



**The ICAO ESAF/ WACAF Annual Environmental
Workshop
and
The EASA 3rd Annual SAF Workshop Under the
ICAO - EU ACT-SAF Assistance Project**

**INTERNATIONAL
CIVIL AVIATION
ORGANIZATION**



**Kigali, Rwanda
20-23 April 2026**



Kigali, Rwanda
20-23 April 2026



ICAO

CORSIA Implementation

Presenter: Ms. Blandine Ferrier
ICAO WACAF Office



1 Introduction

2 CORSIA Implementation Framework

3 CORSIA Implementation

4 ICAO ACT-CORSIA Programme

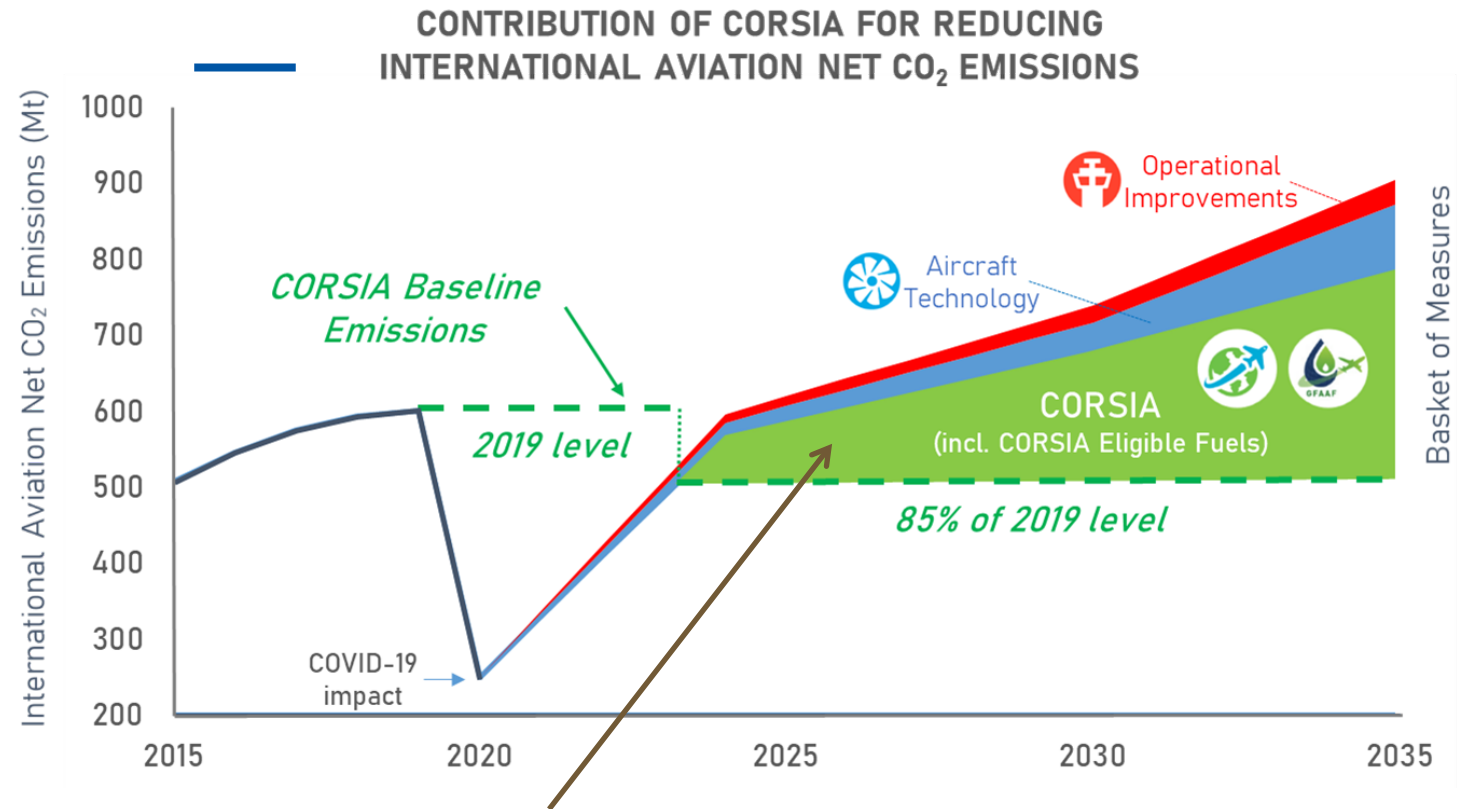
5 2025 CORSIA periodic review

The first global market-based measure for any industry sector

CORSIA complements the other three elements in the ICAO basket of measures:

- technological innovations
- operational improvements
- sustainable aviation fuels

Objective: Achieve ICAO’s global aspirational goal of carbon neutral growth from 2020 (CNG 2020)



