International Civil Aviation Organization

CAAF/3-WP/6
29/9/23

WORKING PAPER

THIRD CONFERENCE ON AVIATION AND ALTERNATIVE FUELS (CAAF/3)

Dubai, United Arab Emirates, 20 to 24 November 2023

Agenda Item 2: Supporting policies to promote the development and deployment of cleaner energy for aviation

FUEL ACCOUNTING AND REPORTING METHODOLOGIES

(Presented by the ICAO Secretariat)

SUMMARY

This paper presents information on the fuel accounting and reporting methodologies under the CORSIA Monitoring, Reporting and Verification (MRV) system, including the methodology to reduce an aeroplane operator's offsetting requirements from the use of CORSIA eligible fuels. It also presents possible parameters for fuel accounting and reporting methodologies for international aviation as part of monitoring the LTAG progress.

Action by the Conference is in paragraph 4.

1. INTRODUCTION

1.1 The ICAO Assembly requested the Council (Resolution A41-21, paragraph 9 refers) to regularly monitor progress on the implementation of all elements of the basket of measures towards the achievement of the long-term aspirational goal for international aviation (LTAG), including through: the ICAO environment stocktaking process; the review of the ICAO Vision for SAF; further assessment of the CO_2 emissions reduction and cost impacts of a changing climate on international aviation, regions and countries, in particular developing countries, and the impact on the development of the sector, as well as the cost impacts of the efforts to achieve the LTAG;[1] monitoring of information from State Action Plans for international aviation CO_2 emissions reduction; and means of implementation. To this purpose, the Council will consider necessary methodologies for the monitoring of progress, and report to a future Session of the ICAO Assembly.

1.2 At the request of the ICAO Council (March 2023), the Council's Committee on Aviation Environmental Protection (CAEP) initiated technical work on the development of methodologies for the LTAG monitoring and reporting (LMR) of information towards the achievement of the LTAG, focusing on the underlined issues in paragraph 1.1 above. The first deliverable of this CAEP work will be a scoping

[1] Emphasis (underline) added.

study to determine what information is currently available, what are the data gaps and how they could be filled.

1.3 One of the identified inputs of the CAEP work on the LMR is information and data submitted by States for the purposes of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). The ICAO Assembly adopted CORSIA (Resolution A41-22 refers) as a complementary measure to technological innovations, operational improvements, and sustainable aviation fuels, which collectively are known as the ICAO basket of measures. States' implementation of these measures contributes towards the achievement of ICAO's global aspirational goal of carbon neutral growth from 2020 onwards. The ICAO Council approved Annex 16, Volume IV, which contains Standards and Recommended Practices (SARPs) relating to the monitoring, reporting and verification (MRV) of information under CORSIA[2].

2. OVERVIEW OF CORSIA ACCOUNTING AND REPORTING SYSTEM FOR CO_2 EMISSIONS

2.1 The successful implementation of CORSIA relies on the availability of reliable data on annual CO_2 emissions for all years of the scheme's duration (2019-2035). The collection and processing of this data is based on the CORSIA MRV system that is defined by the SARPs included in Annex 16, Volume IV. Aeroplane operators covered by CORSIA[3] are required to monitor, report and verify their CO_2 emissions annually. The CORSIA MRV cycle of annual CO_2 emissions takes place over a period of 19 months – starting on 1 January of a reporting year and ending on 31 July of the following year.

2.2 For the monitoring of CO_2 emissions, aeroplane operators can use any of five Fuel Use Monitoring Methods to collect information on the fuel use for each international flight. Operators are required to estimate their annual CO_2 emissions, on the assumption that **all fuel used is conventional fuel**, by multiplying the amount of fuel used with a conversion factor representing the number of tonnes of CO_2 produced from one tonne of fuel[4].

2.3 Aeroplane operators that are eligible to use the ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT)[5] can develop estimates of their emissions based on flight information (departure and arrival airport, type of aircraft used, number of flights).

2.4 For each year in the period 2021-2035, States are required to calculate the annual offsetting requirements for each operator attributed to them. This is done by multiplying an operator's annual CO_2 emissions subject to offsetting requirements,[6] as reported in its verified Emissions Reports, by an annual factor (Step 1 in Figure 1 below) that takes into account the annual CORSIA Sector's Growth Factor [7] and, for the years 2033-2035 only, the operator's individual growth factor.

