip of the iceberg when it comes to the system's capabilities.

Perhaps most transformative is the ability to coordinate with airlines to train the system to function in a way that is conducive and complementary to their unique brands – distinguishing them from their peers and helping drive customer engagement and loyalty. Service preferences, preferred catering and more is not only customizable, but also amenable to future upgrades and additional capabilities.

Prognostic maintenance

Intelligent systems aren't only useful data collectors, they are great at gleaning patterns from that data – identifying trends and better enabling proactive servicing.

Product reliability is an incredibly important metric for airlines. The aircraft maintenance industry is conservatively estimated at over $20 billion, with exponential growth expected over the next several years. Providing airlines with predictive data on an individual component could allow for more efficient inventorying and scheduled maintenance – saving operators valuable time, money and resources.

And that's just one item within an aircraft. When applied across entire cabins and fleets, the operational value increases dramatically, at a more systemic level. Individual components can begin operating together, reducing common part count, the number of power supply systems needed for operation and the overall weight carried in the cabin.

Scalable technology

Scalability and the ability to match the speed of innovation is another reason for excitement.

Collectively, the industry struggles to keep up with emerging technologies simply because of the months, and often years, associated with testing, certifying and installing new solutions. It's a major industry challenge. Intelligent, digital systems like InteliSence accelerate the technology refresh process, making upgrades nearly as seamless as updating the operating system on your smartphone.

But seams in the air travel experience won't be ironed out all at once.

It will require big ideas, cross-industry collaboration and executing on a small scale, before rapidly expanding installation across cabins and entire fleets to begin to realize the many benefits intelligent technology can have on air travel.

Although it may seem like a long journey since Turing's computing dreams began materializing some 80 years ago, recent accelerations in innovation and data processing have expedited our possibilities considerably. We're at the cusp of a digital and intelligent transformation inside the aircraft cabin – and when it arrives, it will revolutionize the air travel experience

Global Aviation Journalists Once Again Gathered at IATA Media Day in Geneva

IATA's Global Media Day 2023 took place on 6 December 2023 at IATA's Geneva Headquarters. Aviation Turkey Magazine Editor in Chief, Ms. Ayşe Akalın is closely followed the conference where global aviation journalists attended to for our readers in Geneva.

The agenda included briefings on 2023 in review and outlook for2024 , sustainable Aviation Fuel , noise and Slots, airline industry retailing and Cargo topics.

Willie Walsh, IATA's Director General

Willie Walsh, Director General, Marie Owens Thomsen , SVP Sustainability and Chief Economist and Andrew Matters, Director Policy and Economics informed press members about 2023 review and outlook for 2024.

Airlines Set to Earn 2.7% Net Profit Margin on Record Revenues in 2024

IATA announced strengthened profitability projections for airlines in 2023, which will then largely stabilize in 2024. However, net profitability at the global level is expected to be well below the cost of capital in both years. Very significant regional variations in financial performance remain.

Outlook highlights include:

Airline industry net profits are expected to reach $25.7 billion in 2024 (2.7% net profit margin). That will be a slight improvement over 2023 which is expected to show a $23.3 billion net profit (2.6% net profit margin).

In both 2023 and 2024 return on invested capital will lag the cost of capital by 4p.p., as interest rates around the world have risen in response to the sharp inflationary impulse.

Airline industry operating profits are expected to reach $49.3 billion in 2024 from $40.7 billion in 2023.

Total revenues in 2024 are expected to grow 7.6% year over year to a record $964 billion.

Expense growth is expected to be slightly lower at 6.9% for a total of $914 billion.

Some 4.7 billion people are expected to travel in 2024, an historic high that exceeds the pre-pandemic level of 4.5 billion recorded in 2019.

Cargo volumes are expected to be 58 and 61 million tonnes in 2023 and 2024, respectively.

"Considering the major losses of recent years, the $25.7 billion net profit expected in 2024 is a tribute to aviation's resilience. People love to travel and that has helped airlines to come roaring back to pre-pandemic levels of connectivity. The speed of the recovery has been extraordinary; yet it also appears that the pandemic has cost aviation about four years of growth. From 2024 the outlook indicates that we can expect more normal growth patterns for both passenger and cargo," said Willie Walsh, IATA's Director General.

"Industry profits must be put into proper perspective. While the recovery is impressive, a net profit margin of 2.7% is far below what investors in almost any other industry would accept. Of course, many airlines are doing better than that average, and many are struggling. But there is something to be learned from the fact that, on average airlines

will retain just $5.45 for every passenger carried. That's about enough to buy a basic 'grande latte' at a London Starbucks. But it is far too little to build a future that is resilient to shocks for a critical global industry on which 3.5% of GDP depends and from which 3.05 million people directly earn their livelihoods. Airlines will always compete ferociously for their customers, but they remain far too burdened by onerous regulation, fragmentation, high infrastructure costs and a supply chain populated with oligopolies," said Walsh.

Overall revenues in 2024 are expected to rise faster than expenses (7.6% vs. 6.9%), strengthening profitability. While operating profits are expected to increase by 21.1% ($40.7 billion in 2023 to $49.3 billion in 2024), net profit margins increased at less than half the pace (10%) largely due to increased interest rates expected in 2024.

Industry revenues are expected to reach an historic high of $964 billion in 2024. An inventory of 40.1 million flights is expected to be available in 2024, exceeding the 2019 level of 38.9 million and up from the 36.8 million flights expected in 2023.

Passenger revenues are expected to reach $717 billion in 2024, up 12% from $642 billion in 2023. Revenue passenger kilometers (RPKs) growth is expected to be 9.8% year on year. While that is more than double the pre-pandemic growth trend, 2024 is expected to mark the end of the dramatic year-on-year increases that have been characteristic of the recovery in 2021-2023.

Marie Owens Thomsen, SVP Sustainability and Chief Economist and Ayşe Akalın

Cargo revenues are expected to fall to $111 billion in 2024. That is down sharply from an extraordinary peak of $210 billion in 2021, but it is above 2019 revenues which were $101 billion. Yields will continue to be negatively impacted by the continued growth of belly capacity (related to strong growth on the passenger side of the business) while international trade stagnates. Yields are expected to further correct towards pre-pandemic levels with a -32.2% decline in 2023 followed by a -20.9% decline expected in 2024. They will remain high by historical standards, however. Note that yield progression has been extraordinary in these last years (-8.2% in 2019, +54.7% in 2020, +25.9% in 2021, +7% in 2022, -32.2% in 2023).

Fuel price is expected to average $113.8/barrel (jet) in 2024 translating into total fuel bill of $281 billion, accounting for 31% of all operating costs. Airlines are expected to consume 99 billion gallons of fuel in 2024.

High crude oil prices are expected to continue to be further exaggerated for airlines as the crack spread (premium paid to refine crude oil into jet fuel) is expected to average 30% in 2024.

Industry CO2 emissions in 2024 are expected to be 939 million tonnes from consumption of 99 billion gallons of fuel.

The aviation industry will increase its use of Sustainable Aviation Fuels (SAF) and carbon credits to reduce its carbon footprint. We estimate that SAF production could rise to 0.53% of airlines' total fuel consumption in 2024, adding USD 2.4 billion to next year's fuel bill. In addition, the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is a global market-based carbon offsetting mechanism designed to stabilize international aviation emissions. The CORSIA-related costs are estimated at $1 billion in 2024.

Risks for 2024: Industry profitability is fragile and could be affected (positively or negatively) by many factors

Marie Owens Thomsen, SVP Sustainability and Chief Economist

Global Economic developments: Easing inflation, low unemployment rates, and strong demand for travel are all positive developments. Nonetheless, economic strains could arise. In China, for example, slow growth, high youth unemployment and disarray in property markets if not managed properly, could impact global business cycles. Similarly, should tolerance of high interest rates weaken, and unemployment rise significantly, the strong consumer demand that has supported the recovery could weaken.

War: The operational impacts of the Ukraine war and the Israel-Hamas war have been largely limited to re-routings due to airspace closures. On the cost side, the conflicts have pushed up oil prices which is impacting airlines globally. An unexpected peace in either or both cases would bring benefits to the industry, but any escalation could produce a radically different global economic scenario to which aviation would not be immune.

Supply Chains: Supply chain issues continue to impact global trade and business. Airlines have been directly impacted by unforeseen maintenance issues on some aircraft/engine types as well as delays in the delivery of aircraft parts and of aircraft, limiting capacity expansion and fleet renewal.

Regulatory Risk: On the regulatory front, airlines could face rising costs of compliance, and additional costs pertaining to passenger rights regimes, regional environment initiatives, and accessibility requirements.

SAF Volumes Growing but Still Missing Opportunities

• 2023 estimated share of SAF in total jet fuel consumption: 0,2% or 0.5 Mt HEPA

• 2050 minimum estimated demand for SAF500 mt (x1000 2023 output) HEPA, ATJ, FT, PTL

• 2022 : USD 20 bn- Less than 3% of capital budget, and around 1% of total clean energy investment globally

• USD 800 billion in oil and gas investments in 2023. Estimated top of the range investment needs per year in air transportation's enegy transition= USD 150 Billion. One fifth or 19% of oil and gas investments need to be redirected

In 2023, SAF volumes reached over 600 million liters (0.5Mt), double the 300 million liters (0.25 Mt) produced in 2022. SAF accounted for 3% of all renewable fuels produced, with 97% of renewable fuel production going to other sectors.

In 2024 SAF production is expected to triple to 1.875 billion liters (1.5Mt), accounting for 0.53% of aviation's fuel need, and 6% of renewable fuel capacity. The small percentage of SAF output as a proportion of overall renewable fuel is primarily due to the new capacity coming online in 2023 being allocated to other renewable fuels.

"The doubling of SAF production in 2023 was encouraging as is the expected tripling of production expected in 2024. But even with that impressive growth, SAF as a portion of all renewable fuel production will only grow from 3% this year to 6% in 2024. This allocation limits SAF supply and keeps prices high. Aviation needs between 25% and 30% of renewable fuel production capacity for SAF. At those levels aviation will be on the trajectory needed to reach net zero carbon emissions by 2050. Until such levels are reached, we will continue missing huge

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Türkiye Cumhuriyeti'nin 100. yılını kutlarken havacılık sektöründeki ortaklığımızı daha ileriye taşımayı hedefliyoruz.

Hemant Mistry, Director Net Zero Transition, IATA

opportunities to advance aviation's decarbonization. It is government policy that will make the difference. Governments must prioritize policies to incentivize the scaling-up of SAF production and to diversify feedstocks with those available locally," said Willie Walsh, IATA's Director General.

The Third Conference on Aviation Alternative Fuels (CAAF/3) hosted by the International Civil Aviation Organization (ICAO) agreed a global framework to promote SAF production in all geographies for fuels used in international aviation to be 5% less carbon intensive by 2030. To reach this level, about 17.5 billion liters (14Mt) of SAF need to be produced.

"Governments want aviation to be net zero by 2050. Having set an interim target in the CAAF process they now need to deliver policy measures that can achieve the needed exponential increase in SAF production," said Walsh.

Demand is not the issue: Every drop of SAF produced has been bought and used. In fact, SAF added $756 million to a record high fuel bill in 2023. At least 43 airlines have already committed to use some 16.25 billion liters (13Mt) of SAF in 2030, with more agreements being announced regularly.

Unlocking supply to meet demand is the challenge that needs to be solved: Projections are for over 78 billion liters (63Mt) of renewable fuels to be produced in 2029. Governments must set a policy framework that incentivizes renewable fuel producers to allocate 25-30% of their output to SAF to meet the CAAF/3 ambition, existing regional and national policies as well as airline commitments.

Effective production incentives for SAF should support the following objectives:

Accelerating investments in SAF by traditional oil companies

Ensuring renewable fuel production incentives encourage sufficient SAF quantities

Focusing stakeholders on regional diversification of feedstock and SAF production

Identifying and prioritizing high potential production projects for investment support

Delivering a global SAF Accounting Framework

Unlocking Diversification

Approximately 85% of SAF facilities coming on line over the next five years will use Hydrotreatment (HEFA) production technology, which relies on inedible animal fats (tallow), used cooking oil and industrial grease as feedstock. Limited quantities of these necessitate policies to:

Diversify SAF production by increasing production through pathways already certified, in particular the Alcohol-to-Jet (AtJ) and Fischer-Tropsch (FT) which use bio/agricultural wastes and residue.

Promote investments in, and the fast-tracking of certification for, new SAF production pathways currently in the developmental phase.

Identify more potential feedstocks to leverage all SAF technologies to provide diversification and regional options, including those with side-benefits such as environmental restoration.

Passenger Support

A recent IATA survey revealed significant public support for SAF. Some 86% of travelers agreed that governments should provide production incentives for airlines to be able to access SAF. In addition, 86% agreed that it should be a priority for oil companies to supply SAF to airlines

CEO of TAV Airports - Serkan Kaptan:

"We are undertaking the largest investment program in the history of TAV Airports."

We talked with CEO of TAV Airports- Serkan Kaptan about airport operation at home and abroad, new investment plans, future marketing strategies and its predictions for 2024.

Ayşe Akalın: TAV Airports announced €982M revenue in nine months. How do you evaluate the numbers for 2023? What are your predictions for 2024?

Serkan Kaptan: Turkish tourism continued to be sought after in 2023 and we observed a longer season, especially in Antalya. Across our portfolio of airports, most of our major markets are above 2019 traffic. During the first nine months, the number of our guests from Germany is 24%, UK is 48%, Poland is 78% and UAE is 29% above 2019 levels and Russian traffic is at 55% of 2019 level. We are also very pleased to welcome close to one million Kazakh travellers into our airports with a growth of 101% versus 2019. Starting with September, we started welcoming Russian travellers again into our Georgian airports and have observed that a partial recovery has started in Russian traffic. International traffic in Almaty is booming with the growth of the middle class, increased business travel and growth in inbound tourism. Situated strategically between China and Europe, Almaty also enjoys strong cargo traffic, supported by e-commerce.

With very strong operations we had an EBITDA of €321 million in 2023 with a growth of 20% vs 2022. During the quarter, we completed the sale of 24% of TIBAH Development shares for US$ 135 million resulting in a one-off gain of €83 million. Including this gain, we had a net profit of €176 million in 2023 which constituted a 37% growth over 2022. Accordingly, we are reaffirming our 2023 guidance which we expect to materialize near the higher end in passenger numbers and EBITDA, and near the lower end in net debt/EBITDA.

We have announced a guidance for 2025 and as part of this, we expect 10-14% compound annual growth in passenger traffic and revenue between 2022 and 2025. During the same period, we expect a compound annual EBITDA growth of 12-18%. In the light of these expectations, 2024 will be a year of continued growth amid challenges in global economy and geo-political risks.

Ayşe Akalın: TAV Airports provides integrated services in all areas of airport operations, with a global footprint at 15 airports in 8 countries. Could you please enlighten us about your worldwide airport operations? How do you asses your global presence?

Serkan Kaptan: We have airport operations in 15 countries, namely in Türkiye, Georgia, N. Macedonia, Kazakhstan, Saudi Arabia, Tunisia, Latvia and Croatia. Moreover, our service companies are active in all areas of airport operations and our global footprint reaches 108 airports in 29 countries.

Our retail company, ATÜ Duty-Free is a partnership with Unifree – owned by Heinemann, and has operations in Türkiye, Georgia, Tunisia, North Macedonia, Latvia, Oman and Madinah, Galataport and IGA. BTA, focusing on food & beverage is active in Türkiye, Georgia, North Macedonia, Tunisia, Latvia, Oman and Croatia. It also operates Izmir Airport Hotel and has a production facility located in Istanbul.

