AVIATION
BENEFITS
BEYOND
BORDERS

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THE ROLE OF CIVIL AVIATION IN THE UNITED NATIONS DECADE OF SUSTAINABLE TRANSPORT

How air transport contributes to sustainable development around the world

ATAG is supporting the United Nations Decade of Sustainable Transport

ATAG
AIR TRANSPORT ACTION GROUP

United Nations
Decade of
Sustainable Transport
2026–2035

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FOREWORD

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Aviation is more than just a mode of transport. It is a catalyst for economic development and social progress, supporting 86.5 million jobs around the world and accounting for 3.9% of global economic activity. Air transport fosters tourism and trade and opens pathways for international business and cultural exchange.

The United Nations Decade of Sustainable Transport, beginning in 2026, offers a defining moment for not only the aviation community but the entire global transport sector to raise awareness of mobility's crucial role in contributing to the Sustainable Development Goals and to advance these goals globally beyond 2030. For civil aviation, it is a chance to reaffirm its commitment in fostering sustainable development around the world and to put a spotlight on the socio-economic and environmental benefits of those measures, resources and partnerships that organisations across the air transport value chain are driving forward.

> **For civil aviation, the UN Decade of Sustainable Transport is a chance to reaffirm its commitment in fostering sustainable development around the world.**

Aviation provides lifelines for remote communities, supports emergency and humanitarian efforts and provides the very foundation for keeping the world moving. These contributions are reflected across the Sustainable Development Goals, from reducing inequalities and supporting decent work, to enabling innovation, global partnerships and economic growth. As we look ahead to the Decade, it is vital that these wider societal benefits guide the future of air transport.

At the same time, the industry is working hard to address its environmental responsibilities to reduce its impact on the climate. As we continue our journey towards net-zero carbon emissions by 2050, we are expanding the use of cleaner fuels and implementing more efficient technologies and operational improvements that will shape the aviation sector of tomorrow. But sustainable transport is more than just efficiency. It is about accessibility, inclusivity, resilience, and the ability of people everywhere to participate in a connected world.

The UN Decade of Sustainable Transport offers a platform to bring these elements together. For aviation, it is an opportunity to articulate what we contribute today and what we can deliver in the years ahead: a global network that supports human development and underpins the social and economic foundation of nations.

This publication highlights those contributions, drawing on insights and perspectives from partners across the air transport community. It aims to demonstrate what the global aviation industry brings to the table over the next decade.

I invite the international community, governments, organisations, and industry leaders across the globe to work with us in shaping a transport future that is inclusive, resilient and more sustainable.

ABOUT THE UN DECADE OF SUSTAINABLE TRANSPORT (2026 – 2035)

United Nations Decade of Sustainable Transport 2026–2035

Transport is the backbone of modern society. It links people to jobs, education, markets and healthcare, and it connects communities to one another. By enabling the movement of goods that fuel businesses and supply chains, transport drives long-term economic growth and shared prosperity. While there is no stand-alone Sustainable Development Goal (SDG) on transport, the global transport sector underpins progress across the entire 2030 Agenda.

In 2023, the United Nations General Assembly declared the UN Decade of Sustainable Transport to start in 2026, recognising that transport is fundamental to achieving the SDGs and to accelerate coordinated action well beyond 2030. For this to happen, all modes of transport – from active mobility such as walking and cycling, to road, rail, public transport, inland waterway and international maritime and aviation – must work together. The UN Decade of Sustainable Transport emphasises inclusive mobility and puts a spotlight on the sector's central role in tackling the global climate and environmental crisis.

Member States asked the United Nations Department of Economic and Social Affairs to develop an Implementation Plan for the Decade, which was presented on 10 December 2025 at the UN headquarters in New York City. This work has been carried out in collaboration with the UN Regional Commissions and in consultation with Member States, the UN system and other key stakeholders. The Implementation Plan will guide global action throughout the UN Decade, helping to advance transport systems that are sustainable, inclusive and resilient. This publication showcases initiatives from across the air transport sector that align with the Implementation Plan, highlighting the concrete actions being taken today to create a more sustainable tomorrow.

Ultimately, the UN Decade of Sustainable Transport is a call for collective action. It invites governments, industry, civil society, financial institutions and the UN system to align their strategies and investments with a shared vision for accessible, efficient, environmentally sustainable and resilient transport. By working together, the global community can use this UN Decade to drive transformative change and ensure that transport becomes a powerful force for sustainable development for generations to come.

FOCUS AREAS FOR TRANSFORMATIVE ACTION THROUGH TRANSPORT

The Implementation Plan provides a shared vision for the UN Decade of Sustainable Transport and outlines six priority areas and the means of implementation needed for transformative action by all relevant stakeholders.

- **Ensure access to sustainable transport for all**
- **Advance low- or zero-carbon, resilient, and environmentally sound transport systems**
- **Enhance efficiency and promote sustainable connectivity and logistics**
- **Shape people-centred urban mobility and liveable cities**
- **Make transport safe and secure**
- **Leverage science, technology, and innovation for sustainable transport**

CIVIL AVIATION SUPPORTS SUSTAINABLE DEVELOPMENT AROUND THE GLOBE

The world is facing enormous challenges: pulling millions of people out of poverty, providing clean habitats, fostering innovation, building stable societies, taking care of an aging population with increased life expectancy and tackling climate change.

In 2015, the world's governments, through the United Nations, agreed on the 2030 Agenda for Sustainable Development to ensure that parts of society are not left behind by the rapid pace of change. This Agenda is framed by 17 overarching Sustainable Development Goals. These are not simply goals for the United Nations system to follow, but a framework for aligned action across all parts of society and the global community.

While there is no stand-alone SDG on mobility, the global aviation industry is aligned with the aims of the 2030 Agenda for Sustainable Development and plays at least some role in supporting 15 out of the 17 SDGs. Through generating connectivity between nations, aviation is a key driver of economic and social development. Over half of all international tourists travel to their destination by air and every year, aircraft carry about a third of global trade goods by value. The global civil aviation sector also has one of the clearest and wide-ranging climate action plans of any global industry with the goal to achieve net-zero carbon emissions by 2050.

The Air Transport Action Group in partnership with Oxford Economics compiles the report *Aviation: Benefits Beyond Borders* on a regular basis to provide a snapshot of the economic and social impact of the global aviation sector and how aviation contributes to sustainable development. The next section provides some key highlights from that report.

Sustainable Development Goals

AVIATION ENABLES ECONOMIC GROWTH ...

86.5
million jobs
Supported by aviation worldwide.

$4.1 trillion
economic impact
Aviation's total global economic impact (including direct, indirect, induced and tourism catalytic).

3.9%
GDP
Global GDP supported by aviation.