2.5 Under CORSIA, an aeroplane operator can claim the reduction of its CO_2 offsetting requirements through the **use of CORSIA eligible fuels** (CEF), which can be either renewable or waste-derived CORSIA Sustainable Aviation Fuels, or fossil-based CORSIA Lower Carbon Aviation Fuels. For an aviation fuel to qualify as CEF, it must meet the CORSIA Sustainability Criteria, which have been approved by the ICAO Council and are published in the ICAO document "*CORSIA Sustainability Criteria*

[2] Annex 16, Volume IV and other CORSIA information is accessible from ICAO website: www.icao.int/corsia
[3] Annual CO_2 emissions are equal to or higher than 10,000 tonnes.
[4] 3.16 kg CO_2/kg of fuel for Jet-A and Jet-A1 fuel; and 3.10 kg CO_2/kg fuel for AvGas or Jet-B fuel.
[5] Operators that emit less than 50,000 tonnes of CO_2 emissions subject to offsetting requirements in a specific year.
[6] Emissions from flights between States that both participate in the CORSIA offsetting requirements.
[7] The annual Sector's Growth Factor is estimated by ICAO and is published annually on the ICAO website.

for CORSIA Eligible Fuels" that is available on the ICAO website. More information on CORSIA sustainability criteria is provided in CAAF/3-WP/5, *Fuel sustainability certification*.

2.6 Operators that wish to claim emissions reductions from the use of CEF must monitor the use of these fuels and calculate the resulting emissions reductions (in tonnes) based on the CORSIA life-cycle methodology. An operator's claims of emissions reductions must be verified through a third-party verification process prior to being reported to the State of attribution.

2.7 At the end of each compliance period, the State deducts the verified emissions reductions from the use of CEF from the total annual offsetting requirements for the three-year period (Step 2 in Figure 1) to calculate an operator's total final CO_2 offsetting requirements (in tonnes) for the compliance period (Step 3 in Figure 1), which have to be met through the purchase and cancelation of an equivalent amount of CORSIA eligible emissions units.

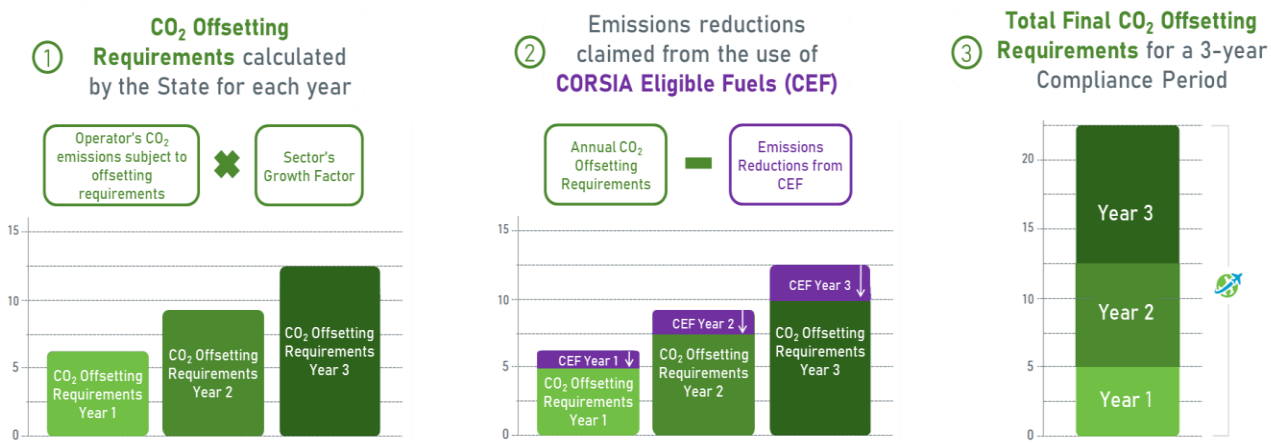

Figure 1. Determination of CORSIA offsetting requirements

2.8 It should be noted that the implementation of the CORSIA SARPs provides for the avoidance of double claiming of fuels' environmental benefits through the comparison of information reported to ICAO by States and by the Sustainability Certification Schemes (SCS)[8]. Furthermore, the CORSIA SARPs allow aeroplane operators that purchase SAF and LCAF to claim environmental benefits of those fuels even if they are not physically used in the operator's aeroplanes.

