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St. George's, Antigua and Barbuda, 1 to 5 June 2026

Agenda Item 7: Implementing the Environmental Long-Term Aspirational Goal (LTAG)

NET ZERO AVIATION IN LATIN AMERICA AND THE CARIBBEAN: PATHWAYS AND TRADE-OFFS

(Presented by Latin American and Caribbean Air Transport Association (ALTA))

EXECUTIVE SUMMARY

ALTA developed this regional study to provide States and other regional stakeholders with a data-driven, region-specific foundation for designing realistic pathways toward net-zero aviation in Latin America and the Caribbean. The objective is to ensure that efforts to reduce emissions can be carried out without compromising connectivity, competitiveness, or socioeconomic development recognizing the unique operational, economic, and geographic characteristics of the region.

The analysis shows that operational efficiencies represent the most immediate, scalable, and cost-effective mitigation lever. Under a central scenario, these measures can reduce fuel burn and emissions by ~6.8% by 2050 (with a range of 3.3% to 11.3%), driven primarily by improvements in ground operations, flight planning, and airspace optimization.

A credible long-term pathway requires combining these efficiencies with the progressive deployment of sustainable aviation fuels (SAF) and the use of high-integrity carbon markets, areas where the region holds comparative advantages in feedstock availability and natural assets. The study emphasizes that gradual, coordinated implementation, supported by enabling public policies and public-private co-responsibility, is essential to address residual emissions while preserving affordability and air connectivity.

Overall, the study provides a practical, evidence-based solution tailored to regional realities, ensuring that efforts to reduce emissions impact advance in a way that is environmentally effective, economically viable, and socially inclusive.

Action:	The actions required by the Meeting are detailed in item 3 of this Working Paper.
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Aviation is Environmentally Sustainable• Aviation Delivers Seamless, Accessible, and Reliable Mobility for All• No Country Left Behind• The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All
<i>References:</i>	<ul style="list-style-type: none">• Net Zero Aviation in Latin America and the Caribbean: Pathways and Trade-offs – Study ALTA-ICF.

1. Introduction

1.1 Civil aviation is a fundamental enabler of economic integration, social development and territorial cohesion in Latin America and the Caribbean. Given the region’s vast geography, limited availability of alternative transport modes and high dependence on air connectivity, aviation plays a critical role in facilitating trade, tourism, access to services and regional mobility. At the same time, the sector faces the challenge of continuing to accommodate sustained traffic growth while contributing to global climate objectives, in line with the International Civil Aviation Organization’s Long-Term Aspirational Goal (LTAG) of net-zero carbon emissions by 2050.

1.2 The study conducted by ALTA with the support of ICF as a specialized consultant and its members, provides a data-driven assessment of the opportunities, constraints and trade-offs associated with the transition to net-zero aviation in Latin America and the Caribbean, taking into account the principle of common but differentiated responsibilities and respective capabilities.

1.3 Building on this foundation, the study identifies operational efficiencies—including aircraft operations, airport and ground operations, and airspace and flight profile optimization—as the most immediate, cost-effective and scalable mitigation measures, with the potential to deliver fuel and emissions reductions ranging from 3.3% to 11.3% by 2050, under a central estimate of approximately 6.8%, without requiring new technologies or imposing additional cost burdens on passengers. These measures are presented as a critical near-term priority for the region.

1.4 For the longer term, the study assesses the role of sustainable aviation fuels (SAF) and high-integrity carbon markets as necessary solutions to address residual emissions. It emphasizes that, while both mechanisms are essential to achieving net-zero, their deployment in the region must be gradual, coordinated and supported by enabling public policies, given current cost differentials, infrastructure constraints and high passenger price sensitivity. Attention is given to avoiding unintended impacts on connectivity and economic development.

