



WORKING PAPER

**SEVENTH WORLDWIDE AIR TRANSPORT CONFERENCE
(ATCONF/7)**

Montréal, HQ, 16 to 20 November 2026

**Agenda Item 4: Emerging technologies, new business models and other associated aspects
4.2 Support and economic opportunities of access to aviation cleaner energies**

**THE COST OF UNRECOGNIZED EMISSIONS REDUCTIONS: A REGULATORY GAP
AFFECTING OPERATORS SUBJECT TO REGIONAL SUSTAINABLE AVIATION FUEL
(SAF) MANDATES ON CORSIA-COVERED FLIGHTS**

(Presented by Saudi Arabia and the United Arab Emirates)

EXECUTIVE SUMMARY

Regional Sustainable Aviation Fuels (SAF) mandates require fuel suppliers to provide sustainable aviation fuels at designated airports, with the associated cost ultimately borne by air operators, including on international flights covered by the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). The resulting emissions reduction reduces an operator's offsetting requirements only where the fuel qualifies as a CORSIA Eligible Fuel and the claim is made within the CORSIA framework. A regulatory gap therefore arises where a regional mandate operates independently of the global scheme: the mandate binds the fuel supplier and its cost reaches the operator, yet the CORSIA claim rests with the operator, and no pathway connects the two.

While the operator bears the cost of the mandated SAF and achieves a real emissions reduction, it cannot set that reduction against its CORSIA obligation and must offset in full as though the reduction had never been achieved. It pays the SAF premium, and separately bears the offsetting cost the SAF should have lowered.

The impact is significant, particularly on international routes to third countries and especially on operators of developing States. For one region alone — among several affected — the mandated SAF cost on CORSIA-covered flights is estimated at approximately USD 267.5 million in 2025–2026, rising to around USD 558.4 million by 2030, corresponding to reductions of the order of 285,548 tonnes of CO₂ in 2025–2026 and 596,136 tonnes by 2030 that cannot be recognized and claimed under CORSIA.

At present, no mechanism links compliance with supplier-side SAF mandates to operator-side CORSIA claims. The Conference is therefore invited to consider the actions in Section 5, directed at establishing a recognition pathway consistent with the agreed CORSIA framework.

Action: The conference is invited to

- a) recognize that a regulatory gap arises where a regional SAF mandate is established without regard to the global scheme, such that the cost of sustainable aviation fuel on CORSIA-covered flights is borne by operators while the associated emissions reductions cannot be recognized under CORSIA, imposing a substantial and growing burden that falls disproportionately on operators, especially of developing States;

b) affirm that an emissions reduction that is real, meets the CORSIA sustainability criteria, and has been paid for by an operator on a CORSIA-covered flight should be capable of recognition towards that operator's offsetting requirements, and should not be rendered unclaimable by the absence of a recognition pathway; c) request the Council, with the technical support of CAEP, to prioritize establishing such a recognition pathway — focusing on system interoperability, standardized chain-of-custody protocols, environmental attribute allocation and registry integration between supplier-side tracking and operator claims — building on the work already mandated in Resolution A42-21, paragraph 17, so that SAF supplied under obligation from States or regions can be reliably reported and claimed under CORSIA without double counting; d) urge States implementing SAF mandates to ensure that mandated emissions reductions on CORSIA-covered flights are capable of recognition under the global scheme — recognition being determined by the International Civil Aviation Organization (ICAO) framework rather than by individual States, with domestic tracking systems interoperable with CORSIA to that end — so that cost is not imposed without a corresponding claimable benefit; and e) urge Member States to support this work, ensuring that the economic opportunities of aviation cleaner energies, and their equitable accessibility, are realized in practice, and to ensure the implementation of CORSIA in its entirety and the maintenance of its universality, preserving the multilateral process governing international aviation.	
<i>Strategic Goal:</i>	This working paper relates to Strategic Goals: <i>The Economic Development of Air Transport Assures the Delivery of Economic Prosperity and Societal Well-Being for All and Aviation is Environmentally Sustainable.</i>
<i>Financial implications:</i>	Financial implications: No direct financial implications for the Organization are anticipated.
<i>References:</i>	ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies (CAAF/3); A42-21 and A42-22