Aviation can act as a catalyst for international investment and economic wellbeing, especially in developing states. In studies of regional economies in Indonesia and Brazil, a 10% increase in airport connectivity was shown to support an increase in foreign direct investment of 4.7%.

It is not surprising that the greatest increase in propensity to travel over the course of the decade will be in developing and emerging economies. Data also show that the rate of growth in some so-called south-south routes is increasing at a much higher rate than the global average. The last decade has seen substantially more traffic between China and Africa, for example. In addition, half of the top 20 countries for passenger traffic are now developing or emerging economies.

... KEEPS THE WORLD CONNECTED ...

35.3
million flights
Scheduled commercial flights worldwide, 2023.

67,300
routes
Routes served globally in 2023.

4.4 billion
passengers
Passengers transported, 2023.

8.17
trillion RPK
Scheduled revenue passenger kilometres (RPK), 2023.

33% world trade
Air transport carries around 33% of world trade by value.

58% international tourists
Percentage of international tourists who travel by air.

There are 4,072 airports globally, the best known of which handle millions of passengers each year. However, perhaps some of the most important airports are not very well known at all, except to the small communities they help connect to the outside world. In the Arctic, across vast stretches of wilderness and on small island states all across the world, air services can provide connections to regional centres and the rest of the world that otherwise would not be available and without the need for expensive and challenging road infrastructure development.

Studies have shown that access to air services not only helps remote communities with vital lifeline needs but also economic development, including the ability to attract and retain businesses and professionals, particularly those with travel needs to maintain proficiency in their field.

... AND SUPPORTS SOCIAL DEVELOPMENT ...

Sustainable development is not just about working towards economic progress in an environmentally sustainable way. A significant aspect of this concept is improving the lives of people in ways other than financial prosperity. These socially based ambitions are an important part of the SDGs and are supported in many ways by civil aviation.

For many people all over the globe, the ability to travel to any other country is an invaluable asset, relied on to visit friends and relatives, move abroad for work and study or, of course, go on holiday. Without air transport, being able to travel and experience new countries and cultures would be far more difficult. And when the most acute crises happen, air transport can literally make the difference between life and death. The UN Humanitarian Air Service (UNHAS), for example, transports food and urgent relief items to those in need in the world's most remote and challenging locations. Aviation also has a crucial role to play in medical response. When a viral outbreak occurs, it is vital that the air transport sector acts quickly to work with governments and international institutions to ensure that the virus does not travel further. A prime example of how aviation plays a role in public health is the ability to transport vaccines, which are some of our most critical and precious shipments, as was demonstrated during the Covid-19 pandemic.

Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all is a stand-alone SDG. To access higher-quality education for many means travelling to another country, sometimes in another region of the world. Without air transport, these opportunities simply would not be feasible, particularly for shorter-term university exchange programmes. For students from developing countries, the opportunity to travel to established universities for higher education is invaluable, as well as benefitting the university and surrounding communities. This helps the individual's personal improvement and creates benefits for their home country, as students return armed with knowledge to contribute to their home economy and with strengthened links to the global economy.

For many people all over the globe, the ability to travel to any other country is an invaluable asset, relied on to visit friends and relatives, move abroad for work and study or, of course, go on holiday.

... WHILE AIMING TO ACHIEVE NET-ZERO CARBON EMISSIONS

With climate change, there's widespread pressure across most industry sectors to reassess operations, forcing industries to innovate and take climate action. For the aviation sector, which accounts for around 2% of global carbon emissions, the challenge to decarbonise is urgent.

The aviation industry's commitment to achieve net-zero carbon emissions by 2050, formalised by the 41st Assembly of the International Civil Aviation Organization (ICAO) in 2022, represents an historic turning point for the sector. But reaching that goal demands a rapid transformation of the energy that powers our aircraft today.

To reach net zero by mid-century, the world will need up to 500 million tonnes of sustainable aviation fuel (SAF) each year. As of 2025, global production stands at just over 2 million tonnes, accounting for less than 1% of total jet fuel use. Yet, production has doubled over the last two years and new offtake agreements and SAF policies are accelerating. The first half of the UN Decade of Sustainable Transport will be decisive in ramping up SAF production to meet demand and ensure civil aviation can reach its 2050 goal.

The next ten years also provide an opportunity for us to reimagine the way we travel: aircraft (particularly smaller operations) will likely start being powered by electric or hybrid-electric propulsion systems. At the same time, smarter and more efficient airspace management and airport infrastructure and operations will increase efficiency in air travel. Airlines, airports, manufacturers, air navigation service providers and the entire air transport value chain are taking action to lower carbon emissions.

ATAG is supporting the industry in reaching its net zero goal. Its member organisations share a vision of ensuring air transport can continue to connect the world and support economic and social development in the decades to come, while respecting the commitment to climate action.

VOICES IN AVIATION

How air transport contributes to sustainable development around the world

COLLABORATION IS KEY IN CREATING A MORE SUSTAINABLE FUTURE FOR AIR TRANSPORT

The UN Decade of Sustainable Transport is set to begin in 2026. Meanwhile, the aviation sector is in the midst of working towards its long-term goal of net-zero carbon emissions by 2050. Reaching net-zero requires collaboration not only from governments and the civil aviation industry, but the financial investor community and traditional energy companies alike.

This transition will bring far more than environmental benefits. The technological innovations, investment flows, the production of SAF and the implementation of advanced propulsion systems and clean-energy infrastructure will have wide ripple effects across economies, especially in developing countries.

Expanding SAF production, for example, can stimulate new value chains, drive rural development and create high-skilled jobs. Advancements in aircraft technology and operational efficiency can strengthen competitiveness, improve connectivity and support the resilience of global supply chains. In this way, aviation's journey to net-zero becomes a catalyst for broader sustainable development, reinforcing the aims of the UN Decade of Sustainable Transport and contributing to more inclusive, innovative and sustainable growth worldwide.

In this spirit, the following section brings together a series of guest contributions from leaders across airlines, airports, air navigation service providers, manufacturers, energy producers and other partners in the aviation ecosystem. Each contribution reflects a unique perspective on what sustainable transport means for aviation in the decade ahead.

These voices highlight the practical steps being taken today that will define the long-term socio-economic and environmental contributions to a more sustainable transport system.

The voices in aviation who share their insights on the following pages

JUSTIN ERBACCI
Director General
ACI World

ANGY ODYSSEOS
Public Relations Manager
CANSO

MONTSERRAT BARRIGA
Director General
European Regions Airline Association (ERA)

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OLIVIER JANKOVEC
Director General
ACI EUROPE

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SITA

A VISION FOR AIRPORTS IN 2035: POWERING A RESILIENT AND RESPONSIBLE AIR TRANSPORT SYSTEM

JUSTIN ERBACCI
Director General
ACI World

The global aviation sector has committed to achieving net-zero carbon emissions by 2050. Airports are central to this transformation, and the decade leading to 2035 will be especially critical to achieving this goal. As essential hubs for global connectivity, economic development, and community well-being, airports are reshaping how they plan, build, and operate to support a sustainable future. A great deal of progress has already been made, but important challenges remain that will influence how effectively airports can balance growth, resilience, and decarbonisation.

