

REGIONAL GREEN AIRPORTS SEMINAR

Hosted by the Ministry of Transport of the Republic of
Uzbekistan



**SAF at Airport: Decarbonization of Aviation in the Context of Global
Climate Frameworks**





Presenter name

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Presentation Overview

01

Aviation Growth

Rising demand and the net zero challenge

02

Climate Frameworks

ICAO, CORSIA and European requirements

03

The SAF Supply Gap

Production today and demand through 2050

04

Regional SAF Projects

Developments across Central Asia and Türkiye

05

AZAL's SAF Experience

European airport supply and procurement

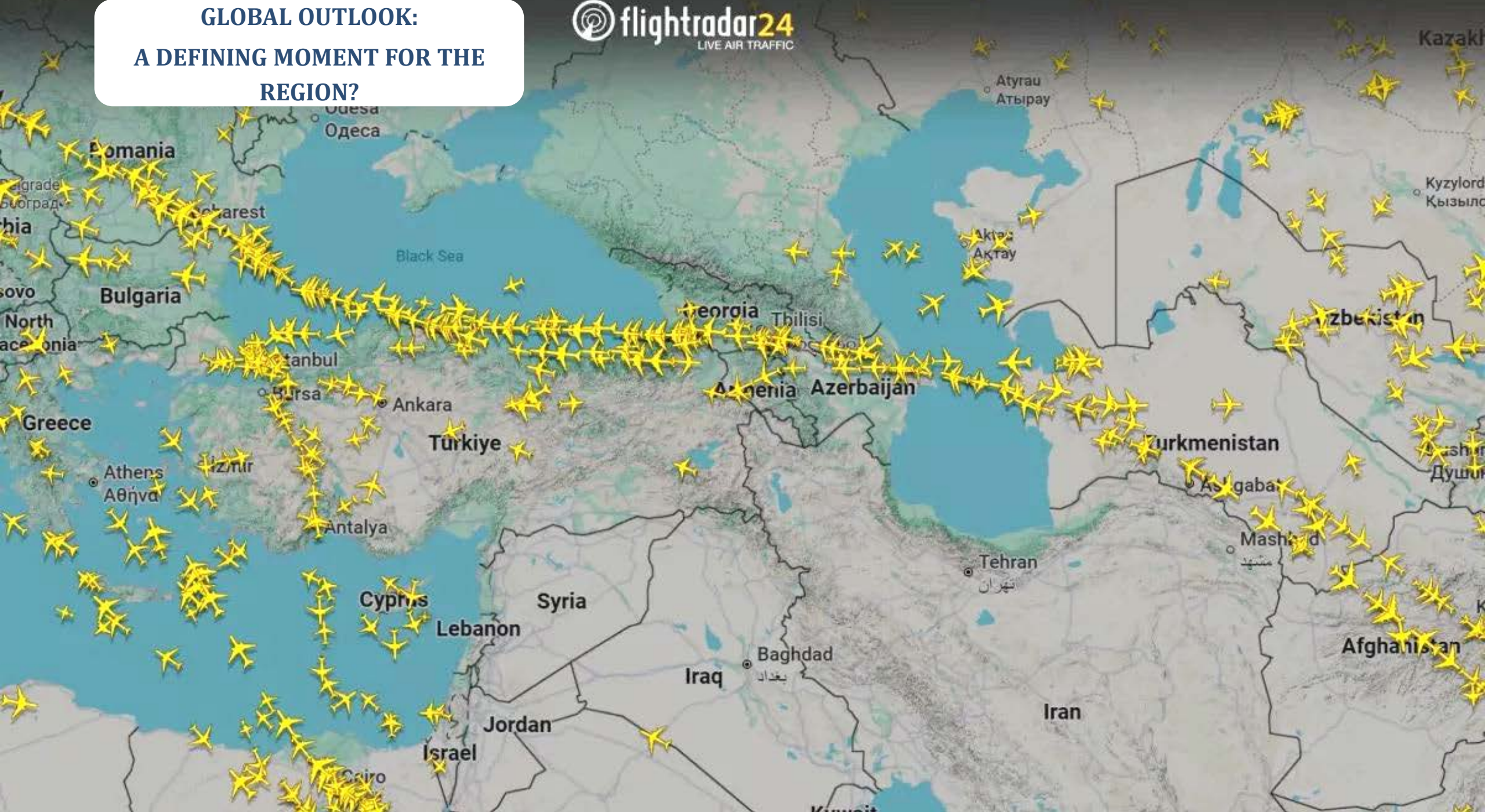
06

AZAL's NZE Roadmap

ESG and Decarbonization Plan
Partnerships and SAF Feasibility Project

**GLOBAL OUTLOOK:
A DEFINING MOMENT FOR THE
REGION?**

flightradar24
LIVE AIR TRAFFIC



AVIATION GROWTH TOWARDS 2050: THE NET ZERO CHALLENGE?

A unique industry - we must be ready for the immediate future

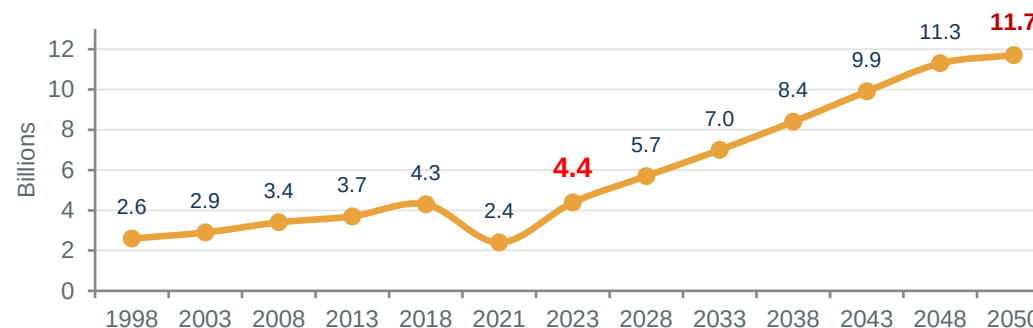
9.7bn

Projected world population by 2050, up from 8bn today. Much of that growth comes from the global south, which currently has a lower propensity to fly.