HAVAŞ is the leading ground handling brand in Türkiye, with operations in 28 airports across the country. Furthermore, it has operations in Riga and Zagreb. Our hospitality arm TAV Operation Services operates approximately 90 lounges in 19 countries. TAV Security are experts in aviation private security. Lastly, TAV Technologies has a portfolio of more than 40 products that are implemented at more than 40 airports across the globe.

Ayşe Akalın: In coming period, are you planning new investments in new countries? Can you provide more insight into new terminal expansion plans in your current operated airports?

Serkan Kaptan: Currently we are undertaking the largest investment program in the history of TAV Airports. In Almaty, we are close to complete a US$ 200M investment and the new terminal will go into operation in 2024. This will take annual capacity to above 14 million passengers and help increase passenger satisfaction, contributing to our commercial revenues. In Antalya, together with our partner Fraport, we are investing around € 750M to increase annual capacity to 65 million. It is a major development project both at terminals and airside. The project is going according to plan, and it will be ready in 2025. The investment in Ankara is also progressing, to be completed in 2025.

During the last two years we have bought shares of Almaty Airport, extended our concession in Antalya until 2025 and in Ankara until 2050. Together with these developments, the maturity of our portfolio increased from 8 years to 30 years, providing a solid foundation for the future growth of the company.

As TAV Airports, we are targeting developing markets, namely Central Asia and CIS countries, Eastern Europe, Africa and the Middle East. As of today, we are following projects in Kuwait and Montenegro.

Ayşe Akalın: What is the status of your global activities with your service companies ATÜ, HAVAŞ, BTA and TAV Technology? Are you setting sights on new markets and areas within this new period?

Serkan Kaptan: In addition to our ongoing investments in Antalya, Almaty and Ankara, our service companies are always actively looking for opportunities to grow their portfolio. TAV Operation Services having grown its portfolio to almost 90 lounges in 19 countries. Among its most notable lounges we can count lounges in Charles de Gaulle, Orly, Barcelona, Madrid, Ibiza, JFK and Dulles airports. TAV Technologies is also expanding on a global scale, with projects in Africa and in the Americas.

We are part of the Groupe ADP network, which is the largest airport management platform globally. Our aim is to benefit from the extensive know-how of our network to provide tailor-made solutions for airport development and management projects in our target regions.


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Ayşe Akalın: What is TAV doing for sustainability? How would you summarize TAV's ongoing sustainability projects?

Serkan Kaptan: As an active member of the larger aviation community, TAV Airports is convinced that air transport will continue to grow, creating value for its stakeholders and minimizing its environmental impact. Our common purpose drives our ambitions: "Welcome passengers, operate and imagine airports, in a responsible way and all around the world."

Accordingly, as a member of Groupe ADP, we have outlined our common ambitions in a covenant titled "Airports for Trust", in 2021. The first part of the covenant focuses on "protecting the planet" and it has four pillars: Tend towards zero environmental impact operations, which notably includes the commitment to reach carbon neutrality by 2030 at the latest. Participate actively in the aviation sector's environmental transition efforts. Promote the integration of each airport in a local resource system. Build a greener future by reducing the environmental footprint of our project development activities.

The second part focuses on the social impact, and it is titled "thriving with the local communities". We are committed to being an active contributor in the improvement of the living conditions of the local populations, building long-term trust and cohesion with local stakeholders, reinforcing the benefits of the airport activity for the local communities and federating the airport community and act together for maximizing the positive impacts of airport activity and facilitating acceptability.

Ayşe Akalın: The future of airports lies in embracing cutting-edge technologies, personalizing the passenger experience, optimizing operational efficiency, prioritizing sustainability, and fostering collaboration. Can you elaborate on your activities in the digitalization of your airports?

Serkan Kaptan: We are aiming at creating smart airports that will improve customer experience, supporting the development of

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Serkan Kaptan & Ayşe Akalın

the hospitality offer and creating additional revenues. Additionally, the program will help optimize operations, increasing terminal capacity, optimizing costs, and standardizing processes.

Our 2025 roadmap focuses on digitalization, hospitality and sustainability. In the context of this roadmap, all points in the passenger journey will be monitored in real-time, supported by automated and digital processes. The smart airport program developed and implemented using the existing capabilities of TAV Technologies and R&D efforts. We will achieve an ASQ score of 4+ for all airports with an annual traffic above 3 million passengers. We aim at having three airports in top 100 in Skytrax ratings and reach +10 million customers at our lounge network. Lastly, we are targeting two additional 5-star ranked lounges in portfolio.

Ayşe Akalın: Thank you for the interview. Would you like to add a message for our readers?

Serkan Kaptan: I wish everyone a happy and healthy 2024, with much success. The aviation community will continue contributing to a better world for all

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PEGASUS

Cumhuriyet'in 100. yılında

100. UÇAĞIMIZ "CUMHURİYET" GÖKLERDE.

Pegasus Takes Delivery of its 100th Aircraft "**Cumhuriyet**"

Pegasus Airlines' 100th aircraft named "Cumhuriyet", which was added to its fleet in the 100th anniversary of the Republic, landed at Istanbul Sabiha Gökçen Airport. The new Airbus A321neo type aircraft with the silhouette and signature of Mustafa Kemal Atatürk on the tail was specially designed for the 100th anniversary of the Republic.

Pegasus Airlines, which continues to expand its fleet day by day with aircraft with new generation engines, received its 100th aircraft named "Cumhuriyet", which was added to its fleet in the 100th anniversary of the Republic. Departing from Hamburg, Germany, the new Airbus A321neo type aircraft with TC-RDP tail registration landed at Istanbul Sabiha Gökçen Airport at 16:36 on Saturday, 30 September 2023. The aircraft, which was received by Pegasus Airlines Chairman Mehmet T. Nane and Pegasus Airlines CEO Güliz Öztürk at Airbus' facilities in Hamburg, was specially designed for the 100th anniversary of the Republic with the silhouette and signature of Mustafa Kemal Atatürk on the tail. "Cumhuriyet",

the 9th of 16 new aircraft to join the Pegasus fleet in 2023, is the 75th aircraft Pegasus has taken delivery of and the 100th aircraft of the fleet within the scope of the Airbus order signed in 2012, which has reached a total of 150 aircraft with modifications over the years.

Making a statement on the subject, Güliz Öztürk, CEO of Pegasus Airlines, said that they are very proud to receive their 100th aircraft in the 100th year of the Republic and added: "We are crossing the 100 aircraft threshold with our new A321neo aircraft 'Cumhuriyet'. In addition to Europe, we are taking firm steps forward on our path with a wide international flight network spread across the Middle East, Africa, Caucasus and Turkey from north to east, south to west. With our innovative, rational, principled and responsible approach, we continue our efforts to become a leading low-cost airline that facilitates travelling while offering affordable fares."

"We will continue the change we initiated in the field of aviation in Turkey 18 years ago"

Emphasising that all deliveries after 2021 will consist of A321neo type aircraft, Güliz Öztürk said, "A321s are defined as game-changer aircraft by the industry, with different configurations compared to standard short-medium range commercial aircraft. These aircraft offer more capacity in a longer fuselage, but have an operational process that is not very different from our current structure. In other words, we can provide service with higher capacity without complicating our operational structure. In this respect, we achieve high efficiency contribution." and continued his words as follows "We will continue to sustain the change we initiated in the field of aviation in Turkey 18 years ago with the determination to always achieve the best; we will continue to work with all our strength for our country, our industry, our stakeholders and our guests with our fleet of Turkey's newest aircraft."

Güliz Öztürk

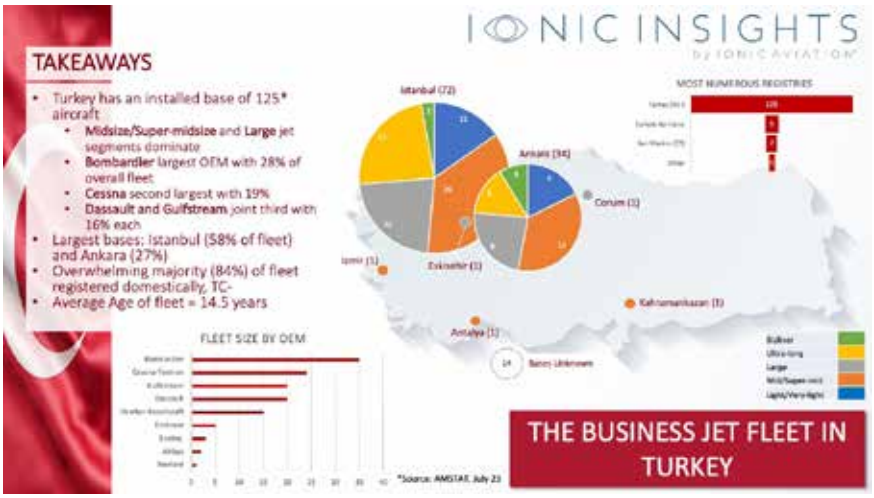
Türkiye is a Shining Star in Civil Aviation

The Republic is much more than a form of government proclaimed 100 years ago. Republic is equality, freedom, independence. It is an understanding that blends faith, hope, development, modernity and innovative perspective of a nation that has fought great struggles in history. Today, if our country is a shining star in the world with its civil aviation sector that continues to develop and grow day by day, we owe this to our ancestor who said "The future is in the skies", to the Republic, which is the greatest legacy he left to us, and to the bright values of the Republic. As Pegasus Airlines, we are taking firm steps forward on the path paved by the Republic for the sustainable development of our civil aviation, and we are working with all our strength for our country, our industry and our guests.

Mustafa Kemal Atatürk's "O rising new generation! You are the future. We founded the Republic, you are the ones who will raise it and keep it alive." We protect our Republic with the strength and faith we take from his words, and we march towards the future with determination and hope. We are proud to add our 100th aircraft "Cumhuriyet" to our fleet in the 100th anniversary of our Republic. With a fleet exceeding the 100 aircraft threshold and an extensive international flight network spread across Europe as well as the Middle East, Africa, Caucasus and Turkey, from north to east, from south to west; we continue our efforts with our innovative, rational, principled and responsible approach, with the aim of becoming a leading low-cost airline that facilitates travelling while offering affordable fares.

Ionic Aviation Insights:
The Business Jets Fleet in Türkiye

Ionic Aviation focused on Türkiye in its one of the latest insights published at July 2023 and analyse the size, composition and age of the installed business jet fleet, whilst simultaneously investigating the most popular aircraft registries, OEMs, operators and base locations.



Background and Economy

A large and mountainous country, Turkey stretches about 400 miles from north to south and 1,000 miles from east to west. The capital city is Ankara, whilst the largest city is the port of Istanbul.

The Turkish economy has, over recent decades, been transformed from one predominantly focused on agriculture to one in which manufacturing and services are now the fastest-growing sectors. Services (including tourism) now employ about one half of the workforce, while agriculture and industry each employ one quarter.

Manufacturing is largely centred around the major conurbations of Istanbul and Ankara. Key exports include textiles, iron and steel, fruits and vegetables, livestock, tobacco and machinery. About fifty percent of all trade is with Europe.

Whilst roads remain the most important method of transportation, the state airline and others provide air links through Istanbul, Ankara and Izmir, and there is an internal network linking these cities with more than a dozen other regional hubs. Airports on the Aegean and Mediterranean coasts cater to the burgeoning tourist industries there and business aviation is playing an increasingly important part.

Fleet Analysis

Turkey boasts a sizeable installed business jet fleet of 125* aircraft (*Source: AMSTAT, July '23), over half of which are based in Istanbul. Given the country's location at the crossroads of Europe and the Middle East and its overall scale, midsize/super-midsize aircraft dominate and currently represent over one third of all aircraft.

Bombardier (including Lear) is the largest OEM by fleet size, with the Challenger 605 and Global models being particularly popular. Cessna-Textron comes second and dominates the light/very-light jet segment. There are only five corporate airliners (including ACJ and BBJ aircraft) in service, all of which are owned and operated by government/military bodies.

Overall, the average age of the fleet is a little over 14 years; and over eighty percent of all aircraft are registered domestically, TC-.

The largest domestic aircraft operators are Genel Havacilik, RedStar, Swan Aviation and Black Eagle.

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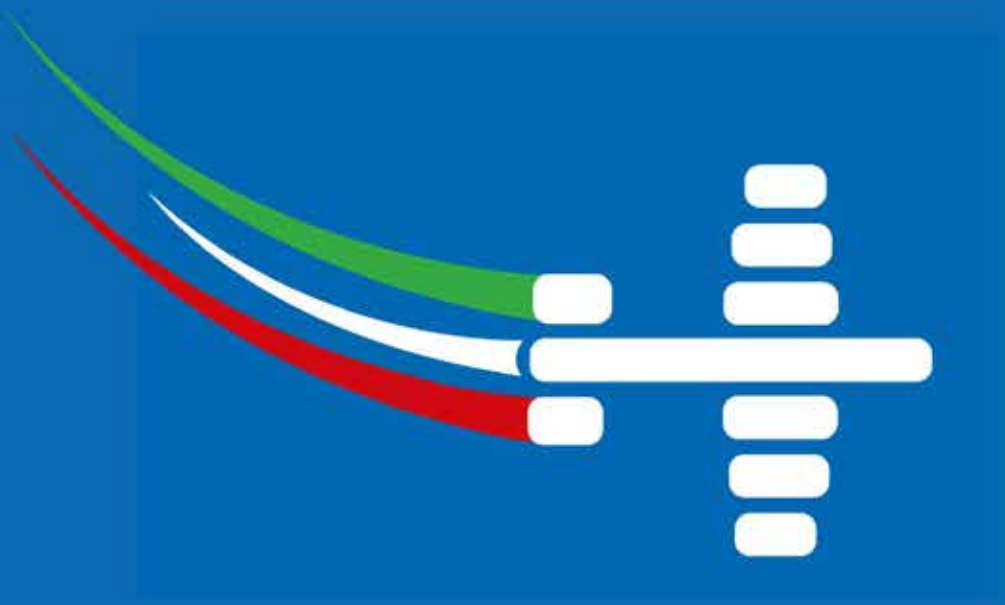