Airports leading the net-zero transition

ACI World have made a collective commitment to reach net-zero carbon emissions by 2050. This commitment supports broader international sustainability objectives, including contributions to several United Nations Sustainable Development Goals (SDGs) related to energy, innovation, climate action, and sustainable communities.

A major driver of this progress is the ACI *Airport Carbon Accreditation programme* (managed by ACI EUROPE) – the only institutionally-endorsed, global carbon management certification programme for airports. Participation continues to grow worldwide, demonstrating how seriously airports take their responsibility in addressing climate change.

Airports have also already implemented a wide range of successful initiatives. These include large scale solar and wind installations, energy efficient terminal upgrades, electrification of ground support equipment, and development of renewable energy strategies and roadmaps. Some airports now generate surplus renewable electricity and share it with surrounding communities, contributing to local energy security and national climate targets.

These examples show that airports are already putting their net-zero commitments into action. However, access to clean and reliable energy, technical expertise, and financing remains uneven. Smaller airports and those in developing regions often face greater obstacles to reaching net zero. Ensuring a just and inclusive energy transition is therefore essential so that all airports can move forward together.

Looking ahead to 2035: Low carbon, resilient and connected airport systems

While reducing emissions remains essential, airports must also strengthen their resilience to the physical impacts of weather and climate change. More frequent storms, extreme temperatures and flooding are already affecting operations. Airports need to integrate climate adaptation strategies into master planning, design, construction, and daily operations. This includes reinforcing critical infrastructure, improving drainage and flood protection systems, ensuring redundant energy supply, and adopting more flexible operational approaches.

At the same time, airports will increasingly rely on a diverse mix of renewable and low carbon energy sources. Energy storage systems and smart grid technologies will be essential to ensure reliable access to clean power and uninterrupted operations in more challenging weather conditions.

ACI WORLD
AIRPORTS COUNCIL INTERNATIONAL

Digital transformation will further support these objectives. Advanced analytics, automation, and integrated multimodal planning will help airports optimise energy use, streamline airside and landside operations, and deliver efficient, low carbon mobility for passengers and cargo. As airports collaborate more closely with cities, utilities and transportation providers, the entire travel journey will become more seamless, reliable and environmentally responsible.

Achieving this vision will require continued cooperation across the aviation ecosystem. ACI World emphasises that airports cannot reach net-zero or resilience goals on their own. Supportive regulation, the development and use of alternative aviation equipment and fuels, access to renewable energy markets, accelerated grid decarbonisation, and investment in modern infrastructure will all be essential. Collaboration with airlines, the energy sector, private industry, and governments will play a critical role in closing remaining gaps.

A shared commitment to a sustainable future

The years leading up to 2035 and 2050 will require integrated and coordinated solutions. Airports will be central to this effort by driving innovation, strengthening global connectivity, and supporting sustainable development at local, national and international levels.

The call to action is clear. The aviation ecosystem must work together to build airport systems that are low carbon, resilient to climate risks and aligned with the needs of communities and the global economy. By 2035, airports must connect destinations while also connecting collective ambition with local action to help secure a sustainable future for generations to come.

A SHARED FRAMEWORK FOR THE SKIES: HOW THE CATS CONOPS CAN POWER SUSTAINABLE AVIATION BY 2035

ANGY ODYSSEOS
Public Relations Manager
CANSO

Civil aviation is entering a decade that will define its future. As the UN Decade for Sustainable Transport begins in 2026, the global transport community is being challenged to reshape mobility so it becomes fairer, greener, more resilient and more inclusive. Aviation has a vital role to play in that transformation – but only if we can operate as one global system.

This is precisely why the Complete Air Traffic System (CATS) Concept of Operations was created: a shared framework that brings coherence, discipline and direction to a rapidly changing sky.

Developed by the CATS Global Council – a coalition of more than 80 organisations representing every corner of aviation – the CATS CONOPS reflects a genuinely system-wide vision. Airlines, ANSPs, airports, UTM providers, manufacturers, researchers and regulators came together to design a future air traffic system capable of keeping pace with technological change while preserving the safety, efficiency and connectivity society relies on.

It is a vision for 2045, but its relevance is immediate. Skies everywhere are becoming more diverse: electric aircraft, drones, advanced air mobility vehicles and high-altitude platforms are emerging alongside traditional aviation. Without a shared operating concept, this diversity risks fragmentation. With one, it becomes an opportunity.

In 2025, ICAO Member States welcomed the CATS CONOPS as a key contributor to the evolution of the Global Air Navigation Plan (GANP) – an important signal of alignment between industry and global policymakers. That alignment matters. Aviation is inherently international; progress in one region depends on coherence in another. A shared concept of operations is the difference between a coordinated transition and a patchwork of incompatible systems.

The UN Decade presents an opportunity for aviation to demonstrate global leadership in sustainable transport – not only through climate commitments but also through equitable access to mobility. Across the world, aviation is a lifeline: connecting island states to hospitals and universities, enabling medical deliveries to remote communities, supporting supply chains, and opening economic opportunities in developing regions.

The promise of the CATS CONOPS is that by 2035, these essential functions will not only continue, but be strengthened. Electric aircraft, regional mobility services and unmanned systems will complement each other, expanding access while reducing environmental impact. This is aviation living the SDG commitment to “leave no one behind’.

Equally important is the role of the CATS CONOPS in delivering aviation’s path to net-zero. Technology alone cannot achieve climate goals; the system around it must evolve too. The CATS CONOPS provides the operational backbone that allows sustainable aviation fuels, hydrogen-ready operations, and more efficient trajectories to work at scale. It supports advanced meteorological intelligence, seamless digital information-sharing and improved flow management – the quiet but powerful enablers of lower emissions and smarter energy use.

And central to unlocking this progress is digitalisation. The CATS CONOPS places modern information-sharing, automation, and Trajectory-Based Operations (TBO) at the heart of future aviation. By enabling all actors to work from the same real-time data, TBO allows aircraft to fly optimised trajectories that reduce fuel burn, emissions, delays and controller workload. Seamless data-sharing between ANSPs, airlines, airports and new entrants strengthens predictability and supports better flow management across borders. These digital foundations are essential if we want

sustainable fuels, new propulsion technologies and more diverse airspace users to operate efficiently at scale. In short, digitalisation is not just a technical upgrade, it is the engine that makes sustainable, high-performing aviation possible.