2.9 In this regard, recognizing that fuels' environmental benefits are being traded between aeroplane operators and their interested parties, including through "book and claim systems"[9], it would be important to consider if existing fuel accounting and reporting methodologies for international aviation can provide confidence for the claim of environmental benefits, while ensuring the environmental integrity through the avoidance of double claiming, and also bearing in mind the Assembly's request to consider necessary methodologies for the monitoring of progress towards the achievement of the LTAG.

[8] Annual reports from CORSIA-approved SCS: https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Certified-Fuels.aspx

[9] While there is not an agreed definition for book and claim, it generally refers to a chain of custody method that tracks flow of a physical product and environmental attributes through transactions. Also refer to material from 2023 ICAO Regional Seminars: https://www.icao.int/Meetings/RS2023/Documents/1%20-%20Supporting%20Policies.pdf.

3. POSSIBLE PARAMETERS TO MONITOR PROGRESS ON AVIATION CLEANER ENERGIES

3.1 In March 2023, the ICAO Council requested CAEP to identify possible parameters for fuel accounting and reporting methodologies for international aviation, to ensure consistent application as part of monitoring the LTAG progress. The technical inputs from CAEP on this subject are provided below.

3.2 CO_2 emissions from international aviation is a direct result of the production and combustion of aviation fuels. The reliable accounting of the amount of aviation fuels used, their associated CO_2 emissions and any CO_2 emissions reductions in their production is a critical component in the efforts of ICAO States to monitor the progress made towards achieving the LTAG of net-zero CO_2 emissions by 2050.

3.3 From a technical perspective, in the context of greenhouse gas (GHG) emissions methodologies, there are specific principles that apply to the estimation/measurement and reporting of GHGs such as transparency, accuracy, consistency, comparability and completeness. For the purposes of aviation fuels, such technical principles could be defined as follows:

- Transparency: Assumptions and methodologies used for the estimation of emissions and emissions reductions are clearly reported and explained;
- Accuracy: Estimates are systematically neither over nor under true emissions, so far as can be judged, and that uncertainties are reduced so far as is practicable;
- Consistency: Estimates are internally consistent over a period of years (for example, through the use of the same estimation methodologies over time);
- Comparability: Reported estimates are comparable among countries by using agreed estimation methodologies and reporting formats; and
- Completeness: Estimates cover all international routes from all civil aircraft.

3.4 In light of the technical principles mentioned above, the following parameters could be used for fuel accounting and reporting methodologies for international civil aviation, to ensure consistent application as part of monitoring of the LTAG progress:

a) they are ensuring the global coverage of emissions from international civil aviation, as part of monitoring of the LTAG progress;

b) they are supporting the consistent application of methodologies amongst States, in a transparent manner;

c) they are enabling the accurate emissions reporting, including the use of cleaner energy for international civil aviation;

d) they are ensuring the environmental integrity through the avoidance of double-counting including between domestic and international civil aviation;

e) they are having a preference for verified emissions information that could be supported with other information for the verification or validation of reported emissions;

f) they are promoting the cost-effectiveness by using simple accounting and reporting methodologies and procedures;

g) they are avoiding the excessive administrative burden on States and aeroplane operators; and

h) they are leveraging (to the extent possible) existing methodologies and procedures under the CORSIA Monitoring, Reporting and Verification (MRV) system for international civil aviation.

3.5 In the context of the LTAG monitoring, CAEP considers that fuel accounting and reporting methodologies for international civil aviation are not expected to have negative effects (e.g. increased costs or administrative burden) to the sustainable development of international civil aviation. Since the LTAG is a collective goal from ICAO and its Member States, any emission reductions captured by fuel accounting and reporting methodologies will be accounted equally for achieving the LTAG, independently from where the cleaner energy is produced and/or accounted for.

3.6 It should be noted that CAEP consideration of these possible parameters for fuel accounting and reporting methodologies is in the context of monitoring of LTAG progress – it is separate, and distinct from the current industry-led SAF book and claim systems, with its own methodologies.

4. ACTION BY THE CAAF/3

4.1 The CAAF/3 is invited to:

a) recognize the existing and harmonized methodologies under CORSIA MRV system to allow an aeroplane operator to claim environmental benefits from the use of CORSIA eligible fuels for the reduction of its CORSIA offsetting requirements;

b) in this regard, consider the role of the CORSIA MRV system in monitoring the use of cleaner energies for international aviation;

c) consider technical inputs of CAEP on possible parameters for fuel accounting and reporting methodologies for international aviation, to ensure consistent application as part of monitoring of the LTAG progress; and

d) use information in this paper, for consideration of CAAF/3 outcomes.

— END —