CORSIA addresses the remaining “emissions gap” to achieve CNG2020

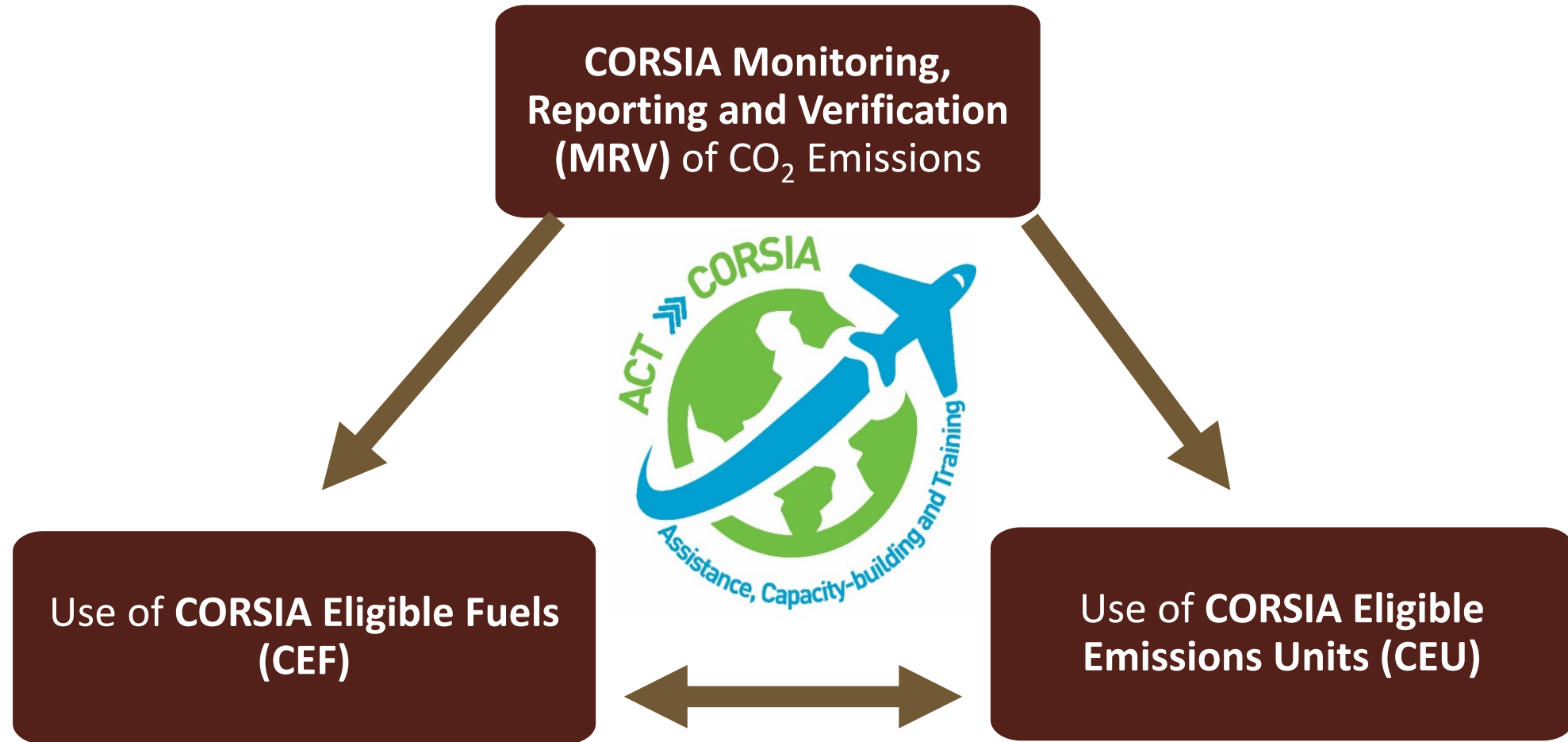
CORSIA Phased Implementation



Second phase participation criteria:

- Cumulative 90% of global 2018 RTK
- Individual 0.5% of 2018 RTK
- Voluntary participation

