

Introduction to CORSIA

By ICAO Secretariat

Introduction

In 2016, at the 39th Session of the ICAO Assembly, Member States reached a historic milestone by adopting the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), the first global market-based measure for any industry sector. CORSIA was designed to complement the three pillars of the basket of in-sector measures (aircraft technologies, operational improvements, and sustainable fuels) in supporting the medium-term global aspirational goal of carbon neutral growth from 2020 (CNG2020). The importance and commitment to the scheme has been reiterated at ICAO's 40th and 41st Assemblies in 2019 and 2022 respectively.

CORSIA works by requiring aeroplane operators to offset a portion of their CO₂ emissions from international flights, above a defined baseline. Operators report verified data to their States of attribution through a robust monitoring, reporting and verification (MRV) system, with States in turn submitting aggregated data to ICAO to determine

annual growth factors. Based on these, operators are assigned offsetting requirements which are then fulfilled either through the purchase and cancellation of eligible emissions units from approved programmes, or through the reduction of offsetting requirements by claiming the life-cycle benefits of eligible aviation fuels. The route-based coverage approach ensures that all flights in a given international route are treated equally irrespective of the State of attribution of the aeroplane operators performing the flights. Exemptions apply for small operators, certain types of flights (humanitarian, medical and firefighting operations), and specific aeroplane types.

Significant work has been put into developing the framework to implement CORSIA. In line with the mandate given by the ICAO Assembly, the ICAO Council, with the technical contribution of the Council's Committee on Aviation Environmental Protection (CAEP), developed and updated the Standards and Recommended Practices (SARPs) for CORSIA implementation, reflected in Volume IV of Annex 16 (*Environmental Protection*) to the Convention

CORSIA Volunteer States



FIGURE 1: Evolution of States voluntarily participating in CORSIA

on International Civil Aviation. To support stakeholders in the implementation of the CORSIA SARPs, technical guidance was developed and updated by CAEP and published in the form of Volume IV of the *Environmental Technical Manual* (Doc 9501).

States have demonstrated strong and increasing commitment to CORSIA. Throughout CORSIA's pilot phase (2021 – 2023) and first phase (2024 – 2026), voluntary participation to determine the routes subject to offsetting requirements has steadily grown from 88 States in 2021 to 129 States in 2025. These States represent a significant share of international aviation activity, ensuring the integrity and global applicability of the scheme.

Implementation Progress

CORSIA's implementation has been built upon a robust monitoring, reporting and verification (MRV) system, which has proven both adaptable and inclusive. Since the beginning of the implementation of CORSIA's MRV system in 2019, States and aeroplane operators have consistently met CORSIA's requirements, with emissions data reported through the CORSIA Central Registry (CCR) now covering 99% of international 2023 CO₂ emissions, with 121 States having reported data; more information on the role of the CCR in CORSIA implementation can be found in the CCR article in this chapter.

The ICAO Council, supported by CAEP, continues to oversee critical improvements to the CORSIA regulatory framework; key recent milestones include the adoption of the Second Edition of Annex 16, Volume IV¹, applicable from 1 January 2024, and the Third Edition of the *Environmental Technical Manual* (Doc 9501), Volume IV², containing technical guidance updated in line with the update to the CORSIA SARPs.

Notably, it is expected that the sector's growth factor for year 2024 will have a value above zero; this will imply the generation of offsetting requirements for the first time since CORSIA's inception, marking a new operational chapter for the scheme.

There have also been important developments on matters related to both CORSIA Eligible Fuels and CORSIA Eligible Emissions Units, two aspects that will be ever more important as offsetting requirements are generated during the scheme's first phase.

CAEP's work on matters related to CORSIA Eligible Fuels has yielded important results. Sustainability criteria for Lower Carbon Aviation Fuels (LCAF) have been approved to complement the previously approved sustainability criteria for Sustainable Aviation Fuels (SAF). Progress has also been made to facilitate the sustainability certification of CORSIA Eligible Fuels with the approval of a third Sustainability Certification Scheme (more information in the SCSEG article in this chapter). In early 2025, guidance to support verification bodies on the verification of emissions reduction claims from CORSIA Eligible Fuels was made publicly available. All these developments have to be considered against the backdrop of the adoption of the ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies, the main outcome of the Third ICAO Conference on Aviation Alternative Fuels (CAAF/3, Dubai, United Arab Emirates, 20 – 24 November 2023) (more information in the article on this matter in Chapter 5).

Regarding developments on CORSIA Eligible Emissions Units, it is important to note that to date the ICAO Council has approved six programmes for supplying CORSIA Eligible Emissions units to the CORSIA first phase, based on the recommendation from the Council's Technical Advisory Body (TAB). The Council has also conditionally approved five additional programmes. In 2025, TAB is undertaking the re-assessments of programmes eligible for first phase to make recommendation on their eligibility to supply CORSIA units for the 2027-209 compliance period (part of the CORSIA second phase). More information on TAB's work can be found in the TAB article in this chapter.