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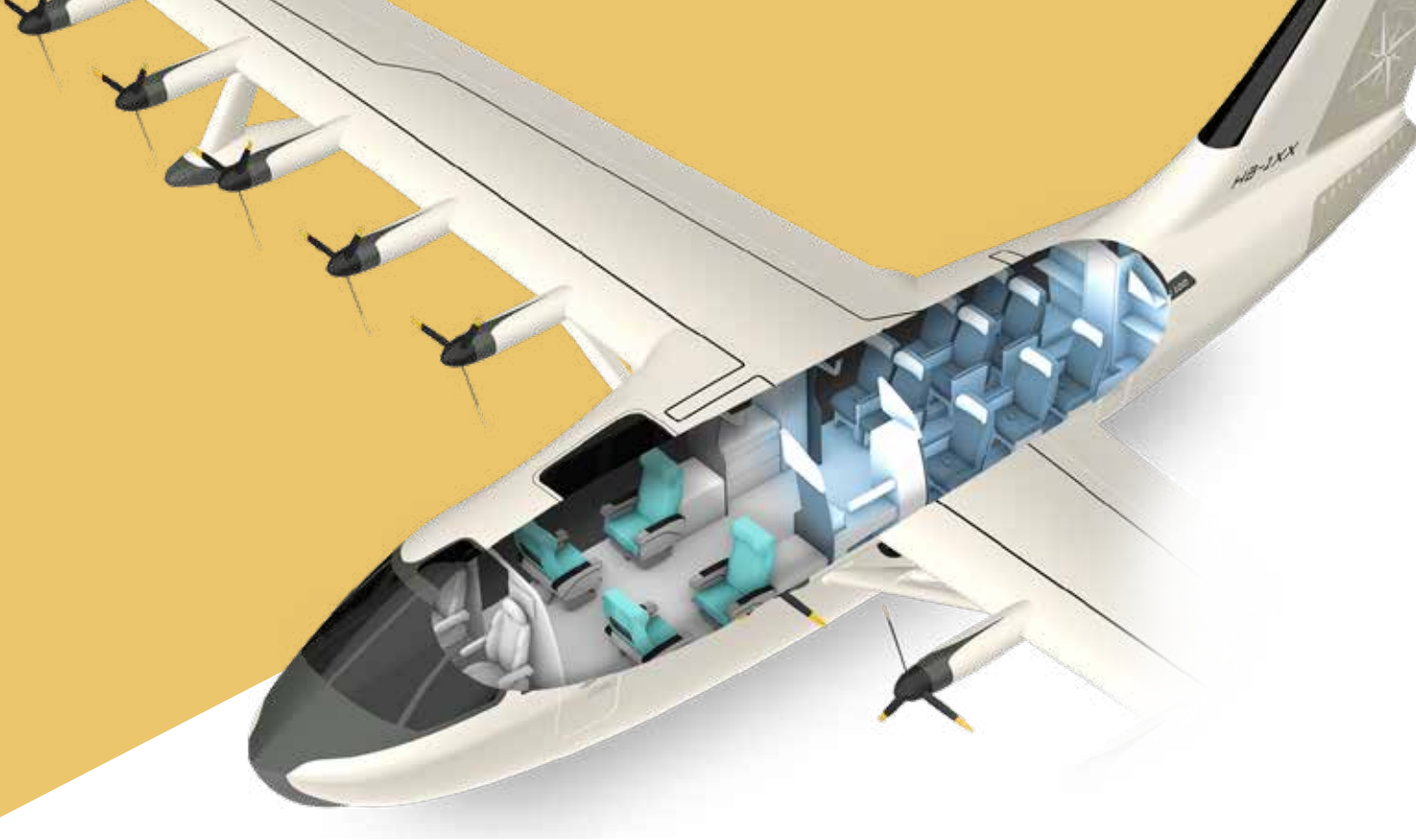


The Power of Mixing Electricity With Water – Jekta is Optimizing the Benefits of Zero-Emission Flight to Add New Routes to The Global Air Transport Network

Jekta is bringing a new electric aircraft to market, the PHA ZE-100 amphibious flying boat

In the 84 years since the Heinkel He 178, the world's first jet-powered aircraft took off on its maiden sortie, the aviation industry has come to rue the fact that turbine engines, like the internal combustion engines that preceded it, runs on fossil fuel.

COP28 finally brought an admission from world leaders that they must end our reliance on fossil fuels. Aviation is already working hard to achieve the ICAO's aspirational goal of achieving net-zero carbon emissions by 2050. New propulsion technologies have an intriguing role to play in the net-zero challenge and aviation is once again entering a new era.

Eliminating carbon emissions is the imperative driving electric aircraft development, and electric powertrains also opening up new possibilities, especially in urban and advanced air mobility. The industry has been enchanted by the utopian promise of eVTOL craft, electric flying taxis taking off and landing vertically between city vertiports. The eVTOL vision is exciting, the practicality less so, but the advanced air mobility concept is not without merit.

Electric aircraft are quieter than their turbine brethren and emit no fumes, making them good neighbours, even in an urban setting. But how can urban air mobility be achieved outside vertical flight? The answer to that, according to a handful of start-ups, including Switzerland's Jekta, is an electrically powered amphibious aircraft, a flying boat that serves multiple operating parameters wherever there is land or water, yet is emission-free.

The power of emission-free aviation, introducing the PHA ZE-100

Jekta proposes a 19-seat aircraft certified to EASA CS-23 and FAA FAR-23 standards. Capable of operating to and from any suitably sized water body in a swell of up to 1.2m, the aircraft is an amphibious flying boat, equally at home on a runway, unpaved landing strip, or on the water. Jekta's CEO, George Alafinov, explains: "Humans have always settled and built their homes around water, whether it be rivers, lakes

or on the coast. Virtually every major city therefore has an almost ready-made base for seaplane operations with little requirement for additional infrastructure." The seaplane market has been steadily growing over the past few years, with both developed and developing countries looking for innovative and efficient ways to transport people and goods over water. This trend is expected to continue, with a projected annual growth rate of 5.7% from 2021 to 2028, according to a report by Market Research Future. Statistics also note that by 2030 the population living in megacities, coastal cities and islands will reach more than a billion people, and by 2100 that number will quadruple. "With an increase in living standards, travel keeps growing exponentially, which is why we are developing the PHA-ZE 100 to operate anywhere where there is a body of water that is wide enough to take the airframe size, and that can have pontoons and charging equipment/fuel cells located on the site. Routes will connect areas previously limited by their geographic situation and lack of possibility for airport infrastructure," says Alafinov.

The team behind Jekta stands out for its real-world experience designing, building, certifying and delivering seaplanes; around 30 of the Rotax piston-engine Borey amphibian ultralight have been delivered, along with slightly fewer of the eight-seat, twin-engine LA-8 amphibian. Jekta's new aircraft is designated PHA ZE-100, for Passenger Hydro Aircraft Zero Emission. It is being designed with sustainability in mind, through careful choice of materials, production processes and recycling at the end of its useful life.

In June 2022, Jekta announced its intention to build a modern, sustainable PHA ZE-100 production facility at the Swiss Aeropole business and technology park in the Canton of Vaud, Switzerland. That same month, Jekta also revealed that it would be working with Italy's MBVision on aspects of the aircraft's design; since then, Honeywell has announced its intention to come onboard as an avionics supplier and Alafinov expects to complete an MoU with French deep tech start-up Metavonics for control hardware in 2024.

The latest PHA ZE-100 design iteration presents an aircraft whose traditional appearance hides its futuristic heart. Aside from multiple motors – as many as eight, four per wing seems likely at the time of writing – the PHA ZE-100 would not look out of place alighting anytime between 1935 and 2025, yet it embodies the very latest in avionics, propulsion and materials.

Of classic flying boat configuration, the PHA ZE-100 has a single-step hull and stabilising floats strut mounted under each outer wing panel. The nose undercarriage leg retracts into a sealed bay under the cockpit, while the main landing gear retracts upwards and inwards to lay semi-recessed in vertical fuselage bays under the wing centre section; the arrangement is reminiscent of that employed on amphibious versions of the Consolidated Catalina.

The Jekta team is applying CAD experience gained on the Borey to the PHA ZE-100, along with its familiarity with composite materials. Always with sustainability in mind, the team plans to build the PHA ZE-100 using as much natural material as possible and consideration has been given to using cork as a major element in the cabin floor structure.

The motors drive relatively small-diameter propellers and their position on the high-wing's leading edge keeps them clear of water spray. Energy will be stored in batteries, with hydrogen fuel cells a likely alternative. Jekta expects to make the battery packs, or 'energy blocks' in its terminology, easily removeable for charging and maintenance.

Re-charging to full capacity using mains electricity is expected to take around 45 minutes after a typical flight. A solar charging station will also be available, further improving the aircraft's sustainability credentials and providing a real-world alternative to mains electricity during remote operations.

Cabin configurations

The PHA ZE-100's unpressurised cabin will be equipped for a maximum 19 passengers in an 'Economy' configuration, with provision for a folding cabin crew seat; two pilots will be accommodated in the extensively glazed cockpit set into the streamlined forward fuselage, although the aircraft will be equipped for single-pilot operation. Jekta intends that the PHA ZE-100 should deliver an exceptional passenger experience, even on short flights, and has therefore sized the aircraft's hull to provide a wide cabin. Even with the 2+1 Economy seating, therefore, the aisle is wide enough for easy access

and passengers may expect seats comparable in width and comfort to those on a Boeing 737 or Airbus A320.

The generously proportioned cabin is easily adaptable to other missions and, considering the remote communities the PHA ZE-100 might one day connect, Jekta has presented a series of 'Combo', or combi, layouts. 'Combo Economy', for example, includes 13 passenger seats and the folding crew seat, with cargo stored forwards. Potential layout renderings show a large door set forward of the propeller discs on the port side, configured in two sections to allow a smaller portion adequate for crew and passenger use, or a larger aperture for easy freight loading.

In a scenario where carbon-zero flying is possible from water to water, water to land, land to water and land to land, all with the same airframe, the case for companies to win back time by flying executives on short local hops that might otherwise have been completed by road or rail is compelling. Jekta therefore also proposes an 'Executive' cabin layout comprising nine 'Economy' seats in three 2+1 rows aft, and a club-four arrangement of 'Premium' seats forward.

An even more comfortable and spacious configuration is achieved in 'Full Executive', with club fours fore and aft, and an additional two forward-facing Premium seats behind the cockpit. For operators or individuals seeking the ultimate comfort, Jekta's VIP cabin offers a club four in the rear cabin, two folding crew seats and a forward lounge with chaise seating.

Finally, in a nod towards experiential travel and reminiscent of the Pilatus PC-12 turboprop and PC-24 jet, Jekta has a 'Combo Executive' layout. Fully exploiting the large forward door, it combines cargo – Jekta shows a pair of motorcycles in its rendering – with six Premium seats and one folding seat in the rear cabin.

Missions

Alafinov sees genuine potential for the aircraft as a small regional airliner, but also notes that sightseeing offers a realistic early opportunity for operators and passengers to gain experience with the machine. "The PHA ZE-100 presents comfortable sightseeing accommodation in any of its seating configurations and its large cabin windows offer an exceptional view especially suited to providing spectacular views from the lower altitudes at which such missions are likely to be flown. We've also included a lavatory option from the start as we know battery technology will continue improving so lengthening flight times," explains Alafinov.

It is also worth noting that a large skylight is planned for the forward cabin roof, flooding the area with natural light and contributing to a bright, airy cabin that might offer reassurance to tourists nervous of their first flight in a smaller aircraft. The high wing means passengers sitting on the side towards which the aircraft is banking will suffer less restriction to their view than on a low- or mid-wing type.

Beyond sightseeing, Jekta has schemed an air ambulance configuration with ample space for three stretchers and seats for medical attendants. Its range means PHA ZE-100 medical evacuations are likely to be relatively local compared to those flown by specially equipped business jets, but this is not the market Jekta envisages. The aircraft is not competing with the likes of rapid emergency response delivered by a helicopter emergency medical service (HEMS) operator. Instead, the PHA ZE-100 is optimised for short medevacs where difficult terrain or poor road connections mean a few minutes in the air could replace a land ambulance journey of several hours.

Such missions are regularly flown by helicopters, but HEMS aircraft are seldom configured for more than one stretcher patient. It is also true that relatively few people have experienced helicopter flight and it can be disorientating, especially for a seriously unwell patient; the lack of vibration in a fixed-wing aircraft compared to a rotary-wing may also be a factor where patient movement between medical facilities rather than emergency care is required.

For a more in depth understanding of the PHA ZE-100's potential, whether equipped for passenger or freight operations, as a combi, an ambulance or for some other special mission, it is informative to look back several decades. Through the 1920s and early 1930s, much of South America, especially the Amazon basin, was opened to aerial navigation by crews employing mostly Junkers airliners equipped with float alighting gear. Their pioneering efforts proved the practicality of connecting isolated communities with aircraft capable of operating from

the region's waterways.

The covid pandemic refocused attention on these communities when the only means of delivering vaccine to some of them was by air, using helicopters. Life-critical missions require any means necessary but even assuming the availability of a suitable landing site, conventional helicopters may not be suited to operations within a delicate ecosystem like the rainforest, owing to their noise and the emissions from their internal combustion or turbine engines. There is also the challenge of supplying avgas or Jet A to remote sites and then storing it safely.

Electrically powered and paired with a solar charger, the PHA ZE-100 promises to revitalise the connectivity demonstrated 100 years ago, without the environmental concerns and operational constraints of a helicopter. Mixed passenger/freight operations could be a boon for indigenous communities living around water, while the aircraft's minimal environmental impact suits it well to scientific support missions.

Charging an electric aircraft at a remote location via solar energy makes a great deal of sense in, say, Brazil, India, South Africa or Turkey, but less so in Alaska, Canada, Finland or anywhere in Northern Europe. There is a degree of irony in the fact that remote communities in Canada, for example, may struggle to maintain reliable supplies of avgas or Jet A but are rarely without a diesel generator. Equipped to energise a charger, a generator makes a ubiquitous energy source for electric aircraft and a sustainable one too, if biodiesel is available.

Market prospects

Under Alafinov's guidance, the Jekta team has so far envisaged an advanced, sustainable aircraft suitable for multiple roles and capable of delivering true advanced air mobility. Nonetheless, even as he continues recruiting investors, Alafinov is realistic about the market prospects not only of the PHA ZE-100 but all electric aircraft. "Sustainability is rightly a driving factor in new aircraft development, but operators will not exchange their existing aircraft for electric models unless the business case adds up. It's therefore our job to deliver a sustainable aircraft with lower operating costs than the legacy machines they operate today."

Illustrating the point, Jekta has devised what it calls the 'Jekta Factor', a formula enabling direct comparison of operating costs between turboprop and electric aircraft. The cost of Jet A fluctuates little region by region, unlike the cost of electricity, which shows marked variation. As a result, Jekta's own numbers show weaker market prospects for electric aviation in countries where electricity prices are high – Germany and the UK, for example – and much healthier prospects where they are low, in regions including the Gulf, India and parts of Africa. Lower operating costs mean increased profits or a balance of profit and cheaper fares, meaning the PHA ZE-100 could connect isolated populations and extend air travel to a demographic previously unable to afford it. "Compared with similar 19-seat aircraft the PHA-ZE 100 comes out significantly cheaper on every variable, with Jekta aiming to dramatically lower the operating costs by and reduce the per-passenger-per-hour fuel costs by nearly 80%," says Alafinov.

By mid-December 2023, Jekta had signed a ten-aircraft letter of intent with Gayo Aviation and a commitment for up to 50 PHA ZE-100s with India's Maritime Energy Heli Air Services (MEHAIR). Gayo Aviation provides private and specialist aviation services, including experiential tourism, globally. Its aircraft will be configured for 19 passengers and the deal includes ground support equipment for charging and replacing the PHA-ZE 100's batteries; training for two pilots and two technicians; and a three-year airframe warranty.

India has a proven but underdeveloped potential for seaplane operations, left dormant largely due to a lack of suitable modern airframes. MEHAIR has signed for ten aircraft with options on 40 more, with first delivery, in 19-seat layout, around 2029 and anticipates using the aircraft for tourism and connecting towns and cities currently built around water and without aviation services.

We are unlikely to witness a return of the giant luxury flying boats of the past, but seaplane developers, Jekta among them, promise the dawn of an era in which new, sustainable high-tech seaplanes deliver genuine advanced air mobility. In the case of the PHA ZE-100, that mobility is available wherever there is a suitable space to alight on the water or land on a runway and, what's more, favourable operating costs promise to bring air transport to regions where ticket prices have traditionally excluded many people from flying

Unparalleled Versatility with the Skycourier

Textron Aviation's Cessna SkyCourier combines performance with payload to offer an aircraft with standout versatility.