The decade ahead will also test resilience. Climate variability is increasing, geopolitical tensions shift quickly, and recent global health crises have shown how mobility can be disrupted overnight. The CATS CONOPS anticipates this reality. It embeds stronger forecasting, better data-sharing and more robust cyber and operational foundations, ensuring aviation can respond to shocks without losing its ability to keep people and goods moving. A resilient aviation system is not abstract – it is the difference between a community receiving aid in time or not.

Perhaps the most valuable contribution of the CATS CONOPS, however, is the collaboration it unlocks. No single stakeholder can shape the future of aviation. It requires governments to harmonise regulation, energy providers to scale clean technologies, technology partners to deliver trusted digital tools, and ANSPs and operators to integrate them into everyday operations.

The CATS CONOPS gives these groups a shared starting point – a clear direction of travel that reflects the UN's call for integrated planning, better governance and cross-sector partnership.

By 2035, aviation has the potential to show what coordinated transformation looks like. A sky that is cleaner, more connected, more inclusive and more resilient is within reach. But getting there requires commitment from policymakers, industry leaders and multilateral organisations alike.

As the UN Decade for Sustainable Transport begins, aviation stands ready to help deliver its ambitions. The CATS CONOPS shows how we get there – together, with clarity, accountability and a shared framework for the skies.

REGIONAL AVIATION: DRIVING CONNECTIVITY AND ADVANCING SUSTAINABLE AIR TRAVEL

MONTSERRAT BARRIGA

Director General

European Regions Airline Association (ERA)

At a small regional airport in Europe, a next-generation aircraft hums across the tarmac. Engineers move through routine checks on its advanced propulsion system and modular motors. The pilot reviews the short-haul route plan as a team nearby watches the low-emission power system come alive.

Scenes like this capture a wider shift across Europe's regional aviation sector. European Regions Airline Association (ERA)'s members are turning the vision for more sustainable flights into reality, not in distant mega-hubs, but across regional networks that connect communities, support local economies, and ensure essential services remain accessible every day. With smaller aircraft, shorter routes and greater operational flexibility, regional aviation is uniquely placed to test, prove and scale new technologies that will ultimately benefit the entire industry.

For passengers, this means quieter, more environmentally sustainable journeys and more frequent, reliable connections, helping regional communities stay closely linked to opportunities, services, and networks that matter most.

From concept to regional reality

Across Europe, ERA manufacturers are moving clean-flight concepts from drawing boards to real aircraft tailored to regional missions.

Electric pioneers such as AURA AERO, VÆRIDION and Cosmic Aerospace are demonstrating how fully electric propulsion could power future commuter routes, while BETA Technologies is supporting this evolution by developing a full electric-aviation ecosystem, from aircraft to batteries and charging infrastructure.

Because these aircraft are designed for regional ranges and seat counts, they can enter service first on short sectors that operate many times per day, creating powerful learning loops on performance, operations and maintenance. What is proven on regional routes can then inform future designs for larger aircraft and longer missions.

These innovations align with wider European efforts to decarbonise transport, demonstrating how regional aviation can pioneer solutions that ripple across industries. For example, Elysian Aircraft aims to scale electric propulsion to larger regional aircraft.

There is no singular pathway to decarbonisation

Hydrogen is emerging as an alternative pathway to more sustainable flights, and across the sector, innovators are pursuing multiple approaches in parallel, with regional aviation serving as the ideal testbed for this multi-pronged strategy.

Some ERA members, such as Airbus through its ZEROe programme and hydrogen-electric specialists like ZeroAvia, are developing fuel-cell propulsion systems for aircraft ranging from small commuter planes to 80-seat regional types. Others, including Hybrid Air Vehicles, are exploring hybrid hydrogen-electric configurations within entirely new airframe concepts.

This goes to show that there is no single route to decarbonisation. Instead, regional aviation is nurturing several promising pathways at once.

era
european regions airline association

Bridging the gap between today and tomorrow

With fully new propulsion systems still emerging, hybrid-electric solutions offer a vital bridge. Companies such as Heart Aerospace are already testing their extended capabilities, while Maeve Aerospace aims to scale this technology for aircraft carrying up to 100 passengers.

Meanwhile, other manufacturers are exploring complementary solutions. Ascendance is developing adaptable hybrid-electric modules, ATR's EVO concept combines hybrid systems with advances in turboprop efficiency and SAF capability, and Embraer's Energia family explores both hydrogen and hybrid electric. At the same time, established propulsion and airframe leaders are delivering gains on today's platforms.

Engine makers such as GE Aerospace and Rolls-Royce, are targeting double-digit efficiency improvements and hydrogen-electric compatibility, Pratt & Whitney continues to drive up fuel efficiency and time on wing for the newest generation regional turboprops and single aisle aircraft with its latest PW127XT and GTF Advantage engines. De Havilland Aircraft of Canada and Textron Aviation are likewise advancing airframe designs and exploring ways to integrate alternative propulsion systems on both current and future fleets.

On regional routes, these improvements translate into lower fuel use, quieter operations, and faster turnarounds – tangible benefits for airlines, airports and communities, and a critical step toward the broader adoption of clean propulsion.

From innovation to implementation

Innovation only matters when it reaches the skies, and that's exactly what ERA members are making happen. Manufacturers work hand in hand with airlines to turn new propulsion concepts into practical designs. Airports adapt infrastructure, from charging and hydrogen supply to SAF logistics. Regulators help create the frameworks needed to safely introduce new technologies on regional routes and airlines and their passengers play a central role by adopting SAF, flying on new-generation aircraft and supporting early deployment of more sustainable technologies.

As these technologies mature, they reinforce aviation's role in cohesion and inclusion: keeping isolated regions connected. This connectivity supports millions of jobs and keeps local economies moving, demonstrating how technological progress and social value go hand in hand.

Step by step, region by region, route by route, the regional aviation sector is not just preparing for a net-zero future, it is actively building and proving it, providing the real-world launchpad that will allow sustainable aviation to scale across the entire industry - all while continuing to serve the people and places that rely on air links the most.

THE UN DECADE OF SUSTAINABLE TRANSPORT: THE ICCAIA COMMUNITY'S PATH TOWARD SUSTAINABLE AIR TRANSPORT

DAN CARNELLY

ICCAIA Executive Vice President and Permanent Representative to the ICAO Council

The International Coordinating Council of Aerospace Industries Associations (ICCAIA), recognised by ICAO as the global voice of aerospace manufacturers and service providers, works to advance safe, secure, efficient, and sustainable air transport. Overall, more than 450 ICCAIA experts contribute to ICAO's working groups and panels, with 175 dedicated to supporting environment and sustainability work.

