Bringing CORSIA to a new level while shaping global carbon markets and fostering international cooperation

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Introduction

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) was adopted by the International Civil Aviation Organization (ICAO) in 2016 as a global market-based measure to mitigate the sector's growing climate impact. A large majority of ICAO's 193 Member States have committed to implementing CORSIA. The scheme employs two necessary and complementary approaches: 1) capping the sector's CO_2 emissions and 2) offsetting emissions that exceed the cap through high-integrity carbon credits or CORSIA Eligible Fuels (CEF).

During its first effective phase with actual offsetting obligations (2024 to 2026), these regulations apply only to international flights between ICAO Member States that have volunteered to participate. When the mandatory phase begins in 2027, CORSIA will extend to all international flights, with some exceptions –for example, for Small Island Developing States (SIDS) or those with a small share of international flights. The CORSIA framework has potential to prevent up to 1.5 billion tons of CO_2 emissions from entering the atmosphere by 2035 while contributing to sustainable development.

In parallel, in 2022 and 2023, ICAO committed to achieving net zero carbon emissions by 2050 and agreed on a global framework for cleaner aviation fuels, including an 5% GHG reduction goal in 2030.

Shaping global carbon markets and international cooperation

CORSIA holds significant potential to shape global carbon markets and promote international cooperation. Article 6 of the Paris Agreement outlies how counties can pursue voluntary cooperation to meet their climate targets, including carbon offsets, and provides crucial guidelines to prevent double counting in interactions between national climate efforts and CORSIA. In the near term, the demand for high-integrity offsets under CORSIA will drive mitigation outcomes generated via Article 6, subject to rigorous reporting and accounting rules, thereby setting the standard for global carbon markets.

The interplay between CORSIA and Article 6 could create a virtuous cycle, mutually reinforcing adherence and stimulating the growth of robust international carbon markets.

CORSIA integrity: Offsets and fuels

For CORSIA offset programs to maintain environmental credibility, they must be based on high-quality credits and avoid double counting –where, for instance, an emission reduction is claimed both by the country of origin and the purchasing airline. Significant progress has been made for

CORSIA-eligible offsets, with stringent high-integrity criteria and mechanisms in place to prevent double counting.

A similar challenge exists for CEF. However, although notable advances have been achieved regarding their sustainability, further measures are needed to prevent double counting of emission reduction claims associated with CEF use, as well as to continue improving the life cycle assessment methodologies to avoid, e.g., unintended consequences on ecosystems and vulnerable communities. Improved monitoring, reporting and verification (MRV) rules are also necessary to strengthen the chain-of-custody of CEF after its blending with conventional jet fuel. For example, intermediate purchasers or traders of blended CEF are not subject to mandatory third-party certification under CORSIA, which creates a material weakness, potentially breaking the chain of custody of CEF sustainability credentials with dire consequences.

Without strong standards, alternative fuels that do not generate genuine emissions reductions and create net harm could flood the market driven by generous subsidies and support in key jurisdictions around the world, thereby displacing not only high-integrity CEF but also demand for high-integrity offset credits.

Moreover, the potential for the inclusion of low-integrity mitigation outcomes as part the life cycle assessment of CEF –such as it could be the case with non-permanent soil carbon sequestration claims or inconsistent energy attribute certificates for energy inputs— could result in material emissions reduction claims that do not meet CORSIA's rigorous criteria for offsets, undermining the credibility of the scheme.

Addressing double claiming in CEF claims

All CEF are vulnerable to double claiming, which necessitates urgent guidance. Preventing double claiming is crucial for the credibility of CEF but also for the overall integrity of CORSIA. It is equally essential for Parties to the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC).

Parties must access reliable information on CEF features and use to fulfil their reporting and accounting obligations. Under the Paris Agreement, Parties need to submit a Biennial Transparency Report that includes the National Inventory Report (NIR) and a Structured Summary with progress updates on the Nationally Determined Contribution (NDCs) (Figure 1). The Structured Summary comprises each Party's selected indicators for tracking progress and an Emissions Balance that documents the debits and credits of Internationally Transferred Mitigation Outcomes (ITMOs) Additionally, Annex I Parties[1] to the Convention are required to provide an annual stand-alone NIR. Finally, Parties engaged in cooperative approaches under Article 6.2 of the Paris Agreement must report on ITMO activity no later by mid-April of the following year.