The twin-engine, high-wing turboprop can be reconfigured for air freight, commuter and special mission operators, making it possible to fly passengers in the day and deliver cargo at night using the same aircraft. Revenue generation opportunities are further boosted by the aircraft's unparalleled range and payload, allowing operators to fly more trips without needing to refuel.

Combining high performance with lower operation costs, the freighter and passenger configurations offer single-point pressure refueling that allows faster turnarounds, while the 19-passenger version has crew and passenger doors for smooth boarding, alongside large cabin windows for natural light and views.

The freighter variant features a large door and a flat floor cabin that accommodates up to three LD3 shipping containers, offering some 6,000 pounds of payload capability. The aircraft can also be designed with a cabin partition that allows for a mixed passenger-freight service.

Powered by two wing-mounted Pratt & Whitney PT6A-65SC turboprop engines, the aircraft features the McCauley Propeller C779, a heavy-duty and reliable 110-inch aluminum four-blade propeller, which is full feathering with reversible pitch, designed to enhance the performance of the aircraft while hauling significant load.

"The ability to combine performance with payload and to reconfigure the aircraft depending on the specific mission means the SkyCourier is a compelling proposition for operators. Its versatility maximizes revenue, while operating costs remain low," says Juan Escalante, vice president, SkyCourier Sales, Textron Aviation.

Designed to Deliver

Part of the reason the SkyCourier expertly meets operator requirements is because it was designed by Textron Aviation in response

to a request from one of its major customers, FedEx Express.

FedEx required a large aircraft with more volume, which would enable the company to transport containerized freight. The SkyCourier allows FedEx to offload LD2 and LD3 containers from large, longer haul aircraft directly onto the new turboprop ahead of transfer to its feeder network, in turn boosting efficiency by avoiding FedEx needing to manually offload containers ahead of loading freight, which was proving labor intensive.

The use of containers was also an important aspect of FedEx being able to confidently deliver freight to and from particularly hot or cold regions.

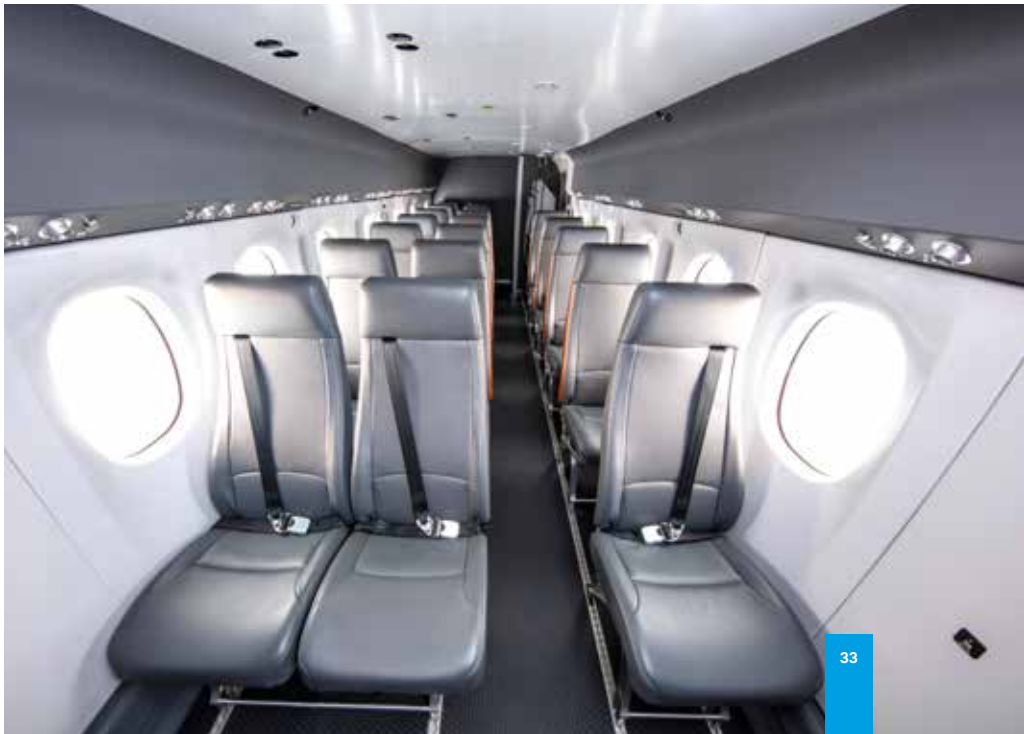
Textron Aviation designed the SkyCourier to offer the capacity for three LD3 containers, with a sizable fuselage and large door for accessing the cargo hold, enabling a fast and simple loading of large freight, including palletized and containerized items. This close collaboration ensured the aircraft perfectly met the needs of FedEx Express, which has already ordered 50 of the aircraft, while retaining options for an additional 50.

Throughout this process, Textron Aviation was also very aware of the significant potential for a passenger version of the SkyCourier.

To move forward, the company established a Customer Advisory Board to define the configuration of a passenger version. Cessna Caravan, Beech 1900 and Twin Otter operators that provide passenger services within their aircraft types joined the Board to offer input on the final configuration of the passenger variant, which has already achieved FAA certification.

The resulting design offers modern passenger amenities, including extra legroom and baggage space, USB charging ports and a large window at every row.

“Every variant of the SkyCourier has benefitted from a collaborative



approach in which the operators of our aircraft have provided valuable input from the earliest stages. The result is a hugely versatile aircraft that very precisely meets the needs of a wide range of operators and different missions," says Escalante.

Performance and Payload with a Range of Features

The SkyCourier has been designed to maximize performance, reliability and revenue for operators, while providing safety and simplicity.

This aircraft includes a fixed landing gear, which ensures there is no complex retractable landing gear or hydraulic-powered extension and retraction. Instead, operators are provided purely with manual controls, cables and push rods.

Other features include a crew door on each side, which avoids pilots needing to use the main door, while there is also an optional weather radar and optional inflatable pneumatic boots, which sequence to various sections of the wing, tail surfaces, wing struts and landing gear for de-icing.

The aircraft is also equipped with the Garmin G1000 NXi avionics suite with 12-inch displays, LED lighting, backlit panels and dual USB ports for electronic flight bags.

Diagnostics come from the aircraft systems recorder, which constantly runs during aircraft operation, and Pratt & Whitney Canada's FAST solution.

FAST optimizes maintenance planning and maximizes aircraft availably by capturing, analyzing, and sending wirelessly full-flight data intelligence to the operator base within minutes of the engine shutting down.

"The SkyCourier is entirely designed to ensure more efficient operations can be executed day after day. It is truly a hard-working aircraft that can boost efficiency for passenger and freight operations alike," continues Escalante.

Adapting to the Mission

With unmatched versatility, the cabin space in the SkyCourier can be easily converted to a freighter configuration by removing the seats and baggage areas in just 60 minutes or less.

Alternatively, it's possible to convert the aircraft from a 19-seat passenger configuration to cargo by using patent-pending quick release seats and removable bulkheads, with a conversion possible in just 90 minutes.

This ability to easily switch between the passenger and freight variants significantly boosts the aircraft's revenue generating potential, enabling operators to provide passenger services by day while hauling freight at night.

Both SkyCourier variants use the same airframe, except for fuselage side panels on the passenger version, which incorporate large windows and three emergency exits to allow for passenger transportation for airline or charter use.

The dedicated freighter version has a forward cargo barrier to separate the pilots from the cabin, whereas the combi version has a mid-cabin three-piece divider that enables quick installation to separate the freight from the passengers.

"Historically, it's very much been the case that aircraft for passengers and for cargo have been viewed as separate models. While the mission profile for these aircraft is clearly different, by creating dedicated passenger and freighter aircraft, alongside a combi version, we've shown how true versatility is achievable within the same aircraft and enabled operators to truly maximize revenue," says Escalante.

Supporting Remote Communities

The versatility of the SkyCourier extends to the areas and runways where it can take off and land, as well as the remote regions that it is able to serve.

In May 2023, Textron Aviation delivered the first passenger version of the SkyCourier to luxury regional carrier Lāna'i Air, which will use the aircraft to service business flights connecting Hawaii's Oahu to the island of Lāna'i.

Textron Aviation remains in ongoing discussions with additional airlines, alongside private and corporate shuttle operators and charter operators, as the team continues to identify and respond to a wide variety of missions suitable for the SkyCourier.

These include providing essential services to small and remote communities that are not connected by a typical airline style service, helping transport people and crucial goods, such as fresh produce, to hard-to-reach locations.

The ability to serve these remote locations has been further enhanced by Textron Aviation developing an optional gravel kit, which boosts the already rugged reliability of the SkyCourier and enables it to operate from unimproved railways.

As a result, the SkyCourier builds on Textron Aviation's extensive track record in supporting customers operating in some of the world's most demanding environments, allowing them to take off on short runways.

"We know that not every region has smooth, paved runways that can help move people and cargo out. The SkyCourier is already a hugely versatile aircraft suitable for an array of missions and the introduction of the gravel kit just further extends the opportunities for the aircraft, particularly in remote and hard-to-reach locations," continues Escalante.

Powering Regions

While the SkyCourier has generated interest among existing Textron Aviation customers, there have also been enquiries from new customers seeking to tap into the growth of regional aviation.

This is particularly the case in rural Africa and parts of Asia, where the versatility of the SkyCourier means it could provide a tailored solution to some unique transportation challenges.

"The demand for regional aviation has resulted in new start-up airlines already launching in the likes of Africa and Central Asia, creating new point-to-point opportunities and boosting the importance of the countries in which they launch as a connecting hub. The economics of turboprop aircraft makes a lot of sense for these airlines, while proving suitable for the range they require. Boosting regional connectivity is yet another valuable application of the endlessly versatile SkyCourier," says Escalante

Linn Tonsberg: "The only way, we going to reach the net zero target by 2050 is cross industry collabration."

An exclusive interview with Linn Tonsberg- Managing Director, Middle East of Air BP

Ayşe Akalın: Firstly, thank you very much for the interview. Can you please inform us about Air Bp activities in Middle East and your presence in the global Air BP network? also, your services including SAF services in which Airforce you are in and Airlines you have provided. Also, how the SAF supply chain works, there will be the first transatlantic SAF flight. SAF customers feedback, and your assessments of the SAF.

Linn Tonsberg: To kick off just by giving you a little bit intro to Air BP in the Middle East. So, Air BP we have present here for over 90 years for today we are present in 4 countries and 13 locations, and we service over 150 customers across this region. So, it is a really important region for us. I always say this we are in heart of energy, and we are in heart of aviation for this region. So, we had 90 years and we're looking for the next 90 more.

The countries that we operate in today is Bahrain, we have a joint venture in Bahrain. The UAE, Saudi Arabia as well, and we are also present in Iraq. That's where our presence across the region.

Ayşe Akalın: Which airlines do you provide services in the Middle East Region?

Linn Tonsberg: For airlines it is over 150 so it is a big portfolio. If we mention specifics Emirates and all airlines across the region. Out of our different hubs we have a presence in Dubai Airport and Sharjah as well, and we also have some ad hoc station across the UAE. In Iraq we are both in Baghdat and Erbil and Bahrain there is an airport in Manama as well. So, these are key locations we operate.

Ayşe Akalın: Net zero concept is a

significant matter of in the world's agenda. Could you please inform us about your investment in SAF and SAF manufacturing plans? What can you tell us about your production technologies?

Linn Tonsberg: I'm going to break down to a couple different answers for you. Start with the Net Zero, so, aviation industry has a target of Net Zero by 2050, and I think it is really helpful to give you a magnitude of why it is so important for the CO2 emissions the Aviation presents. If you look globally, 2% percent of the CO2 emissions come from Aviation. If I break down to the transport sector, 12% comes from Aviation. I think this is astounding if we look the growth of the industry. So, by 2040 IATA is predicting 7.8 billion passengers globally so, the growth is enormous. So, 70% of that is coming from Long Hauled flights. This is why SAF is so important because we don't have other technologies per today that can readily power those aircraft i.e., things like hydrogen or batteries. This is why we believe that SAF is really important to decarbonize.

If you look at what the BP specifically is looking out, we think coprocessing is one of the really important ways we have that SAF production and that's because you can do it at like speed and scale now. So earlier this year, I believe in January, we announced five different projects, two are already producing SAF so those are Castellón in Spain and Lingen in Germany with three more are coming online. Those are Kwinana in Australia, Rotterdam in the Netherlands, and Cherry Point in the U.S. We are looking at them coming online by around 2030. I don't have a number for you in terms of dollar amount of investments, but it is a big amount and that's about 500.000 barrels per day by dominantly SAF by 2030.

Ayşe Akalın: Are planning new investment in Middle East?

Linn Tonsberg: So, coming onto that, we are currently doing a feasibility study with our partners in Abu Dhabi. We are really leveraging the UAE capabilities across partners that's BP, ADNOC, Masdar, Tadweer, and Etihad Airways. So that feasibility study is looking at the opportunities, in both technology and economic lands, to producing SAF from municipal solid waste (MSW) and renewable Hydrogen. SAF is one of the products that they are looking at amongst others, but it is a really important step in looking how what's the role of the GSS in decarbonizing aviation overall. You know, we need production to be able to

Linn Tonsberg

do that because we have proximity of supply to end destination of the actual molecules. So, if there is positive outcome from the feasibility study which is already happening, we will see the first commercial scale production plant.

Ayşe Akalın: When will the study completed?

Linn Tonsberg: The feasibility study is ongoing so within year I think we have a plant in Abu Dhabi.

Ayşe Akalın: What is BP's SAF specifications and composition?

Linn Tonsberg: This is an interesting topic. In each country or region policies are very different. Some says you can only use waste energy, or you have others that look at different types of feedstocks as well. I think we are exploring different options at present. So, I don't have one answer to you, what we are doing here is looking at adminicle MSW and renewable Hydrogen. We have a number of different projects. It's not a one size fits all.

Ayşe Akalın: Can you enlighten us about

the feedstock providers, do you cooperate with the Middle East for your supply chain?

Linn Tonsberg: So SAF is a very new conversation for this region particularly. So here we are looking at the feasibility study and that will be the main focus right now. As the supply chain consists of feedstocks and general that is so across BP, we do operate across the supply chain.

One of things that you opened up with is cost. There is very high cost. There is no hiding that SAF is 3 to 5 times more than your traditional jet fuel molecules. The reason for that is usually twofold. Part of it is that the technology is absent, and we expect that as that technology matures cost will naturally come down. Feedstocks costs are high and that will continue to be a challenge in the future.

Ayşe Akalın: Virgin Atlantic announced the world's first cross-Atlantic SAF flight from New York to London. Could you please inform us about this?

Linn Tonsberg:I think this is such an exiting project also it demonstrates collaboration among the industry. So, we're involved in that from the fuel aspect. We're also working very closely with the engine manufacturers so we will have that successful test flight end of November this year (2023).

Ayşe Akalın: What can you tell us about your SAF customers in the Middle East Region and their feedback?

Linn Tonsberg: So, we presently don't have SAF here right now. So, our focus is looking at local production and trying to see how we can have a positive impact collaborating with partners in local production. Otherwise, we don't have any SAF presence. Per today we don't have any in the UAE, but Emirates are doing general as an airliner doing amazing thing. I think Emirates have millions of R&D investment in low carbon which is a biggest number in R&D in any airline. Emirates are really leading the way in low carbon space as we see in the UAE quite frankly. Emirates are also taking the lead; they did the first demonstration of 100% SAF flight earlier this year as well on a Boeing aircraft. But we're still looking at supply and we seed growth and demand due to mandates etc. We need to ensure to scale up supply accordingly.