2. Discussion

2.1 Fleet Modernization as the Structural Foundation of Emissions Reduction

2.1.1 The study establishes fleet modernization as a foundational pillar of aviation emissions reduction in Latin America and the Caribbean. The region already operates one of the youngest and most fuel-efficient fleets globally, with approximately 38% of total available seat-kilometres flown by new-generation aircraft, compared with 34% in Europe and North America. Over the last decade, regional airlines have made substantial capital investments in fleet renewal, with hundreds of additional aircraft on order to support both growth and replacement needs. Continued fleet modernization delivers fuel efficiency improvements of 15–20% per aircraft and represents the single largest contribution to emissions intensity reductions toward 2050, financed directly by the industry and based on commercially available technologies.

2.2 Operational Efficiencies as the Fundamental Near-Term Climate Lever

2.2.1 Building on the structural gains achieved through fleet renewal, the study identifies operational efficiencies as the most immediate, cost-effective and regionally appropriate emissions-reduction lever. Improvements in ground operations, fuel planning and management, and optimization of flight profiles and air traffic management could deliver additional fuel burn and emissions reductions ranging from 3.3% to 11.3% by 2050, with a central estimate of approximately 6.8%. These reductions can be achieved using existing procedures and technologies and are fully aligned with the economic realities of Latin America and the Caribbean.

2.3 Ground and Flight Planning Measures as Key Sources of Efficiency Gains

2.3.1 In practical terms, the study shows that the largest operational savings originate from ground-based measures, with potential reductions of up to 3.4% through increased use of fixed electrical ground power, pre-conditioned air, single-engine taxiing, and the gradual adoption of electric ground support equipment. Additional benefits result from improved flight planning and airspace management, including more direct routings and more efficient traffic flow management. These measures do not require disruptive technologies nor introduce new costs for passengers, while simultaneously improving operating costs, system resilience and overall network performance.

2.4 Public–Private Co-Responsibility for Unlocking Operational Potential

2.4.1 While airlines have already implemented extensive measures under their direct control, including major investments in fleet modernization, the study underscores that fully capturing the potential of operational efficiencies requires coordinated public–private action. Airports, air navigation service providers and States play a decisive role through infrastructure modernization, digitalization, capacity-building and the establishment of enabling regulatory frameworks that allow more flexible and efficient management of air and ground operations. Without this coordinated approach, a significant portion of the identified efficiency potential may remain unrealized.

2.5 Residual Emissions and the Limits of Efficiency Measures Alone

2.5.1 The study further highlights that, even under scenarios combining advanced fleets and maximum deployment of operational efficiencies, residual emissions remain significant. Without additional measures, regional fuel consumption would increase from 21.2 million tonnes in 2019 to 44.5 million tonnes by 2050. Fleet modernization and operational efficiencies could reduce this volume by more than 14 million tonnes, yet approximately 29 million tonnes of fuel consumption and around 111 million tonnes of CO₂e (well-to-wake) would still need to be addressed through complementary mitigation tools.

2.6 SAF and Carbon Markets: Necessary but Sensitive Long-Term Tools

2.6.1 In this context, the study recognizes sustainable aviation fuels (SAF) and carbon market mechanisms as necessary solutions to address emissions. However, it cautions that current SAF cost differentials—estimated at between 3 and 12 times the cost of conventional jet fuel—combined with the region’s high demand elasticity, mean that premature or uncoordinated deployment could result in higher airfares, reduced connectivity and significant economic impacts. Under extreme scenarios, the cumulative effect on the economic value of regional aviation could reach tens of billions of US dollars by 2050, reinforcing the importance of gradual, coordinated implementation supported by enabling public policies.

3. Action by the Meeting

3.1 The Meeting is invited to:

- a) promote the implementation of operational efficiencies as an immediate climate action and competitiveness policy for the aviation sector in Latin America and the Caribbean;
- b) encourage strengthened public–private cooperation to fully unlock emissions-reduction potential through investments in infrastructure, digitalization and air traffic management; and
- c) support a gradual and coordinated approach to the deployment of sustainable aviation fuels (SAF) and carbon market mechanisms, accompanied by enabling policies that mitigate potential adverse economic and connectivity impacts.