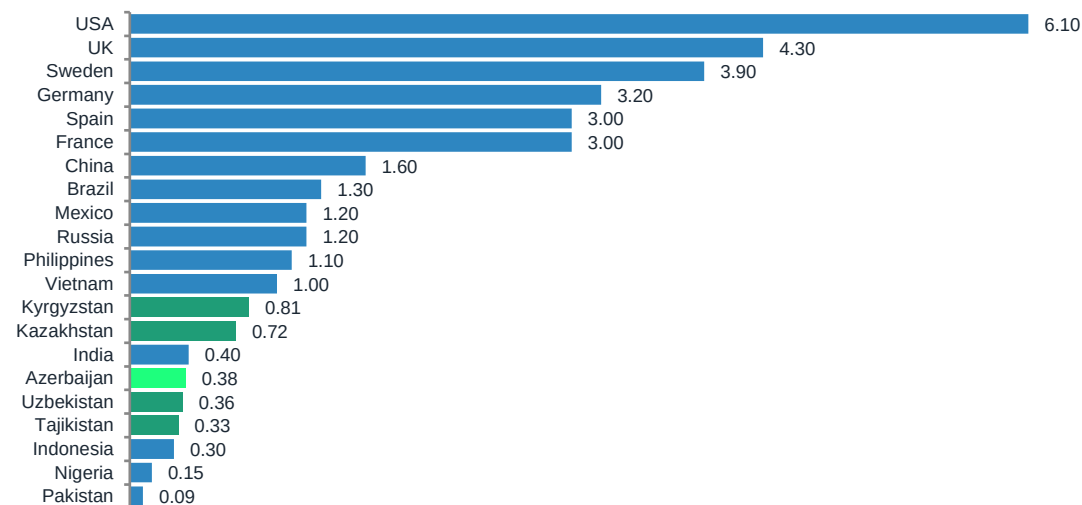
11.7bn

Projected global air passengers by 2050 vs. 4.4bn today. Demand in 2050 will be more than 2.5x what it is today.

Projected Global Air Passengers to 2050 (billions)



Air Trips per Person per Year by Country (2025, incl. Central Asia)



Central Asia— 2025 SNAPSHOT

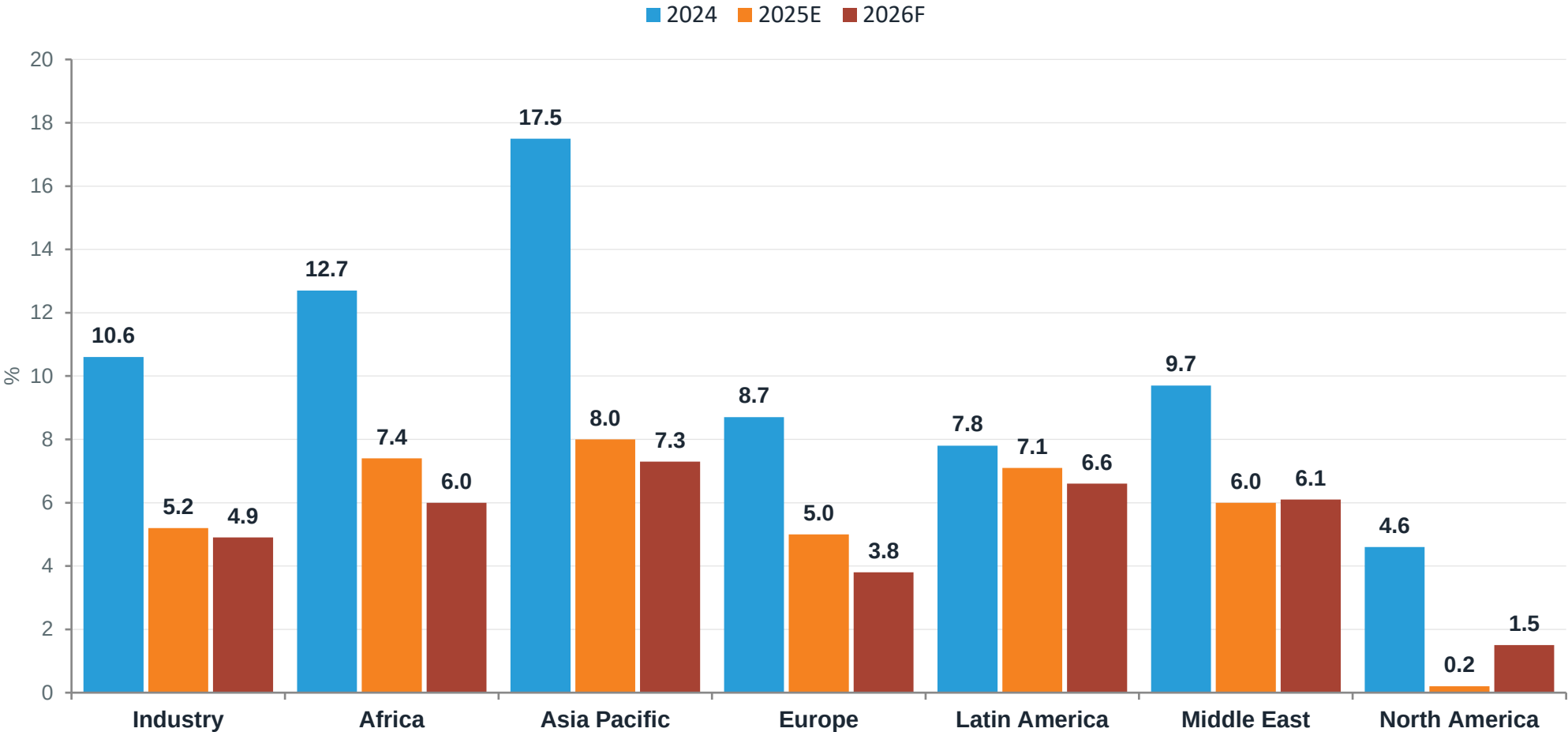
- **~83.6 million people** across the five Central Asian countries in 2025 - a sizeable and growing aviation market.
- **Kazakhstan: 31.8 million airport passengers in 2025**, up from 29.7 million in 2024; Kazakh carriers transported 15.4 million passengers.
- **Uzbekistan: 15.5 million airport passengers in 2025**, approximately **15% growth YoY**; 128,972 flights were operated.
- **Kyrgyzstan: 6.05 million airport passengers in 2025**, a new national record.
- **Kazakhstan and Uzbekistan were among the world's fastest-growing passenger markets in 2025**, according to IATA.