Ayşe Akalın: Otherwise, as I see that Airlines defined their own solution. That's why they are just gathering and find...

Linn Tonsberg: That is a cross collaboration and that's exactly it. So, I think the only way we going to reach the Net Zero target by 2050 is cross industry collaboration. That includes airlines, governments, fuel suppliers such as us and leveraging companies like BP, as we are an integrated energy company. So, looking from feedstock due to our technology partners etc. it's crucial to be able to really get to the part where we can have that.

Ayşe Akalın: It's a big challenge for the Airlines because of limited manufacturing and expensive SAF prices as well. What's your assessment on that?

Linn Tonsberg: Going back to what I said before when you are at the early stages of it the technology is expensive. Now I think one thing we see clearly is that as technology matures and as that you scale up that cost will naturally come down. For feedstocks it's hard to have an answer on that because scarcity of supply for feedstocks continues to be a challenge. But I think that technology part will naturally come down

Turkish Airlines is Expanding Its Collaboration with Vietnam Airlines

Hamburg Airport has become the first German Turkish Airlines, the globally renowned aviation service provider, has signed a Letter of Intent with Vietnam Airlines, the national flag carrier of Vietnam, in Ankara today, adding yet another new partnership to its portfolio of collaborations. Signed for its successful air cargo brand, Turkish Cargo, Turkish Airlines is committing to only expand its extensive flight network, but also enter partnerships with airlines around the world.

The signing ceremony was held at the Presidential Complex today, witnessing the attendance of Cevdet Yılmaz, Vice President of Türkiye and Pham Minh Chinh, Prime Minister of Vietnam. At the signing, Turkish Airlines was represented by Bilal Ekşi, Chief Executive Officer at Turkish Airlines; and Turhan Özen, Chief Cargo Officer at Turkish Airlines, while Vietnam Airlines was represented by Dang Ngoc Hoa, Chairman of the Board of Directors at Vietnam Airlines. The agreement is set to establish the foundation of a high-potential collaboration between the two airlines, aimed to be further strengthened in the future.

A subsidiary of Turkish Airlines, Turkish Cargo is meticulously assessing collaboration opportunities in Asia, a continent of strategic importance and high potential. The cooperation, brought to life with Vietnam and its flag carrier Vietnam Airlines as part of the expansion activities of the successful air cargo brand, represents just one of these initiatives.

The airline collaboration, initiated by Türkiye, having shown a striking development momentum in the last 20 years, is anticipated to significantly contribute to the commercial activities of both countries. Vietnam, with its growth rate surpassing regional peers and global averages, stands out in Asia, a continent of development and rise. Through the signing, Turkish Cargo reaffirms its role in shaping the future of air cargo transportation, particularly in connecting vital regions and fostering international trade and commerce.

Bilal Ekşi, CEO at Turkish Airlines, commented at the signing ceremony: “Asia is one of our key markets at Turkish Airlines. Our efforts to increase our presence on this prominent continent continue unabated with our competent teams and R&D activities. In an era where global aviation is shifting from West to East, these efforts are even more meaningful. I am hoping our collaboration with Vietnam Airlines will be beneficial and fruitful for both countries and both flag carriers.”

Dang Ngoc Hoa, Chairman of the Board of Directors at Vietnam Airlines, stated: “The cooperation between Vietnam Airlines and Turkish Airlines was established on the basis of mutual benefit. Turkish Airlines will benefit from expanding the scale of its transportation network to previously limited areas such as Oceania, Northeast Asia by taking advantage of Vietnam's central geographical location as a transit point. Furthermore, by using freighters and connecting to Turkish Airlines' global network of 345 destinations around the world, Vietnam Airlines can also significantly expand its scale. We are confident this cooperation will facilitate Vietnam to become one of the leading logistics centers in the Asia-Pacific region.”

The partnership, initially focusing on air cargo operations of both flag carriers, aims to explore different commercial dimensions in the near future.

As a key part of Turkish Airlines, Turkish Cargo has consistently demonstrated its prowess in global logistics, boasting one of the most extensive and efficient cargo networks. This new development not only showcases Turkish Cargo's adaptability and strategic foresight but also underlines its commitment to expanding its reach further and enhancing service quality.

Dubai Airshow 2023 Set to Break US$ 101 Billion Order

Dubai Airshow held on between 13-17 November 2023 at Dubai World Central (DWC) with over 1,400 exhibitors, 493 civilian and military officials from more than 98 countries with 350+ distinguished international speakers, 90+ innovative start-ups, and 20 impressive country pavilions. The show was hosted totally 192 aircraft in both on static and flying demonstration.

Boeing Commercial Airplanes family of fuel-efficient jets, including the 777-9, twin-engine jet - along with the 787-9, 787-10 and the 777-300ER were situated in Air show. In addition, Boeing Defense, Space & Security's the latest digitally advanced F-15QA, the T-7A Red Hawk Advanced Pilot Training System simulator, plus the AH-64 Apache and CH-47F Chinook helicopters were displayed at static display area. Embraer showcased the E195-E2, and military aircrafts; A-29 Super Tucano and C-390 Millenium.

Big players of Business Jets were also demonstrated cutting-edge business jets on static display are. Bombardier presented their Challenger 3500 and Global 7500 business jets. Gulfstream exhibit the ultralong-range Gulfstream G700 and the class-leading Gulfstream G500. Dassault brought along their Falcon 10X mock-up and Falcon 2000LXS, Embraer had their Praetor 600 and Phenom 100EV business jets on display area as well. Pilatus showcased the PC-24 Super Versatile Jet.

During the show, a significant amount of orders and deals were announced, a totally US$101 billion order was booked by Airlines.

•Emirates ordered 95 wide-body aircraft (35 "Boeing 777-9s", 55 "Boeing 777-8s", and 5 "Boeing 787s") from Boeing worth US$52B, an order for 15 Airbus An-350-900 jets worth $6B and the airline awarded a series of contracts to Safran worth US$ 1.2 billion combined to furnish Emirates' new fleet of Airbus A350, Boeing 777X-9 and its existing Boeing 777-300ER aircraft with the latest generation Safran Seats. In addition, the contracts with Safran include exclusive services for cabin equipment, wheels and carbon brakes, landing gear component repairs, retrofit, and MRO support. Emirates also announced a US$ 950 million investment to build a new ultra-modern engineering facility at Dubai World

by Cem Akalın

Central (DWC) that is purpose-built to support Emirates' aircraft fleet and operating requirements into the 2040s.

•Low-cost carrier flydubai confirmed an order for 30 Boeing 787-9 Dreamliners aircraft worth US$11B

•Ethiopian Airlines announced an order of 11 Dreamliners and 20 737 MAX 8 aircraft estimated at $7B and signed a MoU for 11 additional Airbus estimated at US$2.43B

• Tawazun signed deals with local and

international companies valued at US$6.28B

• Türkiye-based low-cost carrier SunExpress Airlines, placed a firm order for 45 narrow-body 737 MAX jets (17 Boeing 737-10 and 28 Boeing 737-8) to be delivered between 2029 and 2035, with options or purchase rights for another 45 worth US$4.49B

• Air Arabia placed an order for 240 CFM LEAP-1A engines worth US$3.36B

•airBaltic confirmed an incremental order for an additional 30 A220-300s worth US$2.74B. Thus, Airline's total firm orderbook reached to 80 aircraft with this order. airBaltic intends to operate a fleet of 100 A220-300s by 2030, making the airline the largest A220 customer in Europe, while it continues to be the largest A220-300 operator in the world.

• EgyptAir ordered its first Boeing 737 MAX aircraft, as the airline will take delivery of a total of 18 737 MAXs as part of a lease agreement with Air Lease Corporation (ALC) and also an order for 10 new Airbus A350-900s

• Ethiopian Airlines placed an order 11 Boeing 787 Dreamliner & 20 Boeing 737 MAX airplanes, in addition to this an interior retrofit program for its existing 787 fleet,

• Royal Air Maroc and Royal Jordanian announced orders for four and two 787-9 Dreamliners.

• Kazakhstan's SCAT Airlines placed an order for seven Boeing 737-8 MAX aircraft

• Oman Air announced an order and delivery of the operator's first 737-800 Boeing Converted Freighter (BCF), its first dedicated cargo aircraft.

• ATR booked an order for 10 ATR 72-600s for Abelo, a turboprop-focused leasing firm, along with options for an additional 10 aircraft

SunExpress Signed an Agreement with Boeing to Accelerate its Growth

SunExpress, the joint venture of Turkish Airlines and Lufthansa, has again chosen Boeing 737 MAX to continue its strong growth by expanding its fleet. SunExpress will more than double its fleet over the next decade with an order for up to 90 Boeing aircraft, announced at the 2023 Dubai Airshow. The agreement includes the purchase of 28 Boeing 737-8 and 17 737-10 aircraft and up to 45 737 MAX aircraft.

Commenting on the agreement, SunExpress CEO Max Kownatzki said: "Following its successful strategy in the post-pandemic period, SunExpress is preparing to accelerate its growth to meet market demand and have a wider impact internationally. We will more than double our fleet over the next decade, reaching a fleet of 150 aircraft by 2033. In addition, the addition of the 737-10, the newest 737 MAX aircraft with 230 seats, to our fleet will allow us to further strengthen our capacity. As SunExpress, we are strongly preparing for the future. While expanding our network with our highly fuel efficient and environmentally sustainable aircraft fleet, we will continue to contribute as Turkey's tourism ambassador."

"SunExpress' continued preference for the 737 MAX reflects confidence in the aircraft's ability to meet passenger demand to Turkey and other popular destinations," said Stan Deal, President and CEO of Boeing Commercial Airplanes. The 737 MAX is an aircraft that has proven itself in the SunExpress flight network by creating value with its unmatched fuel efficiency and performance."

Offering airlines high efficiency and route flexibility for short and medium-haul flights, the 737 MAX is ideal for SunExpress, a holiday airline. The 737-8 model aircraft, which can carry between 162 and 200 passengers depending on the configuration, offers a range of up to 6,480 km (3,500 nautical miles). The 737-10, the largest model of the 737 MAX, has a range of up to 5,740 km (3,100 nautical miles). The 737 MAX reduces fuel consumption and carbon emissions by 20% compared to its predecessor aircraft models.

Stan Deal & Ayşe Akalın

Offering direct connections between Europe and popular holiday destinations in Turkey and other countries, SunExpress continues to expand its fleet with Boeing 737 to support its strong growth. Flying to 175 destinations in 30 countries, the airline carried approximately 11 million passengers in 2022.

airBaltic Places New Order, Eyes Expansion to 100 Airbus A220-300s by 2030

During Dubai Airshow 2023, the Latvian national airline airBaltic and the aircraft manufacturer Airbus announced a firm purchase agreement for 30 Airbus A220-300 aircraft with purchase rights for an additional 20 aircraft of the same type.

With this order, airBaltic intends to operate a fleet of 100 A220-300s by 2030, making the airline the largest A220 customer in Europe, while it continues to be the largest A220-300operator in the world.

Martin Gauss, President and CEO of airBaltic: "This day marks a significant milestone in the history of airBaltic – our plans for the first time ever to operate a fleet of 100 aircraft by 2030. For almost seven years already, the Airbus A220-300 has been the backbone of our operations and has played an integral role in the international success story of airBaltic. Being the global launch customer of the Airbus A220-300, we continue to be a proud ambassador of it. We are grateful to our partners at Airbus for the incredible support, trust, and collaboration over these years."

"Thank you to airBaltic for being such an ambassador for the A220 with this repeat order. The A220 has been the instrument for airBaltic in its success and growth thus far and we are particularly proud to be extending this partnership well into the future with this latest order", said Christian Scherer, Airbus Chief Commercial Officer and Head of International. "The A220 offers a unique capability in terms of range, performance, and not to forget, passenger appeal. It is a gamechanger for our customers in this important market segment, which we are serving with less fuel-burn, lower emissions and noise, making the A220 a global citizen of choice."

In late 2016, airBaltic became the global launch operator of the A220-300 and since May 2020 operates all its flights with a single-type fleet of this aircraft type. Thus far, the airline has carried more than 13 441 000 passengers on the Airbus A220-300 aircraft. The airBaltic A220-300s have completed over 150 000 flights and flown 328 000 block hours.

The Airbus A220-300 has performed beyond the company's expectations, delivering better overall performance, fuel efficiency, and convenience for both passengers and the staff. This aircraft offers an excellent flying experience with such benefits for passengers as wider seats, larger windows, more hand luggage space in the cabin, improved lavatories, and much more.

In addition, the aircraft is also considerably quieter – with a twice smaller noise footprint when compared to the previous generation aircraft. Moreover, at the moment, it is the most efficient commercial aircraft in the world with a transparent declaration of the life-cycle environmental impact, helping to reduce CO2 and NOX emissions by 25% and 50% respectively in comparison the previous generation aircraft and industry standards.

airBaltic is the leading airline in the Baltics and operates more than 100 routes from its home cities of Riga (Latvia), Tallinn (Estonia), Vilnius (Lithuania), and Tampere (Finland), offering connections to a wide range of destinations in the airline's route network in Europe, the Middle East, North Africa, and the Caucasus region.

flydubai Places US$ 11 Billion Order for Boeing 787 Dreamliners

The Dubai-based carrier, flydubai, and Boeing announced flydubai's commitment to purchase 30 Boeing 787-9 Dreamliners as the airline diversifies its fleet with the introduction of wide-body aircraft.

The signing ceremony was attended by His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of The Executive Council of Dubai; His Highness Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum, First Deputy Ruler of Dubai and Deputy Prime Minister and Minister of Finance of the UAE; His Highness Sheikh Ahmed bin Saeed Al Maktoum, Chairman of flydubai; Boeing Commercial Airplanes President and CEO, Stan Deal, and Ghaith Al Ghaith, CEO of flydubai, on the opening day of the Dubai Airshow 2023.

Commenting on the milestone announcement, His Highness Sheikh Ahmed bin Saeed Al Maktoum, Chairman of flydubai, said: "in 2008 when we placed our first ever order for 50 Boeing 737 aircraft, we were confident of the vital role flydubai would play in supporting Dubai's aviation hub. I am proud today to see flydubai evolve further, surpassing labels and challenging the traditional conventions around travel. Today's order reaffirms flydubai's commitment to enabling more people to travel across its expanding network. The highly fuel-efficient Boeing 787 Dreamliner will allow flydubai to expand its horizon and cater to the growing demand on existing routes."

Commenting on the choice of aircraft, Ghaith Al Ghaith, Chief Executive officer at flydubai, said: "innovation is at the heart of everything we do at flydubai. We are committed to offering the right product at the right time to cater to the changing market and customer needs. The Boeing 787 Dreamliner offers a perfect combination of operational excellence, fuel efficiency as well as passenger appeal."

flydubai is currently evaluating engine options for its first Dreamliner order.

Stan Deal, president and CEO of Boeing Commercial Airplanes, said: "The 787-9 is perfectly suited for the needs of flydubai as it looks to open up new, longer-range routes and add capacity across its network. flydubai passengers will enjoy the Dreamliner effect, an experience like no other in the air, flying with more comfort and arriving to their destinations feeling more refreshed. We are proud of the confidence that flydubai continues to place in our products with an all-Boeing fleet. We look forward to further strengthening this partnership and to seeing our 787-9 Dreamliners play a central role in flydubai's strategic expansion plans."