1. INTRODUCTION

1.1 The ICAO Global Framework for SAF, Lower Carbon aviation Fuels (LCAF) and other aviation cleaner energies, adopted by the Third ICAO Conference on Aviation and Alternative Fuels (CAAF/3) in 2023, recognizes aviation cleaner fuels as a means to reduce international aviation emissions, and seeks to advance their production, use and equitable accessibility, including for developing States, while emphasizing that the CORSIA sustainability criteria, sustainability certification, and the methodology for the assessment of life cycle emissions used for CORSIA Eligible Fuels should serve as the accepted basis for the eligibility of SAF, LCAF and other aviation cleaner energies used in international aviation.

1.2 Under CORSIA, the use of CORSIA Eligible Fuels reduces an operator's offsetting requirements, provided the fuel meets the applicable sustainability criteria and is certified, tracked and claimed in accordance with the CORSIA framework.

1.3 A region has introduced SAF mandates obliging fuel suppliers to supply sustainable aviation fuel at airports within its territory, the costs of which are passed through to air operators. Where such a mandate is established without regard to CORSIA, it interacts with the global scheme in a manner that gives rise to the gap described below. This paper examines that interaction on the economic and

investment plane, without prejudice to the CORSIA and environmental matters under Assembly Resolutions A42-21 and A42-22 being addressed in other ICAO fora.

2. THE REGULATORY GAP

2.1 Where a regional SAF mandate applies to an international flight departing the region for a third country, the flight may be subject to both the regional SAF mandate and CORSIA, where the relevant CORSIA requirements are met. Under the regional mandate, the fuel supplier is required to supply the required amount of SAF. The associated costs, including any applicable buy-out penalty for failing to meet the SAF requirement, are generally passed on to the air operator through the fuel price.

2.2 The emissions reduction associated with that fuel reduces the operator's offsetting requirements only where the fuel qualifies as a CORSIA Eligible Fuel and is claimed through CORSIA's framework requirements. Where the fuel is not so CORSIA certified and claimed, or where its environmental attributes cannot be tracked to the operator that bears the cost, the reduction cannot be recognized under the global scheme at all.

2.3 The gap arises where a State or regional authority establishes a mandate without providing for recognition of the resulting reduction under the global scheme. The regional mandate imposes the cost of the reduction, while the corresponding benefit cannot be realized under CORSIA in the absence of a recognition pathway. The operator is obliged to pay, yet is unable to claim, and must offset under CORSIA as though the reduction had not occurred. In practice, the operator may not hold the environmental attribute of the fuel at all — where suppliers retain it or label their charges as "mandate fees" — so that it bears the cost without acquiring the very reduction it has paid for. As the body that initiated, developed and adopted CORSIA and the CAAF/3 global framework, ICAO is uniquely positioned to ensure this gap is closed on the agreed CORSIA basis.

3. THE ECONOMIC BURDEN

3.1 The gap is not theoretical. It imposes a measurable and growing cost on operators obliged to comply with a regional SAF mandate on their CORSIA-covered flights.

3.2 For operators in one region, the mandated SAF cost on CORSIA-covered flights is estimated at some USD 267.5 million in 2025–2026, rising to approximately USD 558.4 million by 2030. The SAF concerned reduces emissions of the order of 285,548 tonnes of CO₂ in 2025–2026 and 596,136 tonnes by 2030.

3.3 Because that reduction cannot be set against the operator's CORSIA obligation, the operator must offset in full — as though the reduction had never been achieved — at an additional cost of the order of USD 209.6 million in 2025–2026 and USD 102.8 million by 2030. The operator therefore pays for the abatement and separately pays to offset the very emissions that abatement removed.

3.4 This weakens the investment case for aviation cleaner fuels, distorts competition on the affected routes, and bears most heavily on operators, especially of developing States, serving flights that depart the region for third countries — an outcome contrary to the objective of equitable access to aviation cleaner energies. The figures at Appendix A illustrate the burden for one affected region among several.