Source: IATA & Air Transport Action Group (ATAG), Net Zero by 2050 – A Global Ambition for Aviation, 2024 · iata.org/en/pressroom/2024-releases/2024-06-03-01

Note: The values in the second chart show the estimated average number of air trips per person in 2025 for each country. These figures are based on total air passengers relative to population and reflect higher flying frequency in developed, high-income countries with mature aviation markets. Let me know if you'd like this calculated for Azerbaijan or another country.

PASSENGER TRAFFIC GROWTH BY REGION

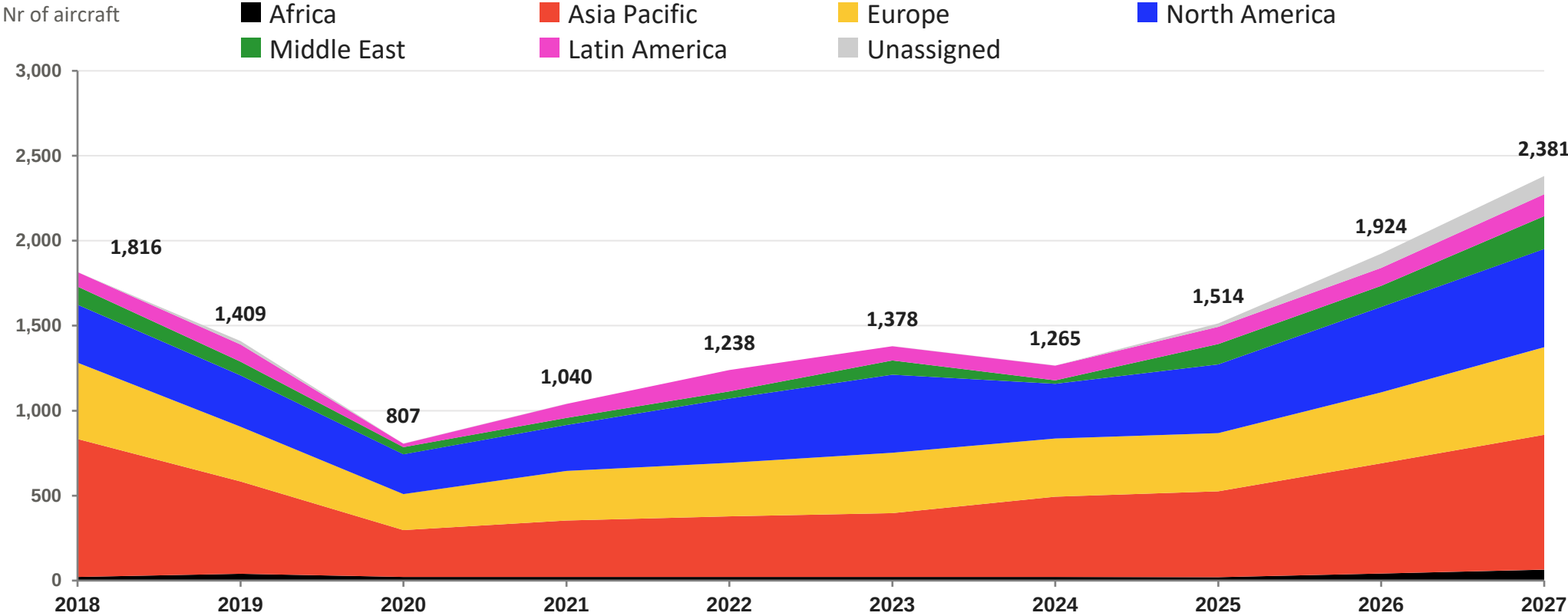
% year-on-year passenger traffic growth, by region



Source: IATA Sustainability and Economics

Production will accelerate in 2026 and 2027

Aircraft delivery by region



Source: IATA Sustainability and Economics, Cirium Fleets Analyzer.

* February 2026 update

Aviation in Central Asia

Kazakhstan leads a fast-growing, increasingly competitive regional market

KZ Kazakhstan — long-time regional leader

PASSENGER TRAFFIC (2025)

15.4M

Passengers nationwide

New: Astana–Tokyo direct flights planned with new A320 orders, backed by a Japanese infrastructure partnership

AIR ASTANA

9.7M

Largest carrier, 63-aircraft fleet

ALMATY (ALA)

11.9M

Busiest airport in the region

REGIONAL AIRPORTS (2025)

32M

Total passengers handled

Headwinds: growing domestic competition, shortage of MRO facilities

UZ Uzbekistan

World's fastest-growing aviation market - OAG, Dec 2025

- **~10M** passengers moved through Tashkent in 2025 - nearly its 2030 capacity target already
- **180 aircraft** and 24M annual passengers targeted by Uzbekistan Airways by 2030
- **New Tashkent airport**, built with a Saudi, Japanese and South Korean consortium, opens in 2030
- **16 → 47** airlines now serve the country, up from 2015
- **IPO** of the national carrier planned for 2027