Similarly, countries have MRV obligations under CORSIA. The CORSIA Central Registry, the primary repository for information on international aviation CO_2 emissions and CORSIA claims, corresponds to the Structured Summary under the Paris Agreement (Figure 1). The CCR captures the necessary information to track progress toward ICAO's climate goals, including on aeroplane operators' claims of emissions reductions from CEF use and on their cancellation of CORSIA Eligible Emissions Units to meet their offsetting requirements in CORSIA. The information compiled by ICAO on emissions units is comparable to the Emissions Balance in Parties' Structured Summaries. In the case of ICAO, there is not a need for a Biennial Transparency Report including NIRs because it holds no practical value for tracking progress toward ICAO's climate goals. However, a conceptual inventory can be viewed as underlying the CCR, mirroring the international bunker data reported in NIRs by applying the same IPCC guidelines and aggregating all bunkers used for international aviation.

The reporting requirements under the Paris Agreement and the Convention necessitate that countries receive timely data on CEF usage under CORSIA to meet their obligations, independently of the temporal flexibility

1 Annex I Parties include the industrialized countries that were members of the Organisation for Economic Co-operation and Development (OECD) in 1992, plus countries with economies in transition, including the Russian Federation, the Baltic States, and several Central and Eastern European States.

afforded to aeroplane operators under CORSIA's MRV system. Unfortunately, these temporal flexibilities, combined with insufficient information available in the CORSIA Central Registry, generate a temporal mismatch preventing countries to access data on a timely manner.

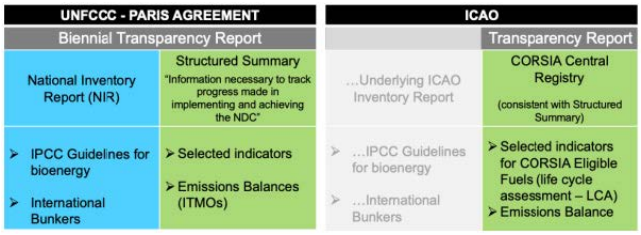

FIGURE 1: Summary of transparency reports under the Paris Agreement and ICAO CORSIA, which are critical for ensuring that proper accounting and reporting of emissions units and fuels.

A way forward to preventing double claiming

With appropriate guidance under the relevant ICAO documents (without necessitating amendments to the SARPs Annex 16, Volume IV), data collected by CORSIA-approved Sustainable Certification Schemes (SCSs) could enable countries to accurately report and account for CEF claims while preserving the integrity of the environmental claims and the flexibility for aeroplane operators to claim CEF use anytime within the CORSIA compliance cycle.

First, countries could incorporate all biogenic CEF use under CORSIA as provided by SCSs as international bunker in their emissions inventories, ensuring timely reporting and accounting obligations under the PA and the UNFCCC, and thereby preventing double claiming of CEF.

Second, to prevent double claiming of mitigation outcomes already reflected in national inventories that are also included as part the life cycle assessment of CEF, concerned countries should authorize, report, and account for these reductions following Article 6 guidance for ITMOs under the Paris Agreement.

A straightforward method for operationalizing these measures could be the issuance of a letter of attestation, whereby countries commit upfront to ensuring that double claiming does not occur. SCSs should require relevant economic operators (e.g., the CEF producer) to obtain and integrate this attestation into the sustainability record. This approach would replicate the procedures already applicable to CORSIA emissions units.

Bringing CORSIA to the next level

Following its initial implementation, ICAO should begin focusing on adapting CORSIA to achieve the imperative of a net zero climate impact by 2050. To that end:

1. CORSIA's ambition should align its near-term goals with the net zero carbon 2050 objective, establishing a meaningful trajectory with an aviation carbon budget compatible with the Paris Agreement's temperature targets and integrating CEF in accordance with ICAO's global framework for cleaner aviation fuels (adopted in November 2023).
2. The current focus on CO_2 should be expanded to encompass the full spectrum of aviation's climate impacts while delivering necessary air quality and public health co-benefits.
3. CORSIA's high integrity compliance mechanism should generate effective price signals to inform mitigation strategies across the entire basket of measures (aircraft technology, operations, alternative fuels, and offsets).

Continued engagement on CORSIA high-quality carbon credits, including removals, will be crucial. These credits are essential not only through 2035 to meet CORSIA's current obligations but also for compensating unmitigated non-CO_2 climate impacts and residual lifecycle emissions from sustainable aviation fuels in the long term.

Key takeaways

Significant progress has been made under CORSIA, but its success hinges on:

1. Continued enhancement of the criteria that ensure the integrity of emissions units and CEF, and
2. An improved MRV system for CEF to ensure transparency and avoid double claiming of emissions reduction claims.

With robust implementation, CORSIA can create a virtuous cycle that aids both countries and aeroplane operators in meeting their climate responsibilities. To fulfil this promise, it is imperative to preserve and enhance the integrity of CORSIA.

Moving forward, ICAO should consider the alignment of CORSIA with an extended net zero target for 2050 that effectively incorporates non-CO_2 climate impacts; so that, in the medium to long term, CORSIA can generate effective price signals that inform mitigation strategies across all elements of the basket of measures.