Air bp-Jio Expands in India with New Location at Rajkot International Airport

Air bp, the international aviation fuel products and service supplier, is pleased to return to the Dubai Airshow at Dubai World Central, 13-17 November, as speaker and gold sustainability conference sponsor with the news that it has expanded its Joint Venture, Air bp-Jio, in India with a new fuel facility at the brand new Rajkot International Airport (Hirasar).

Rajkot International Airport is an international hub and a greenfield airport at Hirasar in the state of Gujarat, serving the city of Rajkot and the Saurashtra region. Owned by the Airports Authority of India , it is capable of handling around 2800 passengers during peak hours. It is air bp-Jio's 31st airport location in India.

Air bp-Jio began fuelling operations at Rajkot International Airport at the end of September with

575 fuellings completed to date. Air bp-Jio worked to a tight schedule to secure regulatory approvals and deliver fueling facilities at Rajkot International Airport in good time for the airport to officially begin operations on September 10, after it was inaugurated on 27 July by Prime Minister Shri Narendra Modi. This represents phase one of air bp-Jio's new facility at Rajkot International Airport and follows the Indian Government's decision to develop the airport into a large international airport to keep pace with demand.

India has the third largest domestic aviation market globally and is poised to become the third largest and one of the fastest growing aviation markets after the US and China. The country is currently home to some 140 operational airports. It is anticipated that this figure will grow to 220 in the near term which represents a rapid expansion up from 74 airports in 2014.

"Air bp-Jio excelled in making the fuel station ready in a short space of time with all regulatory compliances and approvals. The successful commencement of flight operations at Rajkot International Airport was very much dependent on air bp-Jio's service. The team worked hard and met the target, as promised," said, Diganta Borah, airport director, Rajkot International Airport.

Earlier this year, air bp-Jio was voted the best fuel provider in India by the International Council of the Associated Chambers of Commerce and Industry of India (ASSOCHAM). This underlines air bp-Jio's efforts to provide an enhanced and more efficient fuelling service in India with a strategy focused on safety, on-time performance, digitized fuelling services, and supply reliability. The air bp-Jio JV aims to be the partner of choice for all stakeholders in the aviation fuel business in the country.

Honeywell to Provide Emirates with Wheels and Brakes for Fleet of A380 Aircraft

Honeywell has been selected by Emirates to provide wheels and carbon brakes for its fleet of 116 Airbus A380 aircraft. Honeywell's advanced wheel and braking designs save weight, reduce maintenance costs and help extend overall brake life.

Under the terms of the 10-year agreement, maintenance of the wheels and brakes will be performed through Emirates maintenance shops, ensuring continued maintenance support in Dubai.

VoltAero's Intelligent Mobile Charger for the Cassio 330 Deput at the Dubai Airshow

A universal mobile charger for the Cassio family of electric-hybrid airplanes and other electric aircraft was unveiled by VoltAero at this week's Dubai Airshow.

This intelligent charging unit is part of VoltAero's strategy to create the infrastructure for its Cassio airplane family, which begins with the five-seat Cassio 330. The charger also will be offered for applications with other e-aircraft and eVTOLs.

Capable of delivering energy to recharge the Cassio 330 in approximately 30 minutes, the charger uses a smart combination of supercapacitors and batteries for a power output of 100 kw. As part of the unit's "intelligence," it can be programmed for autonomous deployment to a designated location at an airport or landing zone for aircraft recharging.

"This latest development underscores how VoltAero and its partners already are taking steps beyond our development of the breakthrough Cassio family to evolve an optimized infrastructure that will support the e-aircraft sector," said Jean Botti, VoltAero's CEO and Chief Technology Officer.

In addition to the intelligent charger unit's world debut at this week's DubaiAirshow, the VoltAero display in the Dubai World Center (exhibit stand #V64) includes Kawasaki Motors' four-cylinder and six-cylinder internal combustion engines for the Cassio aircraft's electric-hybrid propulsion module. These engines will be able to operate with hydrogen, with VoltAero targeting a Cassio 330 electric-hydrogen demonstrator for 2025.

VoltAero's Cassio family will be a highly capable and reliable aircraft product line for regional commercial operators, air taxi/charter companies, private owners, as well as in utility-category service for cargo, postal delivery and medical evacuation (Medevac) applications.

By integrating VoltAero's patented electric-hybrid propulsion system into the company's purpose-designed airframe, Cassio will deliver an order of magnitude higher performance as compared to the current competition, and provide significantly lower operational costs.

The VoltAero propulsion concept is unique: Cassio aircraft will utilize an electric motor in the aft fuselage-mounted hybrid propulsion unit for all-electric power during taxi, takeoff, primary flight (if the distance traveled is less than 150 km.), and landing. The hybrid feature – with the internal combustion engine – comes into play as a range extender, recharging the batteries while in flight. Additionally, this hybrid element serves as a backup in the event of a problem with the electric propulsion, ensuring true fail-safe functionality.

Abelo Signs Deal for up to 20 ATR 72-600

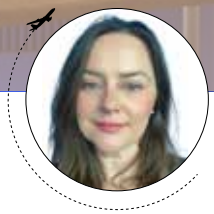
Abelo, a leading turboprop lessor, and number one regional aircraft manufacturer ATR, have signed a Heads of Agreement for a firm order of 10 ATR 72-600, along with options for an additional 10. This deal underscores Abelo's continued commitment to embracing the latest in cutting-edge turboprop technology. Notably, in July 2022, Abelo had placed an order for 10 ATR 72-600 and confirmed a deal for 10 ATR 42-600S – Short Take-Off and Landing version. These additional aircraft will empower the lessor to meet the growing demand for efficient, cost-effective and dependable regional air travel connections worldwide, all while promoting the transition towards responsible aviation.

Steve Gorman, the Chief Executive Officer of Abelo, expressed: "In ATR aircraft, we have discovered the ideal solution to support Abelo's mission of connecting communities and businesses in an economically and environmentally responsible manner. Our aim is to expedite the transition from older aircraft to the most advanced, low-emission technologies, and ATR turboprops have emerged as the top choice for achieving this objective. Having already introduced our initial batch of new aircraft, we have great confidence that our investment will greatly enhance our portfolio and play a vital role in the success of our airline partners seeking outstanding performance, reduced emissions and enhanced passenger comfort."

Nathalie Tarnaud Laude, ATR's Chief Executive Officer, added: "With a total of 30 ATRs ordered, Abelo's continued commitment to ATR is a testament to the strong market demand for fuel-efficient and cost-effective turboprops. Through their versatility, low operating costs and reduced CO2 emissions, they serve as the backbone of numerous regional airlines worldwide. Our strong relationship with Abelo relies on common purposes and visions, as well as on our joint recognition of turboprops' great value proposition today and tomorrow. We will remain committed to providing Abelo with the most innovative solutions long into the future."

While Abelo will take delivery of its first brand new ATR before year-end as part of the 2022 order, deliveries of these additional aircraft are scheduled for 2026 through to 2028.

Time Flies in the Sky with Emirates Airline



by Şebnem Akalın

If you had to travel with only one airline for the rest of your life, which would you choose?

In order to answer this question, the passenger needs to weigh their needs, comfort zones, habits, and even experience many flights and make a decision based on their experiences.

Airlines, especially flag carrier airlines, ask themselves this question as if they were a passenger, and every year, they innovate and add surprising features to their in-flight services to provide more luxury and comfort to their passengers and make each of them loyal customers.

During the week of November 12-17, I traveled to the Dubai Airshow as a guest of Emirates Airline, and once again, I saw that Emirates Airline is determined to attract loyal customers and has all the advantages to do that. Emirates Airline' priority is always safety, but comfort and luxury are not put on the back burner and are as important as safety.

Emirates Airline operates three daily flights between Istanbul and Dubai, and one of these flights is operated with A380, one of Airbus's iconic aircraft.

A380 is a double-decker aircraft with a capacity of approximately 399 economy class, 76 business class, and 14 first-class passengers, with an Onboard lounge and spa. Of course, the Onboard lounge is available for business and first-class passengers, while the spa is only available for first-class passengers.

The first-class area is decorated in comforting cream and bronze tones. You can relax in peace and fly in privacy with the doors closed. You'll be surrounded by all the original comforts you love, including your own pop-up minibar, climate and mood lighting controls, and exclusive skincare and fragrances.

A380 Business class seats feature polished woodgrain detailing, and the original minibar tucks sideways for in-flight refreshments. You can watch your favorite entertainment on your 20-inch HD TV or drift off to sleep in the comfort of a lie-flat soft mattress under the ambient glow of overhead lighting.

The economy class is decorated with high ceilings, and surrounding white and champagne tones bring light and space to the cabin. You can enjoy your flight with your 13.3-inch HD TV with various types of entertainment from ICE. And you can lie back in the glow of ambient mood lighting.

ICE is Emirates' in-flight entertainment system, which features movies, TV series, and sporting events so you can travel without losing track of time.

It is worth mentioning that on Emirates flights, food and beverages are served in every class, where the quality of the food is of the highest standard. Alcoholic and non-alcoholic drinks of the highest quality accompany the first-class meals. As a passenger who has traveled between Istanbul and Dubai with different airlines in different classes, I must say that I have never come across an airline that offers better food than Emirates.

First-class and business-class passengers can sip a selection of wines from a specially selected wine cellar, enjoy the finest champagne from France, or socialize at the onboard bar while sipping cocktails or whatever beverage comes to mind. While the first and business-class meals served by private chefs on the finest porcelain cannot be found in most restaurants in France, passengers want their

journey at 40,000 feet to never end, and they want to be able to enjoy the entire menu.

When it is time for dessert after dinner or when you are offered chocolate with a cup of coffee, this flavor that takes you on a different journey can be addictive, and you can become a first or business-class addict.

As a matter of fact, we already know all the issues I have mentioned so far at the ticket purchase stage, and we choose the airline we want to travel by taking all these into consideration. In addition to all these, if you ask why, you should select Emirates Airline? My answer would be the choice of cabin crew.

The crew taking us from Istanbul to Dubai had 21 members who spoke 17 languages. Lucas J., the purser of our flight, confident of himself and his team, in command of the whole operation, with both the excitement of loving his job and the calmness of professionalism, showed us around the whole aircraft and informed us about the aircraft and the flight before we are seated to ensure that we had a great flight. At that moment, he instilled in us that the journey will be comfortable but more importantly safe while we will be travelling in the sky in a small hotel. The colors of this iconic aircraft, which start to impress as you climb up the stairs from the lower floor, are so soft that all the luxury does not tire your eyes.

We are now up in the air...

We took off shortly after we took our place, but we met the sky without even realizing the aircraft had taken off.

This time, we are passengers in the economy class. During our journey in Economy class, the fact that the flight staff accompanies you throughout the journey without making you feel which class you are flying in gives the signals from the beginning that your trip will be good.

For tall passengers like me, the importance of seat spacing is indisputable, and I have seen in the Emirates Airline economy class that a comfortable journey awaits us even on long journeys.

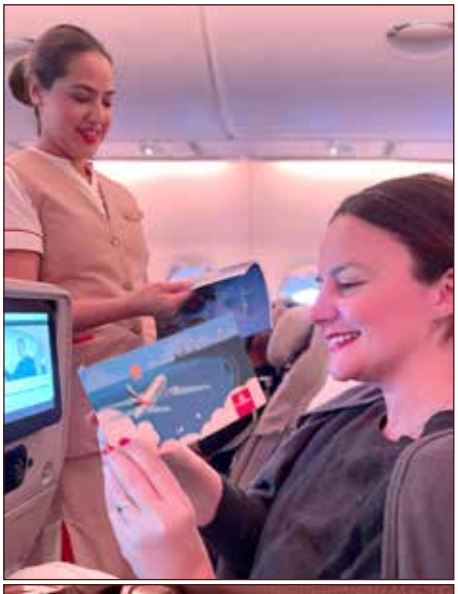
Shortly after take-off, the cabin crew entered among the passengers with polaroid cameras in their hands, took photos of the passengers who wanted to immortalize the moment of the flight, and presented them with a unique commemorative frame. Of course, I had the chance to be one of those who immortalized that moment.

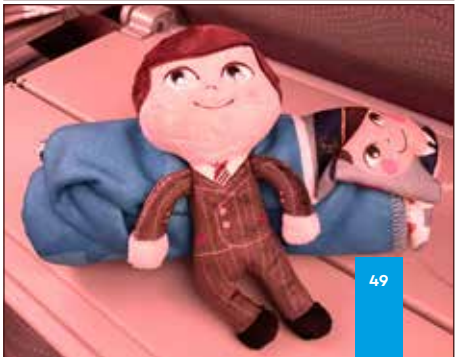
At the same time, Emirates Airline, which does not forget its little passengers, is determined to make its loyal passengers at this age so that they start their journey by distributing beautiful toys. Child and loyal passengers in the future will be the most valuable passengers, so organic fruit juices and baby foods prepared for them were also distributed to families with babies.

When the meal service started, there was a menu consisting of 2 options for short and medium-haul flights. Although I found the food on the way back from Dubai more delicious than the food on the way out of Turkey, the other passengers loved both.

After having my dinner with a beautiful red wine, I watched a film at ICE that has not yet been released in Turkey, and I was able to connect to social media with the internet I bought for a meager fee.

Since it would be evening hours when we arrived, the in-flight lights were dimmed immediately after the catering services were collected, and the stars on the ceiling created a feeling of the sky and aimed to relax a little. While enjoying the calmness and peace, I chose 1-2 technological and innovative products for myself by browsing the in-flight shopping magazine and innovative products that caught my





eye, but you can choose various products from cosmetics to fashion that you can buy at the airport without wasting time.

There were so many things I could do on the plane, and after a wonderful journey without realizing how 4 hours passed, we were in Dubai.

Here we are in Dubai...

As soon as you arrive in Dubai, that moment of euphoria that makes you feel like you are on holiday starts at the airport. But this time, we came for business. Although we've come for business, we started to plan our holiday like after every trip.

Dubai is one of the best destinations if you want to go somewhere close to Turkey with your family or friends if you want to be warm in the cool weather, and if you want to do all the activities together. There are so many activities to do in this city that fascinates with its modern life and ethnic structure that you cannot enjoy Dubai just once. In this city, where there are numerous hotel options, you can choose the most suitable hotel to stay in by deciding what kind of holiday you want to prioritize. You can enjoy the sand and sea with your family in the seaside hotels or experience old Dubai by staying in the city hotels, shopping among the world's most luxurious brands in the shopping centers and tasting the world-renowned flavors.

Although there are many places to visit, Deira, Bur Dubai, Downtown Dubai, and Palm Jumeira are at the top of the list to visit. Make a note of this list of places where the old and the new are together, and do not come to Dubai without having seen them.

The Desert Safari, one of the must-do's when you come to Dubai, offers you and your family an experience you will not be able to experience anywhere else.

Of course, this is not the

end of the possibilities that will make your holiday unforgettable and will not be forgotten...

Offering extreme sports such as Skydiving, Ziplining, and Flyboarding for thrill lovers

Dubai also offers skiing at the ski center in the Emirates Mall in the morning and surfing on Dubai's beaches in the afternoon. What a luxury it is to have the chance to enjoy every season's holiday in one day!

In Dubai, which is a complete package, a holiday awaits you where you or your loved ones can share all the experiences without getting bored, but as I said, don't think you can do all this in one go; you'll be planning the next Dubai trip with the Wi-Fi you'll connect on the return flight.

Emirates – Dubai Airshow

Emirates opened Dubai Airshow 2023 with a significant order for an additional 95 wide-body aircraft, bringing the total number of orders to 310 aircraft.