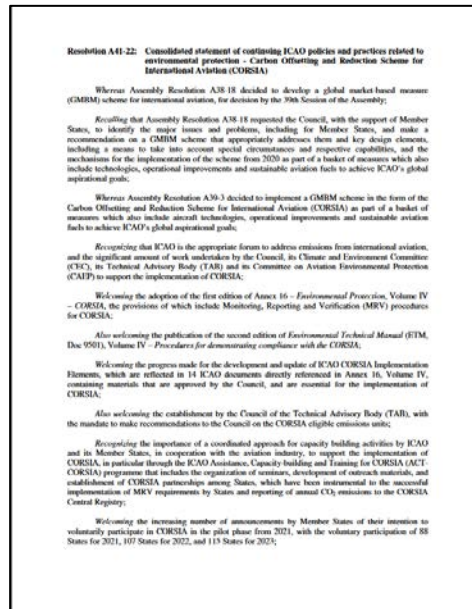
Exemptions: LDCs, LLDCs, SIDS



CORSIA offsetting requirements (until 2035) could be met by CEF or CEU

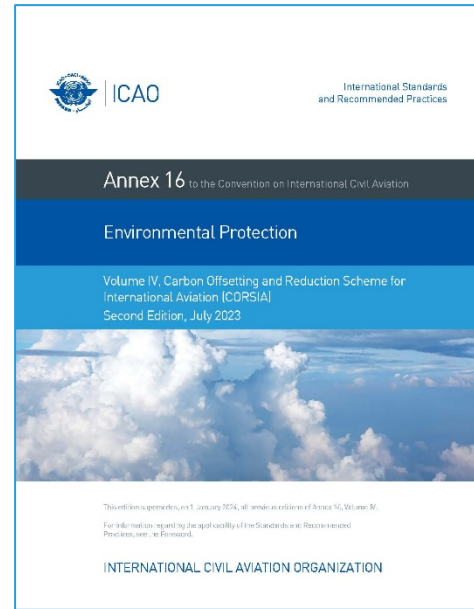
CORSIA Implementation Framework

Assembly Resolution A42-22



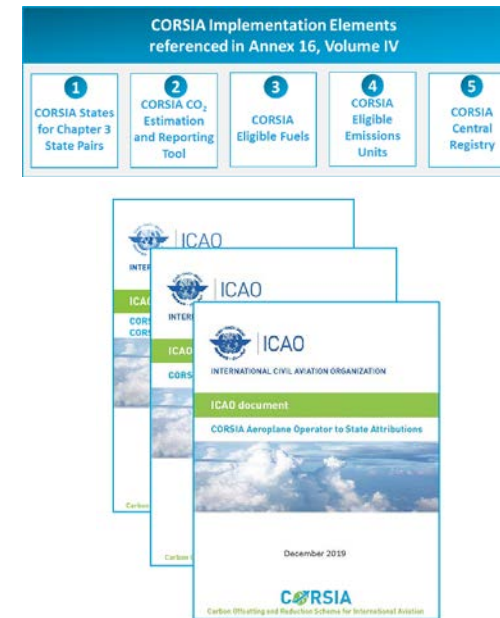
(overall ICAO policy on CORSIA)

Annex 16, Volume IV (2nd edition)



(applicable from 1 January 2024)

CORSIA Implementation Elements and ICAO CORSIA documents



(regularly updated)

Doc 9501 (ETM), Vol. IV (CORSIA) (4th edition)



(supports implementation of Annex 16, Volume IV)

Resolution A42-22: Consolidated statement of continuing ICAO policies and practices related to environmental protection - Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

Whereas Assembly Resolution A38-18 decided to develop a global market-based measure (GMBM) scheme for international aviation, for decision by the 39th Session of the Assembly;

Recalling that Assembly Resolution A38-18 requested the Council, with the support of Member States, to identify the major issues and problems, including for Member States, and make a recommendation on a GMBM scheme that appropriately addresses them and key design elements, including a means to take into account special circumstances and respective capabilities, and the mechanisms for the implementation of the scheme from 2020 as part of a basket of measures which also include technologies, operational improvements and sustainable aviation fuels to achieve ICAO's global aspirational goals;

Whereas Assembly Resolution A39-3 decided to implement a GMBM scheme in the form of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) as part of a basket of measures which also include aircraft technologies, operational improvements and sustainable aviation fuels to achieve ICAO's global aspirational goals;

Recognizing that ICAO is the appropriate forum to address emissions from international aviation, and the significant amount of work undertaken by the Council, its Climate and Environment Committee (CEC), its Technical Advisory Body (TAB) and its Committee on Aviation Environmental Protection (CAEP) to support the implementation of CORSIA;

Welcoming the adoption of the second edition of Annex 16 – *Environmental Protection*, Volume IV – *Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)*, the provisions of which include Monitoring, Reporting and Verification (MRV) procedures for CORSIA;