KG Kyrgyzstan

Removed from the EU air safety blacklist in June 2026, after 20 years

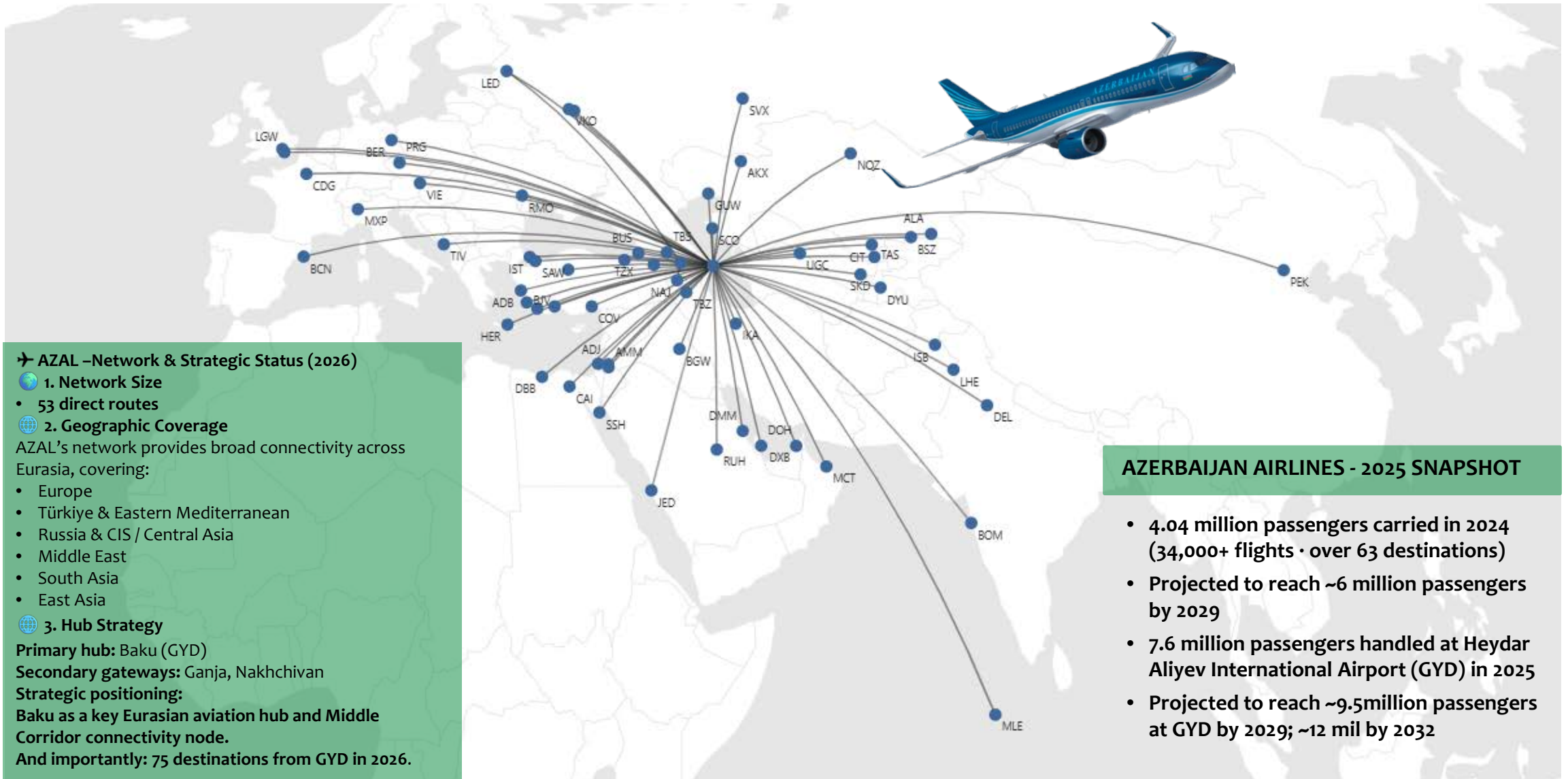
- **3.9M → 6M+** passenger traffic growth, 2021 to 2025
- **21 → 8** active airline certificates, as regulators tightened safety oversight
- **Manas Airport** expanding its terminal by 18,000 sqm and resurfacing the runway
- **2 new Airbus A321s** added by Asman Airlines
- **New EU routes** to Germany now within reach

TJ Tajikistan

First Boeing 737 MAX delivered to Somon Air in August 2026

- **Up to 14 aircraft** on order, mixing 737 MAX and 787 Dreamliners
- **New long-haul routes** planned to London, Seoul and Beijing
- **Open Skies** policy from 2025 lifted many market-access restrictions
- **Shohin Airlines**, a new private carrier, is acquiring four A320neo jets
- **297,000** passengers in Q1 2026, up 20,000 year on year

Source: CentralAsia+Aero, IATA, OAG, Boeing, European Commission (Aug 2026)



Azerbaijan Airlines Goals by 2032



FLEET

Aircraft Types:

2-3

Average Aircraft Age:

5-6 years



PASSENGER TRAFFIC

x2

Increase by more
than 2 times



ROUTE NETWORK

81

Expansion to
81 destinations
by 2032



PROJECTED PASSENGERS
(AZAL):

6 M

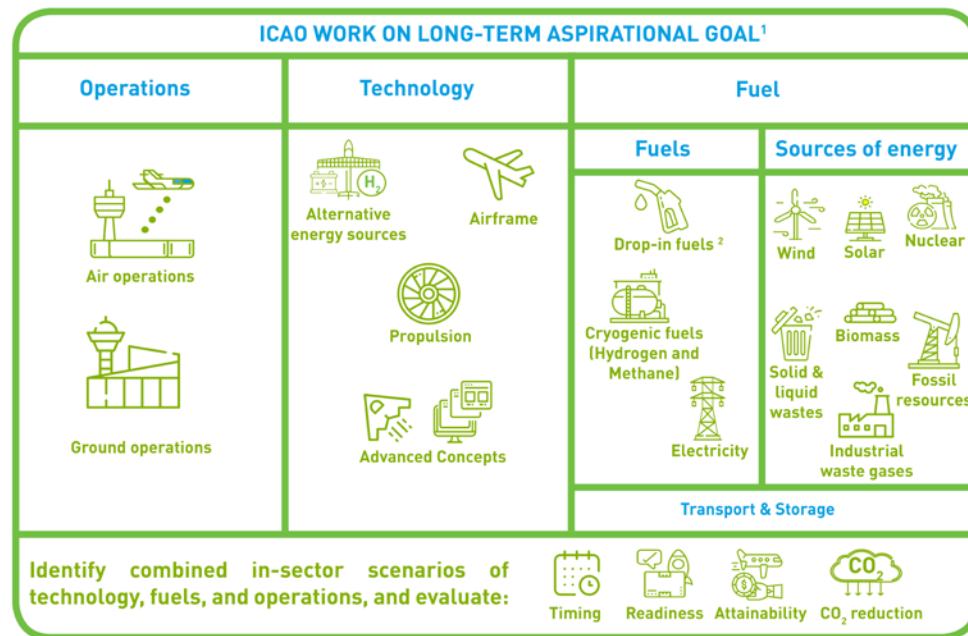
IN 2029



ICAO and IATA Net Zero Roadmaps and Decarbonization Pathway



Long term global aspirational goal (LTAG) for international aviation

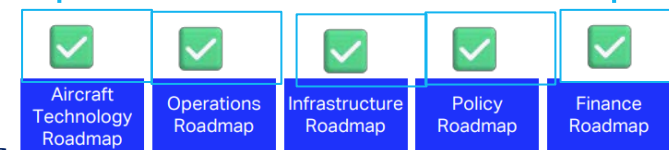


¹ This work should identify and evaluate existing, foreseen, and innovative in-sector measures in technology, fuels and operations, and their enablers, including information of probable costs. This will assist in identifying gaps, and information and expertise needed, in order to complete a thorough assessment of all in sector CO₂ reductions for international aviation. This should include timing, readiness, attainability and the quantity of CO₂ reduction possible, based on a feasible roll out into the aviation sector.
² Sustainable Aviation Fuels (SAF), Low Carbon Aviation Fuels (LCAF), E-Fuels. Icons made by Freepik from www.flaticon.com