The aerospace manufacturing sector is undergoing one of its most significant transformations. As global transport addresses the sustainability challenge, manufacturers are developing technologies, materials, and processes, to reduce emissions and deliver a new generation of cleaner aircraft and engines. Aligned with the United Nations Sustainable Development Goals, the sector is striving to embed sustainability across the entire value chain. True sustainability goes beyond emissions reduction – it means building an accessible, equitable system that benefits both people and the planet. Between now and 2035, several key developments will shape this transition for the sector.

New aircraft design

Reducing aircraft weight remains the most direct route to lower fuel consumption and emissions. Manufacturers are rapidly expanding the use of advanced composites, lightweight alloys, and additive manufacturing to achieve unprecedented efficiency. By 2035, next-generation materials will be commonplace in airframes, engines, cabin interiors, and components, and will have recyclability in mind. These innovations not only cut operational emissions but also shrink the carbon footprint of the production itself. Advanced aerodynamics will also add to the overall efficiency improvements. These are a result of research programmes looking at new configurations of wings, fuselages and empennage, along with other innovations.

Preparing for new modes of propulsion and cleaner energies

The shift toward zero-emission propulsion is underway. While hydrogen-powered commercial aircraft may not enter service before the 2040s, manufacturers are already redesigning systems and infrastructure to accommodate them. Hydrogen storage tanks, new fuel cell systems, and hybrid-electric powertrains require novel manufacturing techniques, materials, and supply chains. In the short term, sustainable aviation fuels (SAF) are helping decarbonise existing fleets, providing a critical bridge to hydrogen and electric propulsion. The sector has committed to ensuring that all new commercial aircraft will be 100% SAF-compatible by 2030, supporting the scale-up of sustainable fuels globally.

In parallel, small electric and hybrid aircraft for regional routes and urban air mobility are creating new production ecosystems – smaller, modular, and more agile. These aircraft also promise more inclusive mobility by connecting communities that are underserved by today's transport networks.

ICCAIA

Enabling Advanced Air Mobility

Perhaps the most visible innovation on the horizon is the rise of Advanced Air Mobility (AAM). Electric vertical take-off and landing (eVTOL) aircraft are already in prototype testing. These vehicles rely on lightweight structures, electric propulsion systems, and rapid manufacturing techniques – all areas where aerospace manufacturing innovation directly contributes to cleaner, more accessible transport networks. By 2035, AAM could form a crucial pillar of sustainable urban and regional mobility.

Attracting and retaining a skilled workforce

Aerospace manufacturers are reshaping their workforce alongside technological innovation, investing in training, apprenticeships, and partnerships to develop the skills needed for AI and other emerging technologies. ICCAIA supports initiatives such as the Global Aviation and Aerospace Skills Taskforce (GAAST), the ICAO Next Generation of Aviation Professionals (NGAP) programme, and the ATAG Emerging Leaders in Sustainable Aviation (ELSA) network, to strengthen global workforce capacity. Over the next decade and beyond, these efforts aim to cultivate a diverse, highly skilled workforce that can drive cleaner aircraft, circular supply chains, and a more equitable, sustainable aviation industry while maintaining global competitiveness.

Looking ahead towards 2035

With safety remaining at the heart of everything that the sector does, the next decade will see sustainability become the baseline expectation for aerospace manufacturing, measured across the entire value chain – from materials to end-of-life recycling. Challenges remain, including certifying new technologies, scaling SAF and hydrogen infrastructure, and the practicalities and economics of large-scale transformation. Yet the path is clear: aerospace is no longer just about building aircraft – it is about creating a cleaner, smarter, more inclusive, and sustainable future for air transport, supported by a skilled and future-ready workforce. To make this vision a reality, all key stakeholders (the ICCAIA community, ICAO, regulators, airports, governments, airlines, etc.) must collaborate, set forward-looking standards, and provide incentives that accelerate innovation. Together, we can ensure the transition to sustainable civil aviation also delivers inclusive mobility and net-zero emissions, safely connecting more communities worldwide.

WHEN AVIATION FUELS RESTORATION

DANIEL BLOCH
Director, Strategic Partnerships
LanzaJet

The *2025 Planetary Health Check* by the Potsdam Institute for Climate Impact Research offers a sobering assessment; humanity has now crossed seven of the nine boundaries that define a stable operating economy, and space for life on Earth.

From climate and freshwater systems to biodiversity and nutrient cycles, these are not environmental statistics, but macroeconomic warning lights. Gross Domestic Product (GDP) accounting fails to register the degradation of the very assets upon which it depends, including soils, water, forests and biodiversity. It measures the flow of output, but not the depreciation of the natural capital base that makes that same output possible. As *The Dasgupta Review* observed, our $100 trillion economy is "growing by liquidating the biosphere's balance sheet."

If left unmitigated, these systemic pressures could cost the global economy up to 20% of GDP by 2050, a scale of loss that no risk model can likely absorb. Yet, within this crisis lies a blueprint for restorative investment; building sectors that strengthen planetary resilience, instead of eroding it.

One of those sectors can be sustainable aviation fuel (SAF). SAF is a proven decarbonisation tool for aviation, but one whose potential reaches far beyond emission reductions. By the end of the UN Decade of Sustainable Transport in 2035, we can redefine SAF as a vehicle not only for climate action but for nature restoration, rural revitalisation and inclusive growth.

Designing SAF as planetary stability infrastructure

When produced from regenerative, restorative or waste-based feedstocks, and verified through frameworks like the Roundtable on Sustainable Biomaterials (RSB) Impact Claims Programme, SAF can demonstrate measurable co-benefits such as:

- **Healthier soils and carbon sequestration** through regenerative cropping
- **Cleaner waterways** via nutrient recycling, buffering and reduced fertiliser use
- **Biodiversity gains** from habitat restoration and new vegetation corridors
- **Rural livelihoods** strengthened by new agricultural and logistic value chains

Consider a **single hypothetical** SAF project, designed around these assumptions:

Category	Quantified example (Illustrative figures)
SAF output	100 million L/year reducing 250,000 tCO_2e in emissions
Restored land	50,000 ha of degraded land restored
Soil carbon	+2 tCO_2e/ha/yr = 100,000 tCO_2e sequestered worth €30-€80/t
Water/soil benefit	Reduced erosion/flooding worth €10–€20/ha
Biodiversity	+10% habitat quality score, enhancing native vegetation corridors and connectivity, while restoring ecosystem services
Rural development	500 rural jobs; €30m regional GDP uplift
Total social return	**>€50m/year** added "public good" value beyond fuel sale

LANZAJET

When these outcomes are valued as Public Goods, the societal return on investment increases markedly. SAF could shift from being a climate compliance measure to a planetary stability investment, and a mechanism for repairing the very systems on which our economic resilience and GDP growth depends.