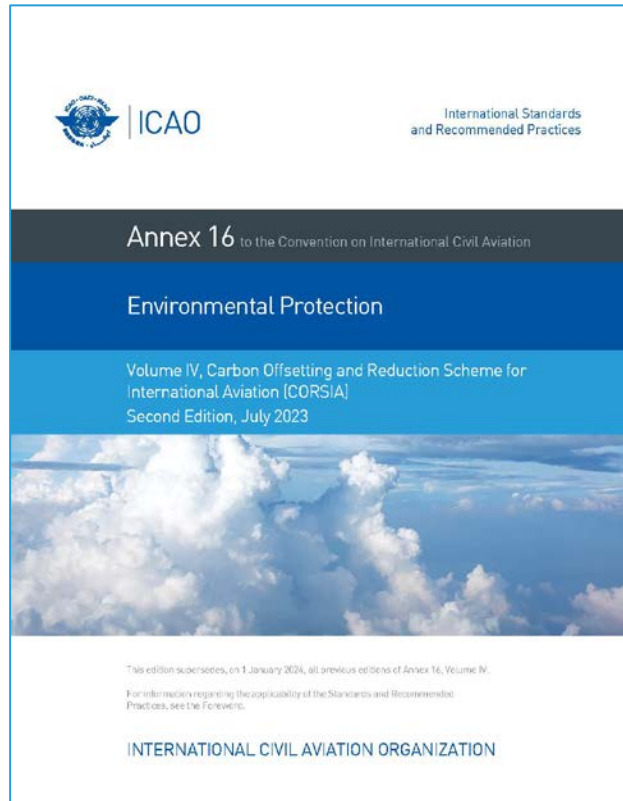
Also welcoming the publication of the third edition of *Environmental Technical Manual (ETM, Doc 9501)*, Volume IV – *Procedures for demonstrating compliance with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)*;

Welcoming the progress made for the development and update of ICAO CORSIA Implementation Elements, which are reflected in 14 ICAO documents directly referenced in Annex 16, Volume IV, containing materials that are approved by the Council, and are essential for the implementation of CORSIA;

Also welcoming the establishment by the Council of the Technical Advisory Body (TAB), with the mandate to make recommendations to the Council on the CORSIA eligible emissions units;

Recognizing the importance of a coordinated approach for capacity building activities by ICAO and its Member States, in cooperation with the aviation industry, to support the implementation of CORSIA, in particular through the ICAO Assistance, Capacity-building and Training for CORSIA (ACT-CORSIA) programme that includes the organization of seminars, development of outreach materials, and establishment of CORSIA partnerships among States, which have been instrumental to the successful implementation of MRV requirements by States and reporting of annual CO₂ emissions to the CORSIA Central Registry;

- Resolution currently in force: A42-22
 - Adopted by the 42nd Session of the ICAO Assembly in 2025
 - It supersedes previous Assembly Resolutions on CORSIA:
 - A39-3 (2016) – CORSIA agreement
 - A40-19 (2019)
 - A41-22 (2022)



- Edition currently applicable: second edition (applicable since 1 January 2024)
- **Next update** (third edition)
 - Expected to incorporate minor MRV-related adjustments recommended by the ICAO Council’s Committee on Aviation Environmental Protection (CAEP)
 - Distributed to States and relevant International Organizations (State letter 2025/66)
 - Expected to be applicable from 1 January 2027





- Current edition (4rth) supports implementation of Annex 16, Volume IV (from 1 January 2024)
 - Further guidance on matters related to CORSIA eligible fuels (CEFs)
 - New guidance on verification of emissions reduction claims from CEFs
 - New section on CEFs in the States' Order of Magnitude checklist
 - Restructuring of the CEF claims template to make it more user-friendly
 - Update of the Verification Report template to facilitate the review of CEF claims



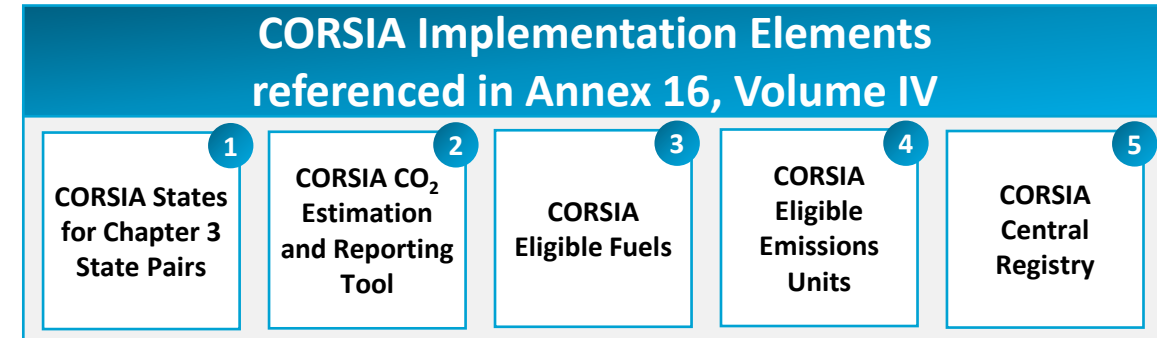
CORSIA Implementation Elements and related ICAO documents

- 5 CORSIA Implementation Elements...