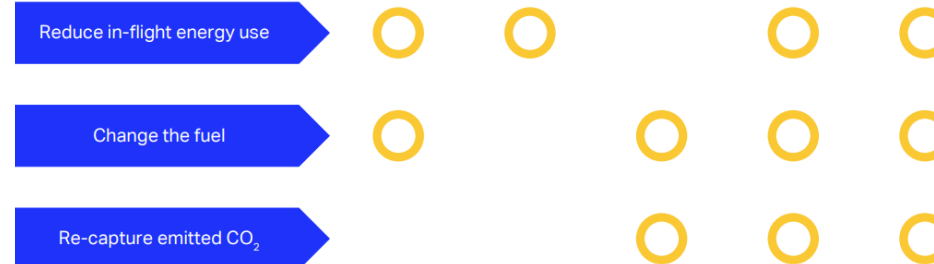
Source: <https://www.icao.int/environmental-protection/LTAG>



AZAL is progressing in:

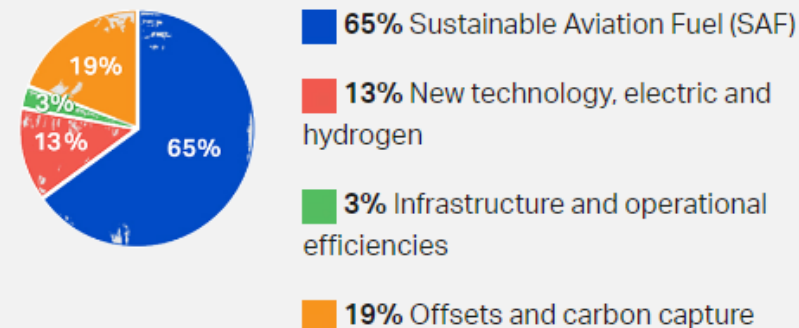


Five NZE Roadmaps



Source: IATA Sustainability and Economics

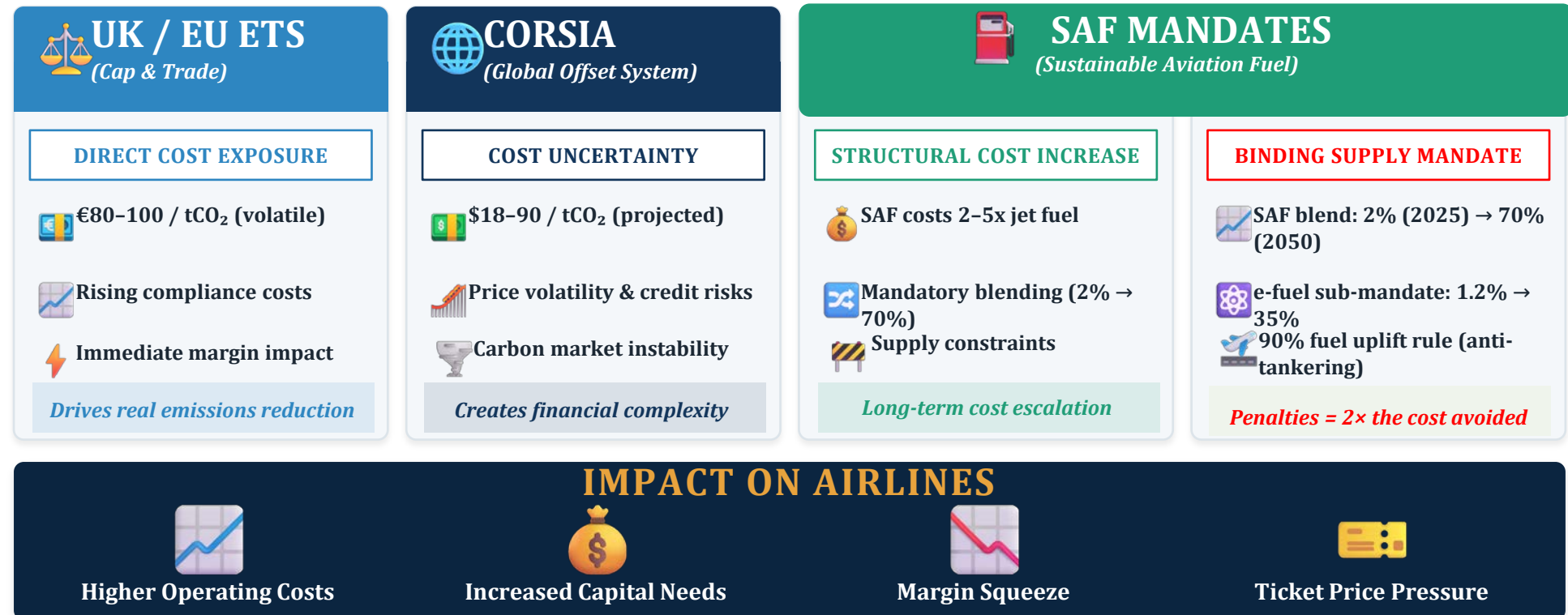
Achieving net zero by 2050 will require a combination of maximum elimination of emissions at the source, offsetting and carbon capture technologies.