Our vision for the next decade

Our ambition is that by 2035, every litre of SAF produced and consumed globally can carry an Impact Claim, a verified, traceable statement of environmental and social benefit – complementing the carbon reduction values. These claims can enable customers, governments, financiers and developers to align SAF investments with nature-based goals and planetary boundary restoration, as part of broader climate targets.

This approach transforms SAF from a carbon reduction measure to a multi-boundary solution, supporting several of the planetary limits simultaneously. It embeds ecological intelligence into finance, ensuring that investment decisions enhance, rather than erode, our shared natural capital.

How we get there

To achieve this vision, several actions are required:

1. **Policy integration**: Governments should expand social cost-benefit frameworks to include ecosystem services and natural capital appreciation, justifying stronger public support for regenerative SAF.
2. **Impact-linked finance:** Development banks and private investors should tie concessional capital to verifiable Impact Claims, rewarding projects that deliver measurable restoration outcomes.
3. **Standardised metrics:** International bodies should harmonise natural capital and boundary-aligned indicators, enabling transparent comparison and reporting.
4. **Flagship pilots**: Launch nature-based SAF pilots across regions to demonstrate economic and ecological returns, building the data confidence that unlocks scale.

A call to action

The next decade is decisive. If transport is to become truly sustainable, its decarbonisation must also rebuild the natural capital that underpins long-term prosperity.

By 2035, aviation can move from being part of the planetary challenge to part of its solution, helping transport not just decarbonise, but regenerate the world it connects.

LanzaJet's Freedom Pines facility in Soperton, Georgia, USA

TAKING FLIGHT TOWARDS GREATER SUSTAINABILITY WITH CFM INTERNATIONAL'S RISE INITIATIVE

GAËL MÉHEUST
President & CEO
CFM International

The Research and Technology demonstration program RISE, launched in 2021 by CFM Internationalv– a 50/50 joint venture between GE Aerospace (United States) and Safran Aircraft Engines (France) – aims at reducing fuel burn and carbon emissions by more than 20% for the next generation of narrowbody aircraft engines, while ensuring compatibility with alternative fuels and meeting customers' durability expectations. This program is a major undertaking in support of the aviation industry and ICAO's long term aspirational goal of net-zero carbon emissions by 2050.

For over 50 years, CFM International has been a leader in aerospace innovation. Founded in 1974, CFM revolutionised air transport with the CFM56 engine, which became an industry bestseller, tallying more than 33,000 deliveries. Today, a CFM-powered aircraft takes off every two seconds somewhere in the world. Building on this success, the LEAP (Leading Edge Aviation Propulsion) engine was introduced in 2016, improving fuel efficiency by 15% and reducing both emissions and noise through breakthrough technologies such as advanced combustors and composite materials.

To further the goal of decarbonising aviation, CFM International is advancing the RISE initiative, which involves more than 2,000 engineers across CFM's parent companies. RISE aims to deliver significant reductions in fuel use with new engine designs and hybrid electric systems, while also testing technologies for compatibility with alternative fuels.

The pursuit of ever-increasing propulsive efficiency has driven the growth of engine fan diameter in commercial jet engines. This progression is ultimately leading to the Open Fan demonstrator concept being developed as part of the RISE program which removes the traditional casing around the fan to allow for a larger diameter and greater propulsive efficiency. This design improves fuel burn while maintaining cruise speeds similar to today's single-aisle jets and anticipates compliance with future noise standards. Although Open Fan concepts have been explored for decades, only recent advances have enabled the necessary improvements in efficiency, durability, maintainability, emissions, and noise.

The pace of the CFM RISE program continues to accelerate, with rigorous testing and research continuing around the world.

The RISE program has recorded 300 hours and counting of wind tunnel testing completed at a facility run by ONERA, the French national aerospace research center and long-term research partner of Safran, using a one-fifth scale model of the Open Fan turbine. GE Aerospace has also partnered with the U.S. Federal Aviation Administration, NASA, and the U.S. Department of Energy's National Laboratories on technology development and testing. In fact, GE Aerospace is now one of the largest users of U.S. exascale supercomputers, a breakthrough capability for optimising new engine designs. Trials have also included full-scale static and dynamic fan blade tests, high-speed turbine testing and more than 450 hours of testing on electrical hybridisation systems.

Technologies proven in the RISE program will establish the foundation for CFM's next-generation engines, targeted for the second half of the 2030s. It is becoming more real every day, with the first full-scale demonstrator parts that are now manufactured and more than 350 tests already achieved.

The full system is planned for ground and flight tests by the end of this decade. CFM is collaborating with Airbus on an Open Fan-powered A380 flight demonstration and actively working with the airframe manufacturer to optimise the engine-to-aircraft integration through tests and simulations. Flight tests are critical to advance understanding of engine performance, safety, noise, and aerodynamics in a real flight scenario – a key step before a groundbreaking engine can be developed.

SAFRAN: DRIVING INNOVATION IN ELECTRIFIED AND LIGHTWEIGHT AIRCRAFT

ÉRIC DALBIÈS
EVP, Strategy and Chief Technology Officer
Safran

To support the sustainable development of global air transport and as a leader in the aerospace sector, Safran is deploying an ambitious technological strategy to help achieve net-zero aviation emissions by 2050. This strategy relies on multiple levers, including improving engine efficiency, with the RISE demonstrator (developed by GE Aerospace and Safran Aircraft Engines within our 50/50 joint-venture CFM International), a forerunner for the next generation of aircraft engines with a 20% improvement in energy efficiency. Safran's technological roadmap for a net-zero aviation industry also includes expanding the use of sustainable aviation fuel (SAF), reducing aircraft weight, and advancing electrification and hybrid propulsion technologies. As there is no silver bullet, all these levers must be used to effectively reduce the climate impact of our products. While we have made substantial progress in all these domains, this article will center on electrification and additive manufacturing, two masterpieces of Safran's technological portfolio.

Electrify to decarbonise

One of the cornerstones of our strategy is aircraft electrification. Safran has over a century of expertise in electrical systems for aerospace and across the entire energy chain for aircraft, making the Group a leader in hybrid and all-electric architectures. In 2025, we reached a historic milestone with the EASA certification of the very first electric aircraft engine, ENGINeUS. Designed for light aircraft, eVTOLs, and future hybrid air vehicles, this engine combines high power density, optimised energy efficiency, and seamless integration. A few months before, we had finalised the flight test campaign for EcoPulse, the hybrid-electric distributed propulsion aircraft demonstrator jointly developed with Daher and Airbus. This campaign provided invaluable flight data that substantiate the potential of electric distributed propulsion to reduce fuel burn. We firmly believe that these innovative solutions are paving the way for decarbonised regional and urban aviation by 2035 and are set to revolutionise new air mobility and short-distance air travel.