- ... reflected in 14 ICAO documents

- Directly referenced in Annex 16, Volume IV

- Contain material **approved by the ICAO Council** for publication by ICAO to support Annex 16, Volume IV, and **essential for the implementation of CORSIA**



CORSIA Implementation Elements and related ICAO documents

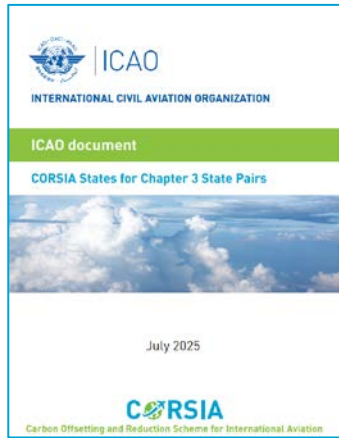
CORSIA Implementation Elements	ICAO documents
CORSIA States for Chapter 3 State Pairs	1. CORSIA States for Chapter 3 State Pairs
ICAO CORSIA CO ₂ Estimation and Reporting Tool (CERT)	2. ICAO CORSIA CO ₂ Estimation and Reporting Tool
CORSIA Eligible Fuels	3. CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes 4. CORSIA Approved Sustainability Certification Schemes 5. CORSIA Sustainability Criteria for CORSIA Eligible Fuels 6. CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels 7. CORSIA Methodology for Calculating Actual Life Cycle Emissions Values
CORSIA Eligible Emissions Units	8. CORSIA Eligible Emissions Units 9. CORSIA Emissions Unit Eligibility Criteria
CORSIA Central Registry (CCR)	10. CORSIA Central Registry: Information and Data for the Implementation of CORSIA 11. CORSIA Aeroplane Operator to State Attributions 12. CORSIA 2020 Emissions 13. CORSIA Annual Sector's Growth Factor (SGF) 14. CORSIA Central Registry (CCR): Information and Data for Transparency

Note – All documents have been approved by the ICAO Council and are available on the ICAO website

Voluntary States Participation



Available here: <https://www.icao.int/CORSIA/corsia-states-chapter-3-state-pairs>