4. CLOSING THE GAP

4.1 The gap is one of recognition. What is required is a pathway by which an emissions reduction, delivered by a cleaner fuel on a CORSIA-covered flight and meeting the CORSIA sustainability criteria, can be recognized once, and only once, towards the offsetting requirements of the operator that bore its cost. The difficulty is structural: the mandate binds the fuel supplier, whereas the CORSIA claim rests with the operator, and no pathway presently connects the supplier-side obligation to the operator-side claim.

4.2 At its core, the difficulty is systemic rather than technical: it arises where a regional measure is introduced without a corresponding means, at the global level, of recognizing the reductions it produces. The primary remedy is alignment — regional measures operating consistently with the agreed global framework — supported by system interoperability, so that regional compliance and tracking mechanisms interface with CORSIA and a mandated reduction is not left unclaimable. The principle is not in doubt: a reduction that is real, meets the CORSIA sustainability criteria and has been paid for should not be rendered unclaimable for want of consistency between a regional measure and the global scheme.

4.3 Addressing the matter at the global level, rather than through divergent regional arrangements, would preserve environmental integrity, protect a level playing field, and support the wider benefits of aviation cleaner energies — emissions reduction, energy transition, innovation, accessibility and sustainable development — including their accessibility to developing States.

— — — — —

APPENDIX

Illustrative magnitude of the burden — mandated SAF on CORSIA-covered flights

Indicator (regional aggregate, ReFuelEU / UK SAF-mandate scope, CORSIA-covered flights)	2025–2026		2030 (est.)	
	EU	UK	EU	UK
SAF Mandates (tonnes)*	61,303	45,007	123,561	98,381
Mandated SAF cost (USD)**	\$154.2 million	\$113.3 million	\$310.9 million	\$247.5 million
Emissions reduced by the SAF (tCO ₂)***	164,659	120,889	331,884	264,252
Cost to offset the same emissions under CORSIA (USD)****	\$120.9 million	\$88.7 million	\$57.2 million	\$45.6 million

*SAF uplifted is calculated based on the mandates in place by the RefuelEU which evolves as follows:

- RefuelEU: 2% between 2025-2029, and 6% in 2030. A minimum of 0.7% out of the total mandated quantity is required to be delivered as E-SAF in 2030.

*SAF uplifted is calculated based on the mandate in place by the UK Aviation Fuel Plan which evolves as follows:

- UK Aviation Fuel Plan (UK SAF Mandate): 2% in 2025, and gradually increasing to reach 10% in 2030, that means an annual increase of 1.6 percentage points. In 2028 and 2029, 0.2% E-SAF out of the total obligated quantity will be required, with the share growing to 0.5% in 2030.
- The fuel consumption for 2025 and 2026 is calculated based on actual and estimated uplifts for the designated region (Before the onset of the conflict in the Middle East Region). Uplifts estimated for 2027 are based on the average annual growth in fuel uplifts by 3.6%, which is inline with the latest industry statistics and the expected average traffic growth in the next 4 years.

**The cost of SAF used is USD 2,156 per tonne, which is the actual average for transactions done in the market between 2025 and 2026, and remain fixed in the analysis due to scarcity of information in that regards and the disparity in estimates for different bio-jet products. The price of E-SAF is based on the latest EASA estimates at USD \$7,784 per tonne.

*** The emission reduction factor averaged at 85% throughout the analysis.

****CORSIA Offsetting requirements are calculated based on the following assumptions:

- In 2025 and 2026, offsets surrendered using CORSIA Eligible Emission Units (CEEs) represent 22.1% of the total offsetting requirements and the rest through CORSIA eligible SAF at the same price mentioned above. The ratio is equivalent to the currently available certified CEEs reported by ICAO on 27 August totalling 41.9 million compared to an estimated demand in Phase 1 of 189.5 million.
- In 2030, we estimate the CEEs available in the market will cover 85% of the total offsetting requirements and the rest will be through SAF.
- CEEs prices are set at \$19.5 in 2025 – 2026, and at \$37.50 in 2030 based on different pricing scenarios reported by pricing agencies.

— END —