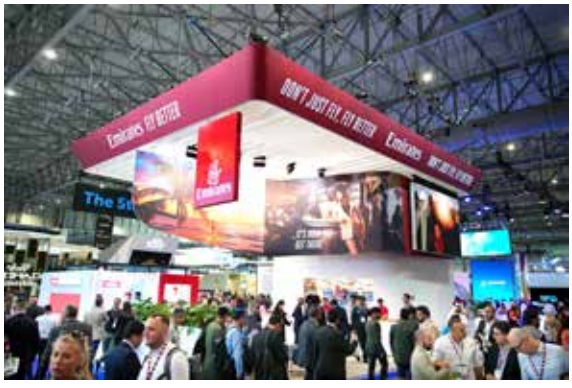
Already the world's largest wide-body passenger aircraft operator.

Emirates, already the world's largest wide-body passenger aircraft operator, has ordered additional Boeing 777-9, 777-8, and 787 aircraft valued at USD 58 billion to strengthen its growth plans, maintain a modern and efficient fleet and offer the best flight experience to its passengers.

His Highness Sheikh Ahmed bin Saeed Al Maktoum, President and CEO of Emirates Airline and Group, Stan Deal, President and CEO of Boeing Commercial Airplanes, Larry Culp, President and CEO of GE and CEO of GE Aerospace, attended the ceremony where the agreement was signed by His Highness Sheikh Hamdan bin Mohammed bin Rashid Al Maktoum, Crown Prince of Dubai and Chairman of the Dubai Executive Council, His Highness Sheikh Maktoum bin Mohammed bin Rashid Al Maktoum, UAE Deputy Prime Minister, Minister of Finance and Deputy Ruler of Dubai, and His Highness Sheikh Mansour bin Mohammed bin Rashid Al Maktoum, Chairman of Dubai Sports Council, also attended.

His Highness Sheikh Ahmed made the following statements on the subject: "From day one, Emirates' business model has been to operate modern and efficient wide-body aircraft capable of carrying large numbers of passengers comfortably and safely over long distances to and from Dubai. Today's aircraft orders reflect this strategy."

"These additional aircraft will enable Emirates to connect even more cities and support Dubai's economic agenda D33, set out by His Highness Sheikh Mohammed bin Rashid Al Maktoum to add 400 cities to Dubai's foreign trade map over the next decade. By the early 2030s, we expect the Emirates fleet to have approximately 350 aircraft, connecting Dubai to more cities worldwide."

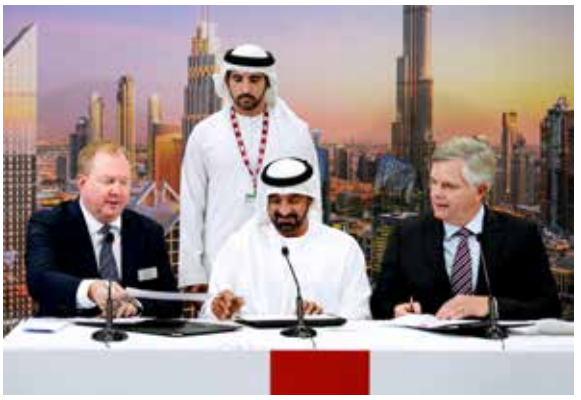


Emirates, already the world's largest operator of Boeing 777 aircraft, has signed an order agreement for an additional 55 777-9s and 35 777-8s. This brings the airline's 777-X orders to a total of 205.

Emirates also confirmed an order for 202 additional GE9X engines to power its new 777X fleet, bringing the airline's total GE9X engine order to 460.

The first 777-9s in the previous order of 115 units are expected to join the Emirates fleet starting 2025. Additional orders following the new agreement mean that Emirates will add new 777-9s to its fleet by 2035.

With this latest order, Emirates will also be one of the launch customers of the 777-8 passenger version, with first deliveries expected in 2030.



Sheikh Ahmed continued: "With today's order, Emirates cements its position as the largest user of Boeing 777 aircraft. We have been closely involved with the 777 program from its inception to this latest generation 777X aircraft. The 777 has been at the heart of Emirates' fleet and network strategy to connect cities on all continents to Dubai seamlessly. We are pleased to extend our relationship with Boeing and look forward to the first 777-9 joining our fleet in 2025."

"This order is an incredible vote of confidence in the efficiency and versatility of the 777X family to meet Emirates' global long-haul travel needs," said Stan Deal, President and CEO of Boeing Commercial Airplanes. The 777-9 and 777-8 are the perfect aircraft to support Emirates' growth plans, improve environmental performance, and provide unmatched payload capacity."

The 777 remains the backbone of Emirates' operations and is distinguished by its mission capacity of up to 18 hours, allowing the airline to connect Dubai to cities on six continents non-stop. The new 777-9 and 777-8s will replace Emirates' decommissioned 777 aircraft and form the basis for the airline's future growth plans.

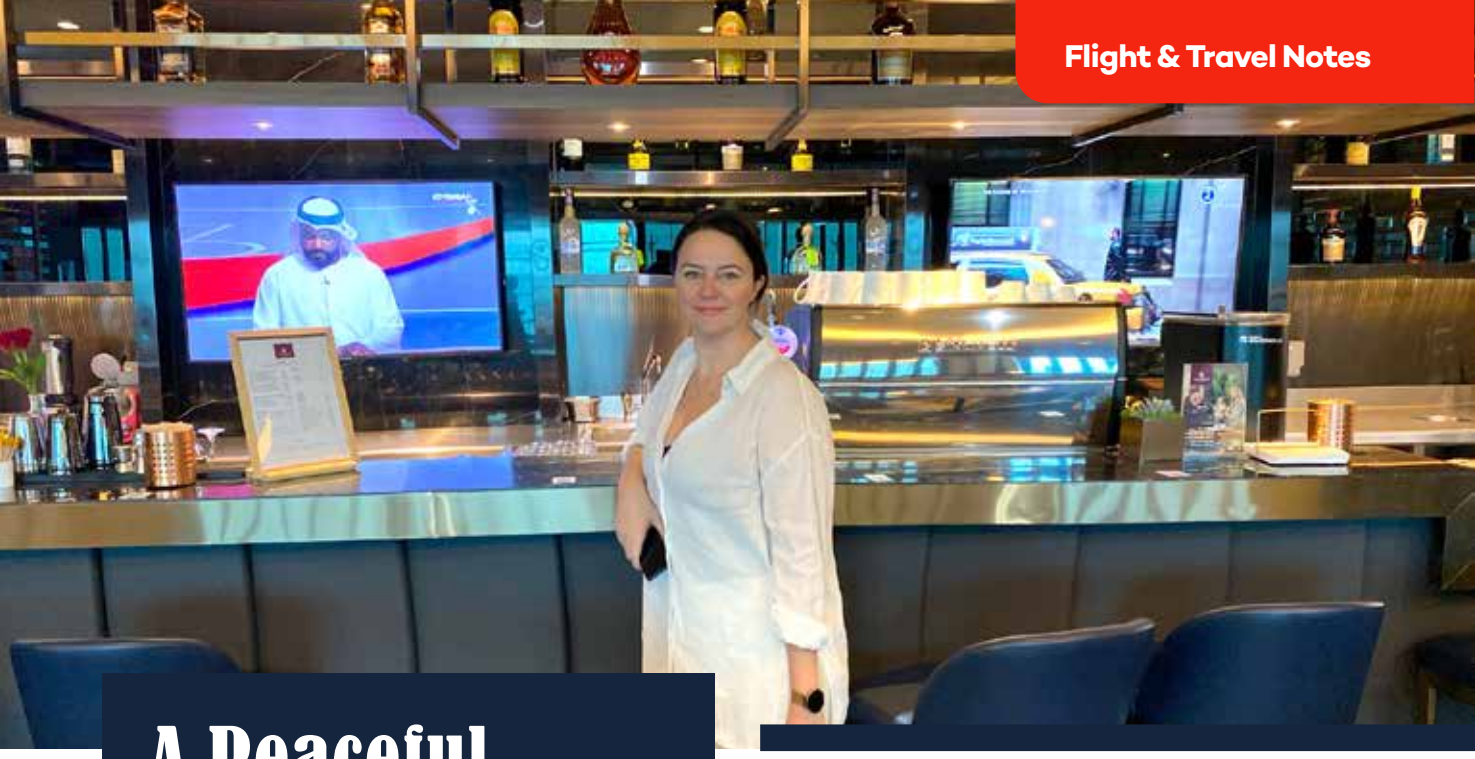
Emirates also updated its previous order of 30 Boeing 787-9s, increasing its order to a total of 35 Dreamliners, consisting of 15 Boeing 787-10s and 20 Boeing 787-8s .

When I stepped off the plane, the same question came to my mind: what do they do with the materials no longer used in the interior?

Emirates answered this question by showing me how much importance they attach to recycling. Emirates launches a unique capsule collection of luggage, bags, and accessories - all made from upcycled materials from retrofitted aircraft - that captures both the spirit of innovation embedded in Emirates' culture and its ongoing environmental commitment to responsible consumption. The materials used to create the stylish collection have been sourced from Emirates' iconic A380 and 777 aircraft, offering the chance to own a piece of history. All sorts of surprising materials have been repurposed for the luggage and bags, from aluminum headrests to leather from the sofas in the A380's onboard lounge to seat belts and even the fur from the captain's seat. More than 14,000 kg of materials have already been recovered from the 16 aircraft that have been retrofitted. As the project continues, there is potential to recover up to 270 kg of leather and 627 kg of seat fabric per retrofitted aircraft. The materials used are high-quality pure leather from the first-class seats, seat fabrics made from 95% wool, and pure leather from the captain's seats. All fabrics are freshly laundered in a factory, then deep-cleaned by hand, leather-conditioned where necessary, and thoroughly disinfected before sewn into unique pieces. Brand-new linings are added to the bags. Functional zips are also added.

As someone who never expected to come across such a good idea on how to recycle, what I've learned makes me very happy.

The fact that our return flight was as perfect as the departure and that every Emirates flight I have been on has been of the same quality with an unchanging perfectionism shows that there is incredible teamwork in this organization where we only see the flight moment.



A Peaceful Oasis in a Crowd

Returning from my memorable trip from Dubai, I was fortunate to experience the luxury of the Plaza Premium Lounge nestled within Dubai International Airport's Terminal 3.

From the moment I stepped inside, the lounge offered a serene escape from the airport's bustling ambiance. Its distinctive features include individual seating areas equipped with convenient plug sockets and inviting family suites. The Family Suites come with butler service and can accommodate a maximum of 6 guests. The spaciousness and thoughtful layout of the Plaza Premium Lounge, along with its well-appointed shower facilities, evoke the comfort reminiscent of a boutique hotel.

During my stay at the lounge, the morning spread was a delightful surprise. The breakfast selection boasted an array of options, both hot and cold, complemented by delectable sweet treats. The lounge didn't just stop at culinary indulgence; it also housed an elegantly designed bar area offering an assortment of high-quality coffee, tea, and an enticing selection of beverages.

And also high-speed free internet enables you to efficiently finish your tasks or assignments while comfortably waiting in the lounge before boarding.

The Plaza Premium Lounge, with its sophisticated ambiance and culinary offerings, was a haven of comfort and refinement amid the airport's energetic atmosphere.

The Plaza Premium experience encompasses over 300 service points spread across more than 90 airports in 35 countries worldwide. The upcoming opening of a new Plaza Premium Lounge at Abu Dhabi Airport will be a valuable addition to their already expansive network. I'm really looking forward to experiencing this lounge as well.

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AJET will Start Flights in 2024

AnadoluJet, initially established by Turkish Airlines in 2008 to cater to the air travel needs of Anatolia through attractive options, will transition its operations to operate as "AJet Air Transportation Joint Stock Company." As a wholly-owned subsidiary of Turkish Airlines, this change is set to take place by the conclusion of March 2024.

The unveiling of AJET's new identity occurred during an event at Istanbul Sabiha Gökçen Airport Turkish Technical Hangar, attended by Turkish Airlines A.O managers. Speaking on the formation of AJET, Prof. Dr. Ahmet Bolat, Chairman of the Board and Executive Committee of Turkish Airlines, expressed, "Today marks the initiation of our AJet, aligned with our aspirations for the next decade. Our persistent dedication has borne fruit, and by the end of March 2024, we will propel AJet into the skies with our summer schedule. I am confident that AJet, now poised for global expansion with its new name, will significantly contribute to the low-cost aviation sphere within the industry."

With a focus on establishing itself as a globally competitive low-cost airline and bolstering its position in the market, the company will operate primarily from Istanbul Sabiha Gökçen and Ankara Esenboğa Airport starting March 2024.

Envisioning environmentally sustainable operations as part of its long-term vision, the company will enter the "Low Cost" market with an innovative approach. This strategy aims to make air travel services more accessible to a broader audience by translating the cost benefits gained from streamlined service offerings and an economy class configuration into ticket prices.

Porter Airlines Orders 25 Embraer E195-E2s

Porter Airlines has exercised purchase rights to place a firm order for 25 Embraer E195-E2 passenger jets, adding to their 50 existing firm orders. Porter will use the new aircraft to extend its award-winning service to destinations throughout North America. The deal, valued at US$2.1bn at list price, will be added to the Q4 backlog, and brings Porter's orders with Embraer to 75 firm, with 25 purchase rights remaining.

Porter, the North American launch customer for Embraer's E195-E2, has already taken delivery of 24 E195-E2s, and recently announced new destinations including Las Vegas, Miami, San Francisco, and Los Angeles; with destinations in Mexico and the Caribbean also planned. The aircraft are currently deployed from Eastern Canada, with a focus on Toronto Pearson International Airport and Ottawa. Halifax and Montreal are also seeing new services with the E195-E2. Porter has chosen to configure the 146-seat aircraft in a comfortable 132-seat all-economy configuration, with a variety of seat pitches on offer for their guests: 36, 34, and 30 inches.

Michael Deluce, President and CEO of Porter Airlines said, "At Porter, we entered a new era when we began operating the E195-E2 earlier this year. The jet is exceeding our expectations, especially in terms of fuel burn, and delivering an incredible level of customer satisfaction to our passengers with a quiet, comfortable ride. These additional 25 orders enable us to continue extending our reach throughout North America, with more exciting new destinations."

Arjan Meijer, President and CEO Embraer Commercial Aviation, said, "Porter Airlines is an exciting disrupter delivering an elevated passenger experience that's shaking up the North American market. Choosing the E2 to deliver an upgraded service is a huge endorsement of the jet's comfort and capabilities, and a further endorsement of the E2 - the world's quietest and most fuel-efficient single-aisle aircraft."

easyJet Collaborates with RTX to Enhance Operations

Collins Aerospace, an RTX business, is working with easyJet to activate GlobalConnectSM connected aircraft services on more than 330 Airbus aircraft in its fleet. easyJet will become the largest A320 operator in the world to deploy GlobalConnect. This new capability enhances safety oversight, pilot training and operational efficiencies.

The Collins GlobalConnect solution enables the already-installed Flight Operations and Maintenance Exchanger system (FOMAX), jointly developed with Airbus, to provide easyJet valuable insights into its fleet operations, enabling proactive decision-making and more efficient airline operations.

The adoption of this data exchange and analytics capability also brings the potential to simplify the avionics architecture, leading to further fuel efficiency gains through the gradual removal of quick access recorders. The airline projects that cutting this additional weight could save up to 500 tonnes of carbon per year when rolled out fleet-wide.

"We are constantly seeking innovative solutions that enable our aircraft to be more connected," said Jane Ashton, director of Sustainability, easyJet. "Collins' GlobalConnect is one of the many initiatives we will use to drive operational efficiencies across our fleet and to help reduce our emissions."