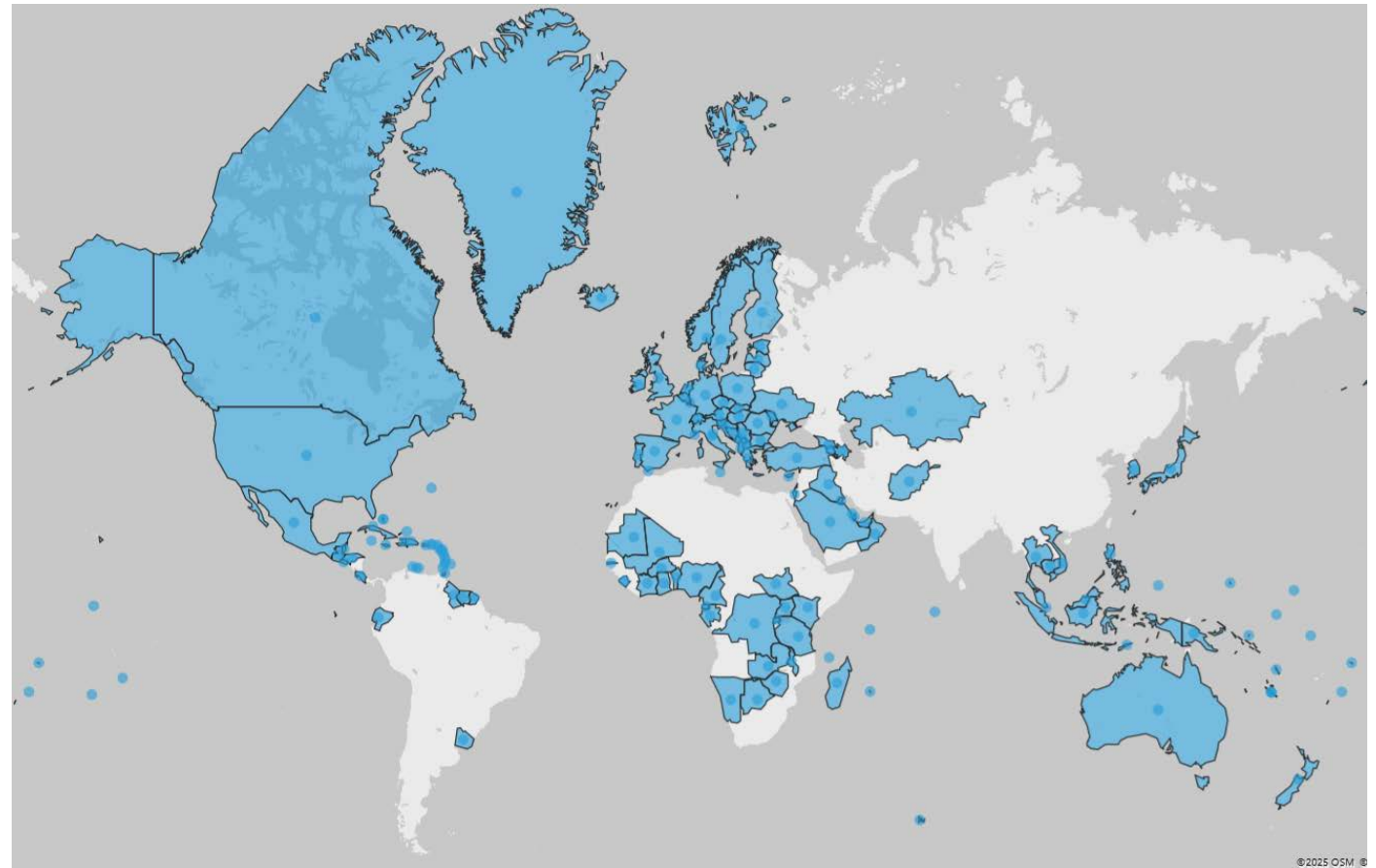


Edition 6 (July 2025)

- List of 130 States defining routes subject to offsetting requirements in 2026
- Reference for the preparation of Emissions Reports for year 2026 (deadline: 30 April 2027)

Edition 7 (to be published in July 2026) will contain the list of States defining routes subject to offsetting requirements in 2027

130 States have confirmed voluntary participation in CORSIA in 2026



- Five ICAO documents containing the information needed to claim emissions reductions from the use of CORSIA Eligible Fuels

- Current editions:



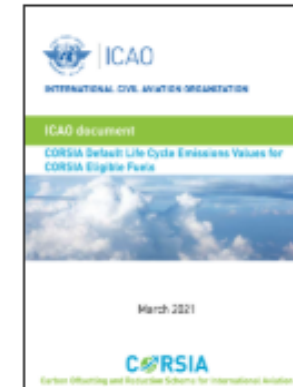
CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes
Fourth Edition,
June 2025



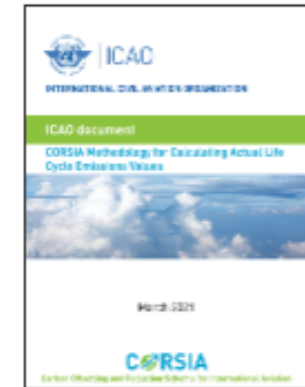
CORSIA Approved Sustainability Certification Schemes*
Third Edition,
October 2024



CORSIA Sustainability Criteria for CORSIA Eligible Fuels**
Fourth Edition,
June 2025



CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels***
Seventh Edition,
June 2025



CORSIA Methodology for Calculating Actual Life Cycle Emissions Values
Sixth Edition,
June 2025

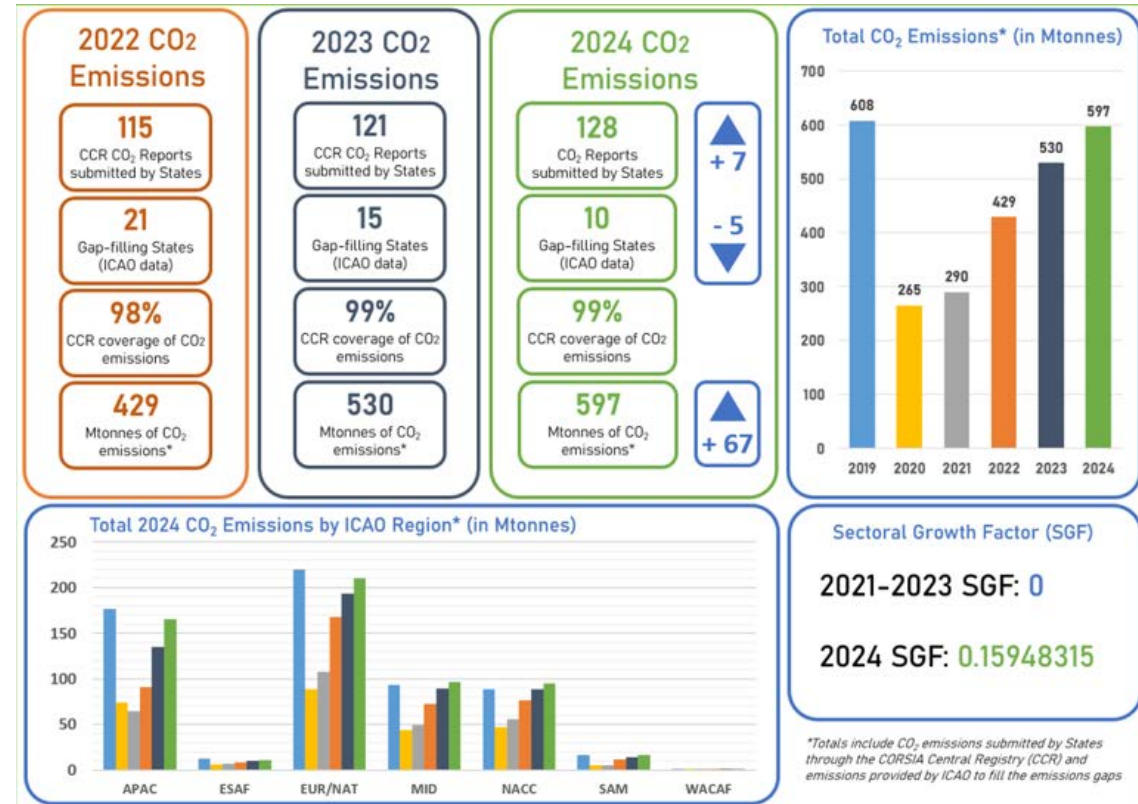
- **CORSIA Eligible Emissions Units (CEEUUs)** are ‘carbon offsets’ that have been approved by the ICAO Council, upon recommendation the Technical Advisory Body (TAB) for their use in CORSIA.
- CEEUUs shall meet the **CORSIA Emissions Unit Criteria (EUC)**
- Two ICAO documents referenced in Annex 16, Volume IV, approved by the ICAO Council:
 - CORSIA Emissions Unit Eligibility Criteria
 - CORSIA Eligible Emissions Units