Conversely this flightworthy electric motor technology is an enabler and a stepping stone for hybridisation of the next generation of aircraft engines, particularly during transitional flight phases (climb, cruise, idle), significantly reducing fuel consumption.

Aside from propulsion, we're also actively working on electrifying other onboard systems and functions, such as the landing gear, braking systems, flight control actuators, de-icing on wings, and electric taxiing for ground movement. This approach – which we have been pioneering for the past two decades – will reduce indirect emissions while enhancing aircraft energy performance.

New high-performance manufacturing processes for lighter aircraft

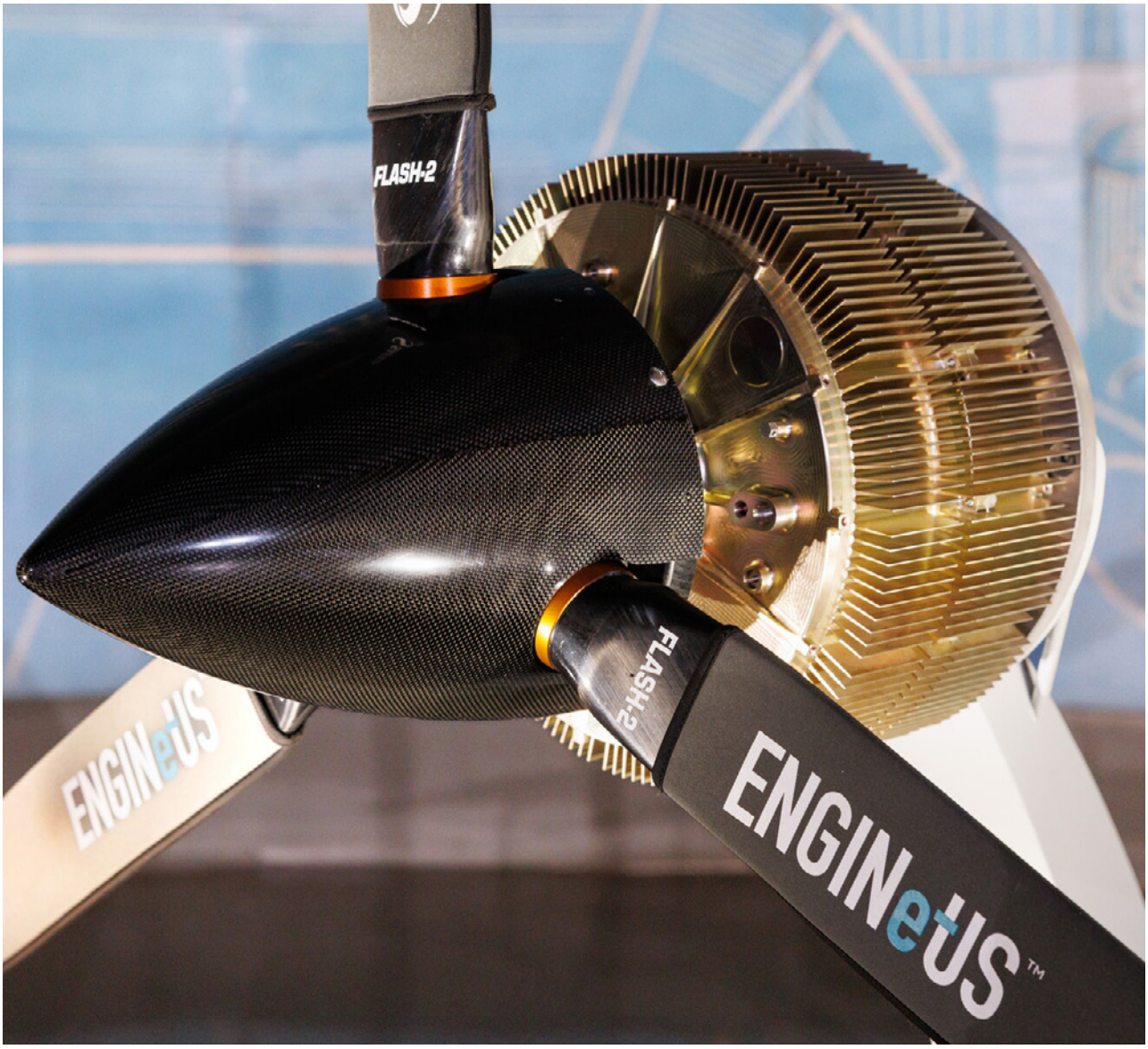
To support this transformation and lay the groundwork for more efficient aircraft, Safran is also focusing its innovation efforts on developing new manufacturing processes to reduce aircraft weight – in particular, additive manufacturing, which is set to become an industry standard in the coming decade. This technology enables the production of lighter, more complex parts. It also streamlines production and enhances industrial autonomy. With a dedicated campus near Bordeaux, France, and over 15 years of technological innovation in the field, Safran today produces 3D-printed components for aircraft engines and systems with unmatched precision and complexity. This approach not only reduces part weight – and thus fuel consumption – but also optimises supply chains and minimises industrial waste.

SAFRAN

At the 2025 Paris Air Show, we presented a turbine rear frame for the RISE program. This 3-foot diameter part is the largest ever produced by Safran using additive manufacturing and showcases the potential of this technology to support next-generation ultra-efficient engines. Over 10,000 3D-printed parts are already in service today.

Through its electrification strategy and advances in additive manufacturing, Safran proves that decarbonising aviation is not a utopian dream but a realistic trajectory already in place. With its breakthrough innovations, the group is emerging as a catalyst for the transition to sustainable aviation.

ENGINeUS electric aircraft engine



SITA AND THE UN DECADE OF SUSTAINABLE TRANSPORT – AVIATION AT THE INTERSECTION OF INTELLIGENCE AND SUSTAINABILITY

VERONIKA DOUBNER
Sustainability and CSR Manager
SITA

The next decade will define how the world moves. By 2035, air transport will not only connect cities; it will connect systems, data and people so journeys run smoother and leave a smaller environmental footprint.

For 75 years SITA has been the digital backbone of aviation. We have witnessed every transformation firsthand – from the first flight computers to cloud native operations – and we believe the next will be even more significant: innovation in the service of decarbonisation, especially through operational efficiency as we accommodate higher volumes of travellers.

Operational efficiency for lower carbon aviation

Within less than a decade, airports will operate like living systems. Sensors and artificial intelligence will orchestrate traffic, resources, and energy in real-time. Travellers will use a single digital identity, reducing paperwork and queues. This shift is already underway: more than half of the world's airports plan to deploy biometrics for check-in and bag drop by 2026, and around 70% of airlines expect to implement biometric ID management. According to our internal analysis, these solutions result in 30% faster processing and up to 60% shorter wait times, leading to reduced energy consumption and less ground equipment usage.