Source: <https://www.iata.org/en/programs/sustainability/roadmaps/>

REGULATORY PRESSURE = FINANCIAL RISK

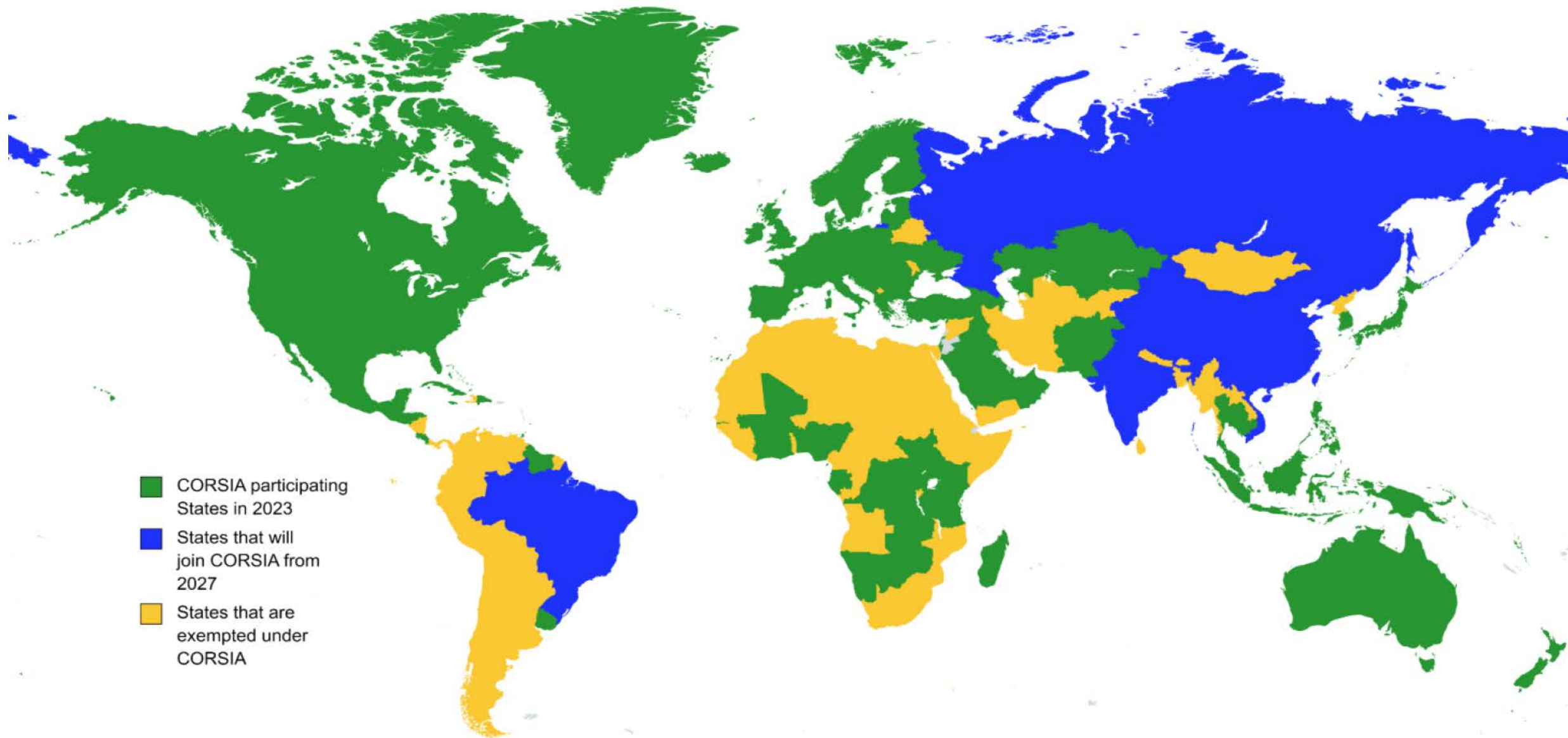
Decarbonization in aviation is no longer voluntary - it directly impacts cost, capital allocation, and competitiveness.



ESG is now a core financial and strategic risk for airlines.

Sources: EU ETS (EU ETS Directive); ICAO CORSIA; ReFuelEU Aviation, Regulation (EU) 2023/2405.

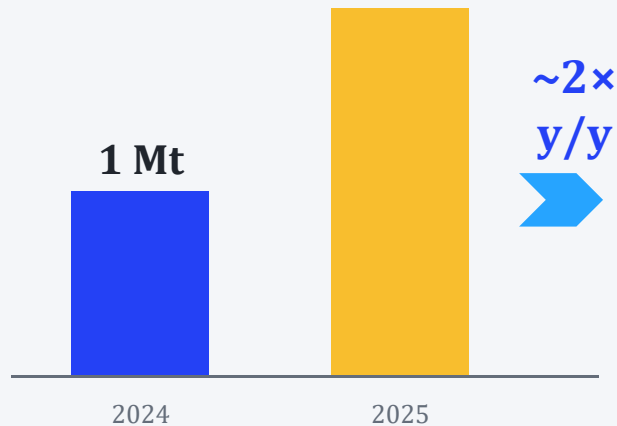
CORSIA: 130 States have volunteered (2026)



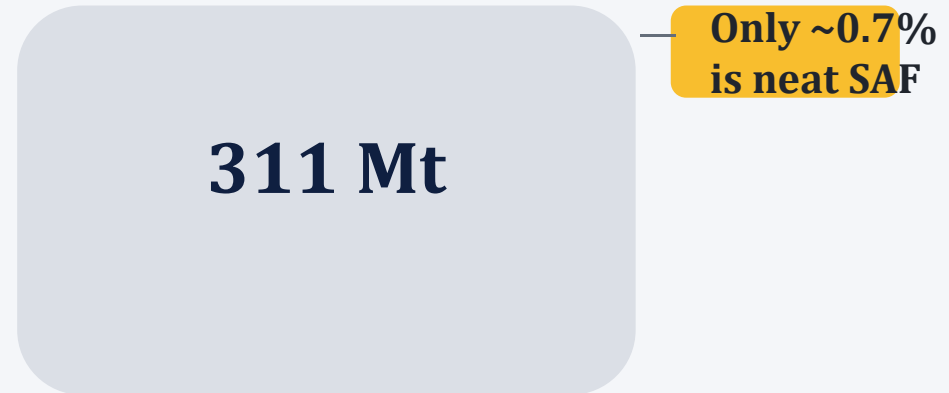
SAF production status

Global supply is growing rapidly, but remains a fraction of total jet fuel demand

Estimated global SAF production



Jet fuel consumption in 2025



Source: IATA Sustainability and Economics

KEY TAKEAWAY

SAF production is expected to double in 2025, yet supply remains very small relative to the jet fuel pool.