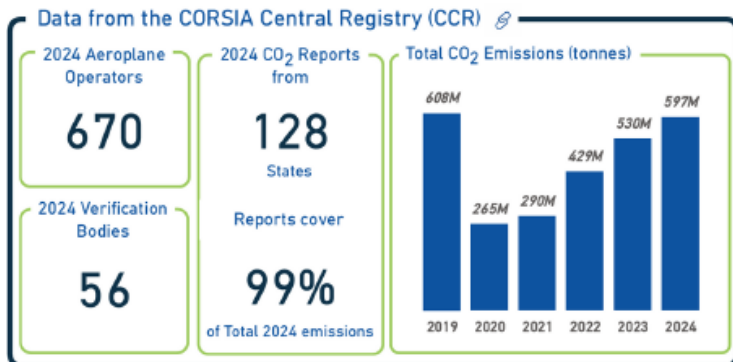
CORSIA Central Registry (CCR)

Unprecedented number of States reported 2024 CO₂ emissions through the CCR!

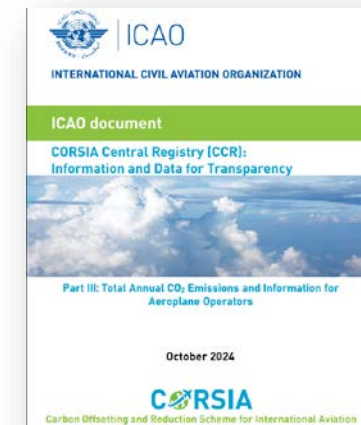
99% coverage maintained



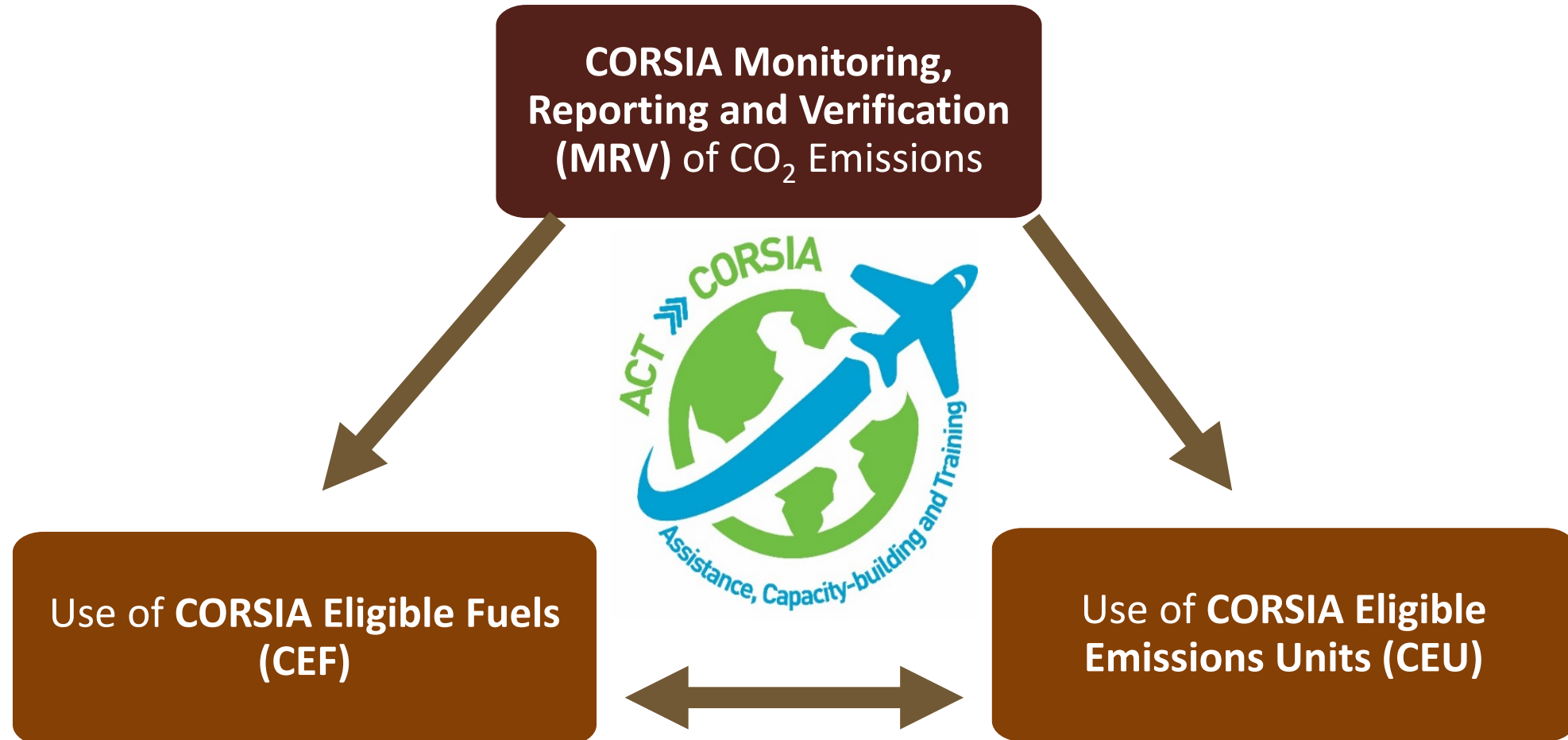
Sectoral Growth Factor (SGF)
 2021-2023 SGF: 0
 2024 SGF: 0.15948315