"The FOMAX system in conjunction with GlobalConnect is designed to empower airlines with comprehensive data-driven insights, allowing them to enhance their operations and passenger experience," said Jen Schopfer, president of Connected Aviation Solutions, Collins Aerospace.

GlobalConnect services across easyJet's fleet will be progressively activated in the coming months, starting before year-end 2023. This marks a significant milestone in easyJet's digital transformation journey and underscores the airline's dedication to embracing cutting-edge technologies that benefit its passengers and the environment.

Hamburg Airport Joins International “Hydrogen Hub at Airport” Network

Hamburg Airport has become the first German and the 12th member of the international "Hydrogen Hub at Airport" network, to promote the further expansion of hydrogen infrastructure in aviation. The network's membership already includes members from the airports, airlines and energy sectors in 11 countries including France, the USA, UK, Singapore, Japan, South Korea and New Zealand. The aim of the international network is to research, develop and expand the infrastructure for the use of hydrogen.

"We welcome Hamburg Airport as the latest “Hydrogen Hub at Airport” member. Hamburg Airport's expertise in Hydrogen will be an invaluable asset in our ZEROe Ecosystem journey to build a future where aviation will be powered by decarbonised hydrogen. The journey to prepare airport infrastructure to support hydrogen and low carbon aviation begins on the ground with these partnerships. The growing involvement of airports worldwide, including Hamburg Airport, in

© Hamburg Airport

Christian Kunsch, Managing Director of Hamburg Airport, Nicole Dreyer-Langlet, responsible for research and technology at Airbus in Germany, Michael Eggenschwiler, CEO of Hamburg Airport, Karine Guenan, Head of ZEROe Ecosystem at Airbus sign the cooperation agreement.

Airbus' “Hydrogen Hub at Airport” concept will be key to deploying hydrogen-powered aircraft by 2035," said Karine Guénan, Vice President ZEROe Hydrogen Ecosystem.

The use of hydrogen to power future aircraft should not only significantly reduce emissions in the air, but also contribute to the decarbonisation of aviation infrastructure on the ground. In 2020, Airbus launched the Hydrogen Hub at Airports programme to drive research into infrastructure requirements and low-carbon airport operations across the value chain. The cooperation in Hamburg includes Linde as well, a leading global industrial gases and engineering company.

“We are thrilled that Hamburg Airport is working together on equal terms with such international hubs as Paris - Charles de Gaulle and Changi Airport in Singapore as we make these decisive preparations for an energy transition in air travel,” said Michael Eggenschwiler, CEO of Hamburg Airport, at the signing of the cooperation agreement. “I am very proud of that fact, and also of the pioneering work of our staff, who have been pouring their hearts into laying the foundations for this work over many years.”

Airbus presented its ZEROe concept aircraft in 2020 and the development of the corresponding technology building blocks is now being driven forward in a global R&T network focussing on the development of hydrogen technology for future commercial aircraft.

IGA-Istanbul Airport and Singapore Airlines Collaborate to Promote Environmental Sustainability

As part of their collaboration with İGA Istanbul Airport, Singapore Airlines recently hosted a workshop at the iGA Istanbul Airport Zero Waste Center, centering on waste management. This collaborative event showcased the joint dedication of both entities toward sustainability and environmental stewardship, aligning with the European Waste Management Week.

Attended by students from Istanbul Aydın University, Istanbul Gelişim University, and Istanbul Commerce University, the workshop emphasized effective waste management and the art of upcycling through hands-on experiences. Students engaged with industry professionals, gaining insights into waste processes at İGA Istanbul Airport.

Following a tour of the İGA Istanbul Airport Zero Waste Center, a workshop led by artist and designer Pınar Akkurt, specializing in upcycling, took place. Participants creatively designed products using recycled materials.

Expressing enthusiasm about the event, Hongyao Hu, General Manager of Singapore Airlines Turkey, shared, "We take pride in spearheading initiatives that educate and empower the younger generation to actively engage in sustainable practices. Our collaboration with İGA Istanbul Airport aims to foster a culture of environmental sustainability."

Fırat Emsen, Deputy General Manager of Technical Services at İGA Istanbul Airport, emphasized, "As a crucial global transfer hub, we are dedicated to implementing technologies and practices that safeguard environmental values while enhancing economic efficiency. Our commitment lies in making aviation more sustainable, ensuring a better planet for generations to come. Our collaboration with Singapore Airlines in this waste management workshop perfectly aligns with our core values. It's gratifying for İGA Istanbul Airport to play a role in the European Waste Management Week, introducing students to our upcycling practices."

This event served as a platform for Singapore Airlines and İGA Istanbul Airport to share their mutual commitment to advancing sustainability and fostering a greener future in aviation, particularly among younger generations

Leonardo's AW09 Achieves Global Market Success, Expands into Europe

The number of global partners for the AW09 next-generation single-engine helicopter in the world market grows further with the announcement at European Rotors (Madrid, 28-30 November) of the addition of Léman Aviation, who has signed Preliminary Sales Contracts for ten units.

Léman Aviation offers tailored solutions for customers looking for personal and professional management of their private helicopter needs: sales and acquisitions, co-ownership program, helicopter operations and charter management, maintenance, and training. Headquartered in Switzerland and France with a strong presence in Monaco and the French Riviera, Léman Aviation delivers world-class helicopter services at the industry's highest standards.

Léman Aviation joins the consensus around the AW09 programme and market potential as established European distributors of Leonardo helicopters are discussing extending their collaboration and distributorship mandates to include the AW09 in the continent. With this latest achievement, the AW09 world market success extends to Europe following announcements of partnerships and distribution agreements already made in North and Latin America, Africa and Asia in 2023, some leading to end-user orders. The total number of Preliminary Sales Contracts would reach 80 units globally by year-end.

"The AW09 continues to generate a very positive response from all geographies worldwide as the programme development progresses," said Gian Piero Cutillo, Managing Director of Leonardo Helicopters. "Rotorcraft companies highly welcome the AW09 for its outstanding characteristics and multirole capabilities that represent a significant evolution compared to existing products in this category. The additional preliminary sales contracts signed now in Europe provide clear evidence of it."

“We are thrilled to partner with Leonardo on the AW09 programme. This milestone allows Leman Aviation to strengthen its helicopter service portfolio ranging from charter flights, fractional ownership and asset management to aircraft transactions," said Vincent Pollet and Nicolas Miras, co-founders of Leman Aviation. "The launch of the AW09 programme in France comes with tremendous interest from the market, and we look forward to addressing it with this state-of-the-art single-engine helicopter.”

The AW09 perfectly complements Leonardo’s product range in the Long Light Single-segment, introducing an all-new design aircraft to sustain long-term competitive positioning in this weight category. A full-scale mock-up of the final configuration is on display at the Leonardo booth at European Rotors, attracting lots of interest within the rotorcraft community thanks to its distinguished features in cabin space and ergonomics, external footprint, and latest-generation avionics and technology.

SunExpress and South African Airways Expand Their Partnership

SunExpress, a joint venture of Turkish Airlines and Lufthansa, has signed a memorandum of understanding (MoU) with South African Airways (SAA) to double its capacity for the upcoming winter. The leisure carrier will support the national carrier's operations with four aircrafts in the winter season 2024/2025.

The MoU is an add-on to the current six-month damp lease agreement, which was started in October this year and include the lease of two Boeing 737-800s as well as maintenance and cockpit crew. The MoU was signed by SunExpress CEO Max Kownatzki and SAA CEO Prof. John Lamola, at a joint press event in Johannesburg, South Africa, on 14 December.

In addition to plans to double the number of damp lease aircraft in the winter season 2024/2025, SunExpress and SAA are currently jointly exploring the options for a multi-year reciprocal capacity support and further cooperation with regards to maintenance, training and commercial support.

"The memorandum of understanding clearly underlines our commitment to further deepen our successful partnership with SAA. We are proud of the trust that SAA is placing in us with the renewed intention to collaborate. We strive to build on this to develop a strong, long-term partnership and leverage more opportunities together in the future", said Max Kownatzki, CEO of SunExpress. "Over the next decade, we will more than double our fleet, reaching a 150-aircraft fleet by 2033. These kinds of partnerships enable us to efficiently utilize our fleet, mitigating the impact of our seasonality."

Prof. John Lamola, CEO of SAA, welcomed the continued cooperation: "SunExpress has proven to be an extremely reliable partner for us in the first few months. We are therefore delighted that this valuable partnership will not only be continued but the scope of the partnership expanded to include additional aircraft for our 2024 holiday peak season. The additional aircraft will support our operations to meet the growing customer demand during peak seasons and mitigate our management of the global aircraft availability crisis."

New route to Port Elizabeth

Within the scope of the current damp lease agreement, SunExpress aircraft are operating 12 domestic flights a day to Cape Town and Durban from Johannesburg. As of 13 December, two daily connections from OR Tambo International Airport in Johannesburg to Chief Dawid Stuurman International Airport in Gqeberha (Port Elizabeth) have been added. This gives travelers even more opportunities to discover the fascinating country or to visit relatives and friends as flexible as possible during the upcoming holiday season.

About SunExpress

Established in Antalya in 1989 as a joint venture of Lufthansa and Turkish Airlines, SunExpress acts as a tourism ambassador between Türkiye and Europe with its 30 years of experience and leisure airline expertise. SunExpress flies to more than 175 destinations in 30 countries with a fleet of 66 aircraft. SunExpress named the 'Europe's Best Leisure Airline' in the latest global survey by Skytrax.

Virgin Atlantic Flies World's First 100% Sustainable Aviation Fuel Flight From London Heathrow to New York JFK

• Flight100 proves Sustainable Aviation Fuel (SAF) is a safe drop-in replacement for fossil derived jet fuel and the only mid-term viable solution for decarbonising long haul aviation

• The flight marks a world first on 100% SAF by a commercial airline across the Atlantic, flown on a Boeing 787, using Rolls-Royce Trent 1000 engines

• Milestone made possible through year of radical collaboration by a Virgin Atlantic-led consortium, including Boeing, Rolls-Royce, Imperial College London, University of Sheffield, ICF and Rocky Mountain Institute, in partnership with Department for Transport

Virgin Atlantic's historic flight on 100% Sustainable Aviation Fuel (SAF) takes off from London Heathrow to New York JFK , marking the culmination of a year of radical collaboration, to demonstrate the capability of SAF as a safe drop-in replacement for fossil derived jet fuel, compatible with today's engines, airframes and fuel infrastructure.

Credit: Virgin Atlantic

SAF has a significant role to play in the

decarbonisation of long haul aviation, and pathway to Net Zero 2050. The fuel, made from waste products, delivers CO2 lifecycle emissions savings of up to 70%, whilst performing like the traditional jet fuel it replaces.

While other technologies such as electric and hydrogen remain decades away, SAF can be used now. Today, SAF represents less than 0.1% of global jet fuel volumes and fuel standards allow for just a 50% SAF blend in commercial jet engines. Flight100 will prove that the challenge of scaling up production is one of policy and investment, and industry and government must move quickly to create a thriving UK SAF industry.

As well as proving the capabilities of SAF, Flight100 will assess how its use affects the flight's non-carbon emissions with the support of consortium partners ICF, Rocky Mountain Institute (RMI), Imperial College London and University of Sheffield. The research will improve scientific understanding of the effects of SAF on contrails and particulates and help to implement contrail forecasts in the flight planning process. Data and research will be shared with industry, and Virgin Atlantic will continue its involvement with contrail work through RMI's Climate Impact Task Force, which is part-funded by Virgin Unite.

The SAF used on Flight100 is a unique dual blend; 88% HEFA (Hydroprocessed Esters and Fatty Acids) supplied by AirBP and 12% SAK (Synthetic Aromatic Kerosene) supplied by Virent, a subsidiary of Marathon Petroleum Corporation.

The HEFA is made from waste fats while the SAK is made from plant sugars, with the remainder of plant proteins, oil and fibres continuing into the food chain. SAK is needed in 100% SAF blends to give the fuel the required aromatics for engine function. To achieve Net Zero 2050, the innovation and investment needed across all available feedstocks and technologies must be harnessed to maximise SAF volumes as well as continuing the research and development needed to bring new zero emission aircraft to market.

Virgin Atlantic is committed to finding more sustainable ways to fly, taking action across every part of the journey. Already operating one of the youngest and most fuel and carbon efficient fleets in the sky, Flight100 builds on the airline's 15-year track record for leading on the development of SAF at scale. Collectively, industry and government must go further, to create a UK SAF industry and meet aviation's 10% SAF by 2030 target, capitalising on the significant social and economic benefits it will bring – an estimated contribution of £1.8 billion in Gross Value Added to the UK and more than 10,000 jobs.

Shai Weiss, Chief Executive Officer, Virgin Atlantic said: "Flight100 proves that Sustainable Aviation Fuel can be used as a safe, drop-in replacement for fossil-derived jet fuel and it's the only viable solution for decarbonising long haul aviation. It's taken radical collaboration to get here and we're proud to have reached this important milestone, but we need to push further.

"There's simply not enough SAF and it's clear that in order to reach production at scale, we need to see significantly more investment. This will only happen when regulatory certainty and price support mechanisms, backed by Government, are in place. Flight100 proves that if you make it, we'll fly it."

Sir Richard Branson, Founder, Virgin Atlantic said: "The world will always assume something can't be done, until you do it. The spirit of innovation is getting out there and trying to prove that we can do things better for everyone's benefit. "Virgin Atlantic has been challenging the status quo and pushing the aviation industry to never settle and do better since 1984. Fast forward nearly 40 years, that pioneering spirit continues to be Virgin Atlantic's beating heart as it pushes the boundaries from carbon fibre aircraft and fleet upgrades to sustainable fuels."I couldn't be prouder to be onboard Flight100 today alongside the teams at Virgin Atlantic and our partners, which have been working together to set the flight path for the decarbonisation of long-haul aviation."

Transport Secretary Mark Harper said: "Today's historic flight, powered by 100% sustainable aviation fuel, shows how we can both decarbonise transport and enable passengers to keep flying when and where they want. "This Government has backed today's flight to take-off and we will continue to support the UK's emerging SAF industry as it creates jobs, grows the economy and gets us to Jet Zero."

Sheila Remes, Vice President of Environmental Sustainability, Boeing said: "In 2008 Virgin Atlantic and Boeing completed the first commercial SAF test flight on a 747 and today we will accomplish yet another significant milestone utilising a 787 Dreamliner. This flight is a key step toward our commitment to deliver 100% SAF-compatible airplanes by 2030. As we work toward the civil aviation industry's net-zero goal, today's historic journey highlights what we can achieve together."

Simon Burr, Group Director of Engineering, Technology & Safety, Rolls-Royce plc, said: "We are incredibly proud that our Trent 1000 engines are powering the first ever widebody flight using 100% Sustainable Aviation Fuel across the Atlantic today. Rolls-Royce has recently completed compatibility testing of 100% SAF on all our in-production civil aero engine types and this is further proof that there are no engine technology barriers to the use of 100% SAF. The flight represents a major milestone for the entire aviation industry in its journey towards net zero carbon emissions."

"We're on the brink of a sustainable revolution in travel," said Thomas Woldbye, Heathrow's CEO. "Virgin Atlantic's flight powered by 100% SAF is evidence that it can be done. We should grab the opportunity with both hands and enable a domestic SAF industry. The UK has the resource and the skills, and now the industry needs to work alongside Government to couple this with policies which scale up SAF production, mandate increasing SAF use and introduce a price stability mechanism."

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