Around 1.2 Mt of SAF is required to meet EU and UK mandates in 2025.

Source: IATA Sustainability and Economics

SAF demand pathway to net zero

IATA's net-zero trajectory requires an exponential scale-up in sustainable aviation fuel supply



KEY TAKEAWAY

The 2040 figure is ~111 Mt — not 70 Mt — in IATA's published net-zero trajectory.

That is roughly 58× 2025 SAF output, illustrating the scale of the supply challenge.

Source: IATA Sustainability & Economics, Net Zero Roadmaps / Finance Net Zero Roadmap (2024); IATA SAF updates (2025–2026). ICAO LTAG supports net-zero international aviation by 2050 but does not set a single 2040 SAF tonnage target.

Regional SAF development landscape

Türkiye, Kazakhstan, Uzbekistan and Azerbaijan

TÜRKİYE Commercialization phase  ■ SAF production from 2026 ■ Turkish Airlines SAF offtake agreements ■ National SAF policy development ■ Focus on domestic SAF supply Build domestic supply and meet regulatory requirements	KAZAKHSTAN Development phase  ■ First SAF projects in development ■ Partnership with LanzaJet ■ Bioethanol-to-SAF pathway ■ Feedstock assessment ongoing Develop production capacity and the supporting ecosystem	UZBEKISTAN Advanced development phase  ■ \$6.1B SAF and e-SAF project (Allied Biofuels) ■ Engineering agreement with Sinopec Engineering ■ Targets: 160,400 t SAF; 257,000 t e-SAF; 5,040 t green diesel ■ 4.45 GW renewable system with green hydrogen and storage Build Central Asia's first large-scale integrated SAF complex	AZERBAIJAN Opportunity phase  ■ SAF feasibility study underway ■ AZAL-led SAF Working Group ■ IRENA CIP application submitted ■ Regional SAF hub concept on the Middle Corridor Build the foundations for domestic SAF production and a regional supply hub
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Turkish Airlines' support for SAF production in Türkiye

Equity investment, refinery planning and R&D partnerships supporting domestic SAF supply.

 40% equity stake (~\$42M) in the biofuel producer, with priority access to SAF as output ramps up.	 Refiner supplying 74% of Türkiye's jet fuel demand; LOI for planned SAF production at İzmir.	 MoU signed; R&D activities launched in 2025 for a joint SAF project.	 TURKISH AIRLINES  SOCAR STAR refinery owner and operator in İzmir; MoU covering technical infrastructure and SAF R&D.
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Source: Company disclosures and public statements — Turkish Airlines, AZAL, Allied Biofuels, LanzaJet, SOCAR, Tüpraş and Çalık Renewables (2024–2026).

SAF readiness at AZAL's European destinations

Six airports in AZAL's network have registered SAF suppliers

Country	AZAL destination	Registered SAF supplier
Germany	Berlin	Yes
France	Paris (CDG)	Yes
Italy	Milan	Yes
Austria	Vienna	Yes
Czechia	Prague	Yes
Spain	Barcelona	Yes

≈250 tonnes

blended SAF procured

≈€570,000

reported procurement spend

AZAL-reported figures; confirm period, blend basis and supplier status before external circulation.

AZERBAIJAN SAF WORKING GROUP

Roles, responsibilities and outputs in Azerbaijan

WORKING GROUP MEMBERS

AZCON Holding Overall management, Investment mobilization	Azerbaijan Airlines Airline demand and SAF implementation	Airport (GYD) Airport infrastructure and SAF readiness
AZAL Oil Fuel supply infrastructure	AHK Azerbaijan Industry connections and business partnerships	Asian Development Bank (ADB) Technical assistance and investment support
Siemens Energy Technology expertise and pathways	SOCAR Green Renewable energy and opportunities	Silk Way West Airlines Cargo sector demand assessment
State Agency for Renewable Energy Sources Leverage resources and project development	SOCAR Downstream Management LLC Investment and technologies	State Civil Aviation Agency Flight regulations and coordination

FOUR THEMATIC TASK FORCES

FEEDSTOCK & TECHNOLOGY

Feedstock assessment
Technology screening
SAF production pathways
e-SAF opportunities

MARKET & REGULATION

ReFuelEU Aviation
CORSIA requirements
EU ETS / UK ETS
SAF demand forecasts

INFRASTRUCTURE & LOGISTICS

Fuel storage assessment
Blending infrastructure
Supply chain logistics
Airport readiness

FINANCE & INVESTMENT

Business case development
Financial modeling
Climate finance opportunities
IRENA CIP engagement
Investor outreach

OUR PURPOSE

Develop a sustainable aviation fuel (SAF) ecosystem in Azerbaijan through collaboration, innovation and strategic partnerships.

KEY DELIVERABLES

- 01 Azerbaijan SAF Feasibility Study
- 02 Regional SAF Hub Development Roadmap
- 03 Feedstock Assessment Report
- 04 Investment & Financing Strategy
- 05 Pilot Project Pipeline
- 06 Bankable SAF Investment Concept

AZERBAIJAN SUSTAINABLE AVIATION FUEL (SAF) FEASIBILITY STUDY & REGIONAL SAF HUB DEVELOPMENT INITIATIVE

VISION Position Azerbaijan as a leading SAF and sustainable aviation hub connecting Europe, Central Asia, the Caucasus and the Middle Corridor.



Heydar Aliyev International Airport

WHY AZERBAIJAN?

- 01 Strategic location between Europe and Asia
- 02 Strong energy infrastructure and renewable energy potential
- 03 Growing aviation, logistics and cargo connectivity
- 04 Gateway along the Middle Corridor and CAREC region
- 05 Regulatory pressure from CORSIA, ReFuelEU, EU ETS and UK ETS

PROJECT SCOPE

- 01 SAF production assessment
- 02 Feedstock and supply chain mapping
- 03 Airport storage and blending infrastructure assessment
- 04 Renewable energy and e-SAF potential analysis
- 05 Regional SAF hub and logistics evaluation
- 06 Climate finance and investment readiness

KEY DELIVERABLES

SAF Ecosystem Feasibility Study	Regional SAF Hub Development Roadmap	Airport Infrastructure Assessment
Investment & Financing Strategy	Environmental & Social Assessment Framework	Bankable Future SAF Project Pipeline

STRATEGIC OUTCOME

Lay the foundation for Azerbaijan’s first SAF ecosystem and position Baku and Heydar Aliyev International Airport as a future regional SAF hub for sustainable aviation and green transport connectivity.