Regarding the potential supply of CORSIA Eligible Emissions Units, TAB presents to the Council regular updates on the basis of its recommendations on programme eligibility. The latest supply analysis by TAB, presented in October 2024, estimated the potential total supply of CORSIA Eligible Emissions Units for CORSIA's first phase; the analysis

1 <https://www.icao.int/environmental-protection/CORSIA/Pages/SARPs-Annex-16-Volume-IV.aspx>

2 <https://www.icao.int/environmental-protection/CORSIA/Pages/ETM-V-IV.aspx>

showed that the six fully eligible programmes have the potential to issue a volume of CORSIA Eligible Emissions Units in a range from around 900 million to more than 2 billion units for mitigation years 2021-2026, if such units were to obtain host country attestation in accordance with the procedures assessed by TAB. The host country attestation is a key measure to avoid double claiming of units used in CORSIA. Through the attestation, the host country confirms that emissions units are created where mitigation is not also counted toward its National Determined Contribution (NDC) of the Paris Agreement and its intention to properly account for the use of CORSIA Eligible Emissions Units. In this regard, the ICAO Secretariat is working to raise awareness of this important requirement among relevant stakeholders and encourages States to facilitate the issuance of host country attestations for CORSIA purposes.

CORSIA Periodic Review

When reaching agreement on CORSIA in 2016, ICAO Member States established that the scheme would undergo periodic reviews every three years, starting in 2022. Those reviews were set in place to allow for necessary adjustments to be made to the scheme, considering new information and developments that could impact the scheme and its objectives.

The 2022 CORSIA periodic review was a display of the scheme's ability to respond to global challenges. Based on the Council's recommendations arising from the review, the 41st Session of the ICAO Assembly adopted a new CORSIA baseline, set at the 2019 emissions level for CORSIA's pilot phase, and at 85% of the 2019 emissions level from 2024 onwards, thus replacing the original 2019 – 2020 average baseline affected by the COVID-19 pandemic. Additionally, the Assembly agreed to extend the 100% sectoral approach for the calculation of offsetting requirements in the 2030 – 2032 period, with a combination of 85% sectoral and 15% individual for the 2033 – 2035 period. These changes reflected CORSIA's adaptive design, and the collective will of States to preserve the relevancy of the scheme.

Building on this, the Council is currently undertaking the 2025 CORSIA periodic review with the support of CAEP's analytical expertise, whose technical inputs are made publicly available through the CORSIA webpage³. Any recommendations of the Council arising from the review will be considered by the 42nd ICAO Assembly in September 2025. More information on the 2025 CORSIA periodic review can be found in the article on this matter in this chapter.

Implementation Support and Capacity Building

As CORSIA implementation progresses, so too does the global cooperation underpinning its success. The ICAO Assistance, Capacity-building and Training for CORSIA (ACT-CORSIA) programme remains central to ICAO's *No Country Left Behind* initiative, providing technical assistance, capacity-building, and training to States. The Buddy Partnership component of ACT-CORSIA has proven especially impactful, with 119 States receiving support as of 2025 through cooperation with trainers from 16 States⁴. These partnerships have been instrumental in ensuring equitable participation and implementation across all regions.

ICAO, under the Global Aviation Training (GAT) programme, continues to provide courses on CORSIA; the CORSIA Verification Course, launched in 2019 to train verification bodies, was updated in September 2023 to align its contents with the Second Edition of Annex 16, Volume IV. In light of the increasing interest on aspects of CORSIA implementation such as CORSIA Eligible Fuels and CORSIA Eligible Emissions Units, it is expected that three more courses on CORSIA will be available in the last quarter of 2025.

Training activities on CORSIA are complemented with the continuous development and update of outreach materials such as the CORSIA Frequently Asked Questions (FAQs)⁵, updated on an annual basis, and the monthly issues of the CORSIA Newsletter⁶.

3 Information available in the CORSIA webpage (www.icao.int/CORSIA), section *CORSIA Periodic Review*.

4 Information available in the CORSIA webpage (www.icao.int/CORSIA), section *ACT-CORSIA*.

5 <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-FAQs.aspx>

6 <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIANEWSLETTERS.aspx>

Conclusion

CORSIA stands as a unique example of a global commitment by the international aviation sector to address climate change through a unified, cooperative approach. As the scheme progresses through its first phase, with the generation of offsetting requirements, and prepares for its second phase, the continued dedication of ICAO Member States, the aviation industry, and civil society will be critical

to ensuring that international aviation's growth remains environmentally sustainable.

The steps taken between 2022 and 2025 demonstrate both the resilience and adaptability of CORSIA, with qualities that will be essential in contributing to the broader goals of the international community, including ICAO's long-term aspirational goal of net-zero CO₂ emissions from international aviation by 2050.