With some 7.2 billion passengers expected by 2035 – about two billion more than today – aviation infrastructure must scale while facing the same greenhouse-gas constraints. Independent roadmaps suggest that operational and technological efficiency will deliver around 30% of the emissions reduction needed by 2050 to meet the industry's climate commitment. In ATAG's *Waypoint 2050* scenarios, operational efficiencies alone could yield about 10% reductions. This is the largest near-term lever available while fleets and fuels decarbonise. We already see this shift: more than 40 airlines use SITA flight optimisation tools, saving an estimated 308,000 tonnes of CO_2 in 2024.

The decade of intelligent efficiency for sustainability

Efficiency in the 2030s won't mean doing the same with less; it will mean anticipating and connecting improvements across the system. Each phase of air travel offers a decarbonisation lever. At the passenger interface, biometrics and self-service shorten queues, cut paper use and lower energy demand. In operations, data-driven optimisation is already cutting fuel burn. Accurate data underpins all these efforts. SITA partners with industry peers to ensure reliable flight-level emissions information can be shared securely, enabling fact-based decisions without greenwashing.

Solutions like our Eco Mission provide a trusted view of decarbonisation and flight efficiencies, enabling book-and-claim accounting for sustainable aviation fuel. With European regulation mandating 20% SAF in 2035, transparent reporting will be vital as volumes scale. Artificial intelligence will define this decade, but purpose will define its legacy. The promise of AI in aviation is not autonomy for machines, but empowerment for people – helping pilots, controllers, dispatchers, and passengers make better, faster, and more sustainable decisions.

SITA

Sustainability begins within

As the industry transforms, so must we. We treat our own operations as a testing ground for the ideas we advocate, from energy-smart infrastructure to low-carbon software design. Our journey mirrors that of the wider air transport community: measurable progress and steadily reducing our footprint aligned with a Science-based Targets initiative (SBTi) commitment to reach net-zero by 2050 and cut our emissions by 42% by 2030 compared to 2019. This clear path to net-zero unites us with partners and suppliers.

A partner to the industry – delivering what's next

Aviation has always advanced through partnerships. The next decade demands the same mindset that made global flight possible in the first place: co-operation, trust and innovation at scale. As passenger volumes surge and climate pressures mount, SITA remains the partner that helps aviation decarbonise through operational innovation. If we get this right, we will continue to help the industry use less energy, time and human capital, ensuring that the world of 2035 runs on intelligence - keeping air travel resilient, secure and lower in impact.

AIRPORTS DRIVING CLIMATE ACTION TOWARDS NET ZERO

OLIVIER JANKOVEC
Director General
ACI EUROPE

Airports serve as vital hubs of connectivity and key enablers of decarbonisation and foster connectivity and sustainable development. Across Europe and beyond, airports have already taken far reaching and measurable steps to reduce their carbon footprint over the past 15 years, contributing directly to several UN Sustainable Development Goals – from cutting emissions and improving energy efficiency to building resilient infrastructure and generating economic growth.

ACI EUROPE leading the way with the Net Zero 2050 Resolution

When ACI EUROPE launched its Net Zero 2050 Resolution in 2019 alongside 194 individually committed airports, it marked a pioneering moment for airport climate action – making European airports the first part of the aviation sector to commit to this goal. The resolution has been renewed every year, attracting more airports, and strengthening their commitments – in particular by seeking to align with the UN Guidance on Net Zero Commitments from non-State Entities. By mid-2025, 314 airports had published detailed roadmaps to reach net zero by 2050, while 122 of these have set even more ambitious targets, aiming for net zero by 2030 or earlier.

Airport Carbon Accreditation and the focus on Scope 3

Airport Carbon Accreditation, launched and governed by ACI EUROPE in close cooperation with the other ACI Regions and with the support of ACI World, provides airports with a structured framework for carbon management and reduction. Since its launch in 2009, it has stood as the only institutionally endorsed global carbon management certification programme dedicated to airports. The programme evaluates airports across seven progressive levels of certification, from initial carbon footprint measurement (Level 1), all the way to net zero achievement for emissions under the airport's direct control (Level 5). Globally, more than 600 airports participate in the programme, with 133 of them having reached the higher certification levels and having thus aligned their carbon management strategies with the Paris Agreement, while 28 of these have achieved Level 5.

At Level 5, airports must reduce and maintain their absolute CO_2 emissions by at least 90% and commit to achieving net zero for Scope 1, 2, and their operational Scope 3 emissions by 2050 or sooner. Achieving these targets requires collaboration across the entire airport ecosystem, including suppliers, airlines, service providers, and other third parties, to foster a collective effort toward net zero. Level 5 airports actively incentivise the use of sustainable aviation fuel (SAF), encourage partners to transition to electric vehicles, install charging infrastructure, and implement measures that drive emissions reductions across the aviation ecosystem, inspiring partners to do the same.

The importance of collaboration for the next decade

While airports are leading by example reducing emissions under all scopes, they cannot achieve net zero alone. Collaboration across the aviation ecosystem – including policymakers, investors, energy producers, airlines, and business partners – is essential to expand the use of renewable energy, scale up SAF, and accelerate the deployment of new low-carbon technologies.

ACI EUROPE
AIRPORTS COUNCIL INTERNATIONAL

Airports are ready, committed, and ambitious, but their efforts must be supported by strong policies and a stable regulatory framework. In Europe, the European Commission needs to provide greater regulatory certainty to unlock investment and enable long-term planning, in particular for SAF production facilities. The recently adopted EU Sustainable Transport Investment Plan (STIP) is a constructive step towards addressing the financing and policy challenges of the SAF market in Europe, however significant regulatory and financing gaps remain in accelerating Europe's progress towards decarbonisation.

At the same time, as aviation is a global sector, it requires global solutions. Differing sustainability requirements across regions make it essential to address regulatory and reporting gaps while establishing clear and consistent mechanisms that safeguard competitiveness and drive collective progress towards global climate goals.

A decade of opportunity

As we enter the United Nations Decade of Sustainable Transport in 2026, airports are proving that decarbonising the sector is both realistic and achievable. Every few months, another pioneering airport reaches the frontier of net zero for emissions under its control by achieving Level 5 of *Airport Carbon Accreditation* – setting new benchmarks and demonstrating that ambition is being translated into concrete action. The path ahead is clear: maintain momentum, close funding gaps, and strengthen collaboration across the aviation ecosystem.

With *Airport Carbon Accreditation* and ACI's continued leadership, airports have the guidance, transparency, and tools needed to turn their net zero commitments into tangible results. With enabling support from governments and partners, airports can continue to serve not only as gateways to the world but also as cornerstones of a sustainable transport system, driving progress towards 2035 and beyond.

Airport terminal, Nice, France

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