FEASIBILITY STUDY Technical and market assessments	INVESTMENT ROADMAP Business cases and financing strategy	SAF ECOSYSTEM Infrastructure, feedstock, production and logistics	REGIONAL SAF HUB Sustainable aviation leadership for the region and beyond
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SAF ecosystem development: potential areas of project intervention



AZAL's ESG objectives and four pillars



ESG strategy and roadmap

Sustainability agenda and pathways to ESG impact and business value

ESG data, reporting and risk management

System of record to measure, report and operationalize the sustainability roadmap

01 Low-carbon flight operations

- 1.1 Fleet renewal and modernization
- 1.2 Flight operations efficiency enhancement
- 1.3 Operational efficiency and routing optimization
- 1.4 Weight and turnaround optimization
- 1.5 Sustainable aviation fuel (SAF)
- 1.6 Fleet smart solutions

02 Sustainable ground and infrastructure

- 2.1 Ground facilities renewal and modernization
- 2.2 Clean energy integration
- 2.3 Smart airports and AI solutions
- 2.4 Circular economy and water management
- 2.5 Sustainable building and certification

03 Integrated governance and sustainable investment

- 3.1 ESG governance and accountability
- 3.2 Central ESG data management system
- 3.3 Sustainable finance and investment mechanisms
- 3.4 Innovation and global positioning
- 3.5 Inclusive human capital and ESG capacity excellence

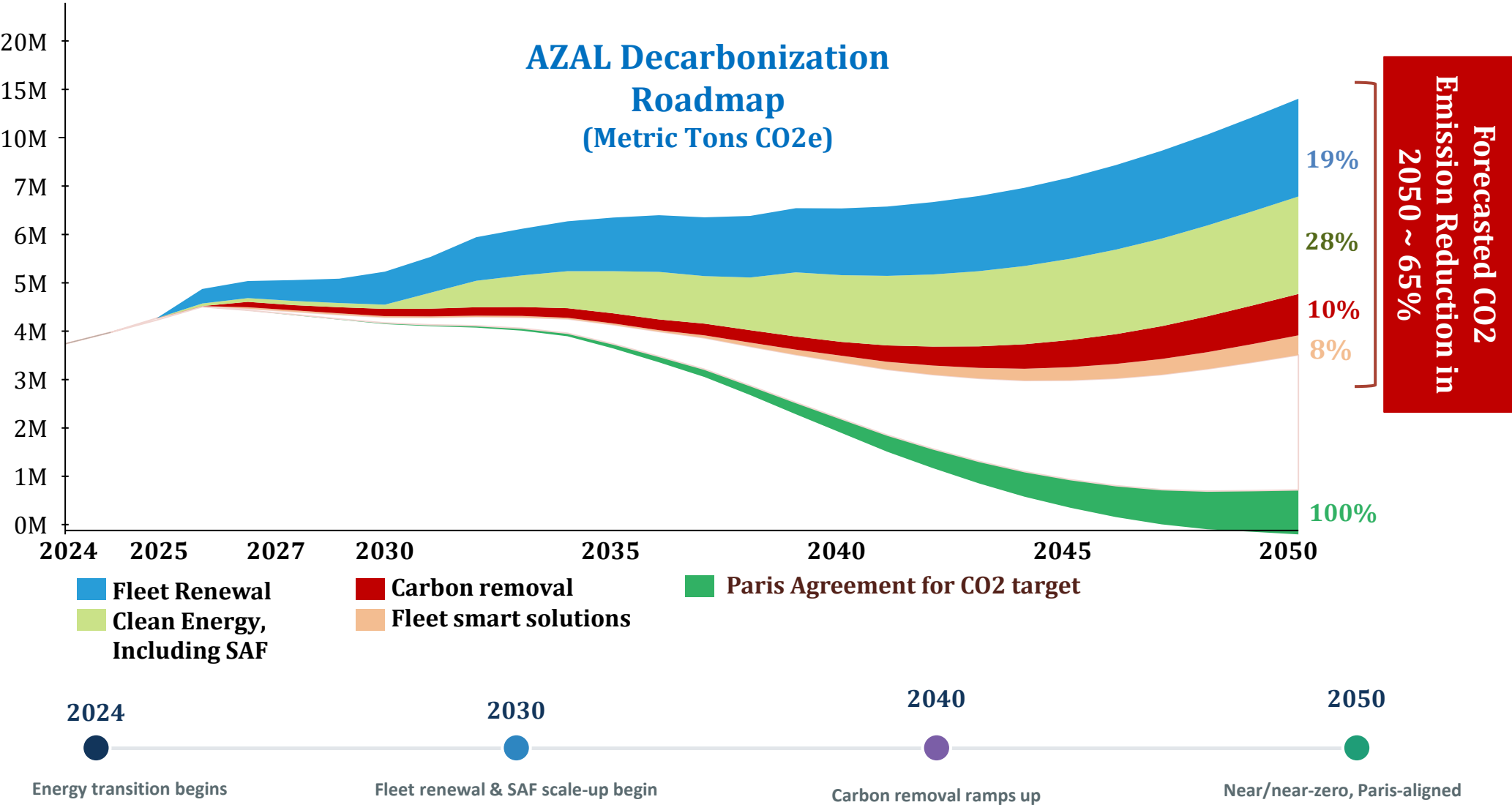
04 Biodiversity conservation and climate resilience

- 4.1 Environmental assessment and resilience
- 4.2 Ecosystem restoration and wildlife protection
- 4.3 Community engagement and awareness
- 4.4 Green partnerships and climate transparency

Four pillars spanning aviation operations, ground infrastructure, governance and nature-related resilience.

AZAL's roadmap to net/near zero GHG emissions by 2050

General view · forecasted reduction pathway vs. Paris-aligned target, 2024–2050





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Thank You



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