CCR Data



The information presented here is based on the currently applicable editions of the ICAO documents for CORSIA implementation directly referenced in Annex 16, Volume IV and available on the ICAO CORSIA public website.



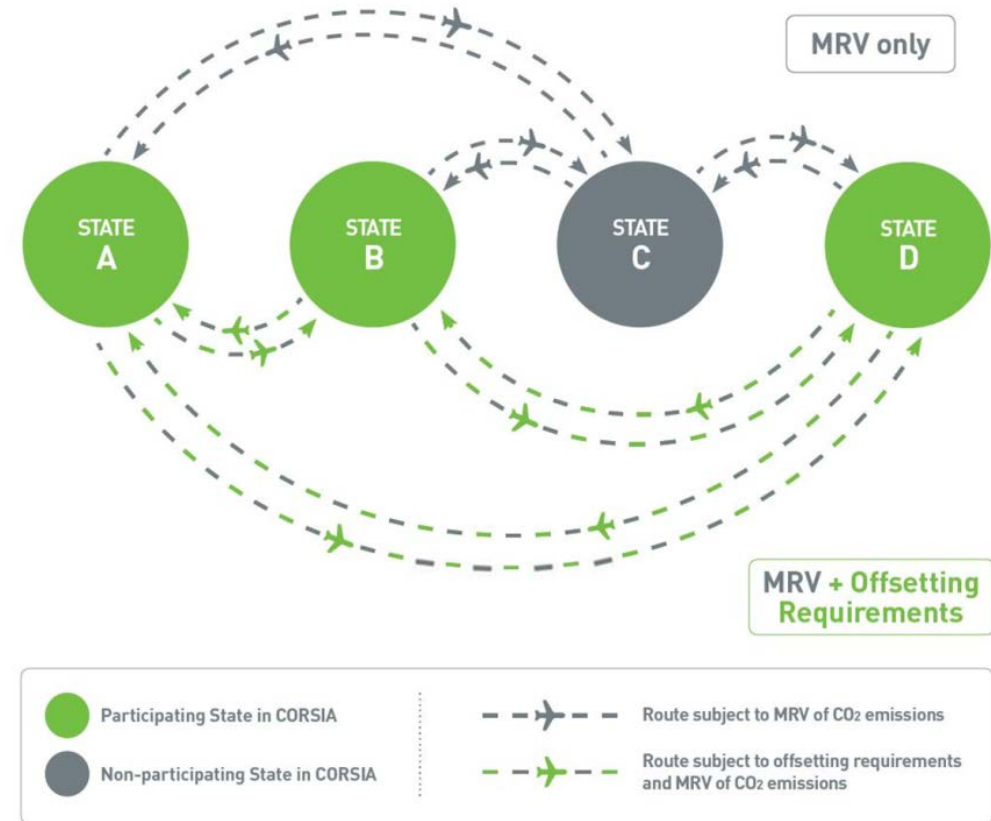
CORSIA offsetting requirements (until 2035) could be met by CEF or CEU

CORSIA CO₂ MRV

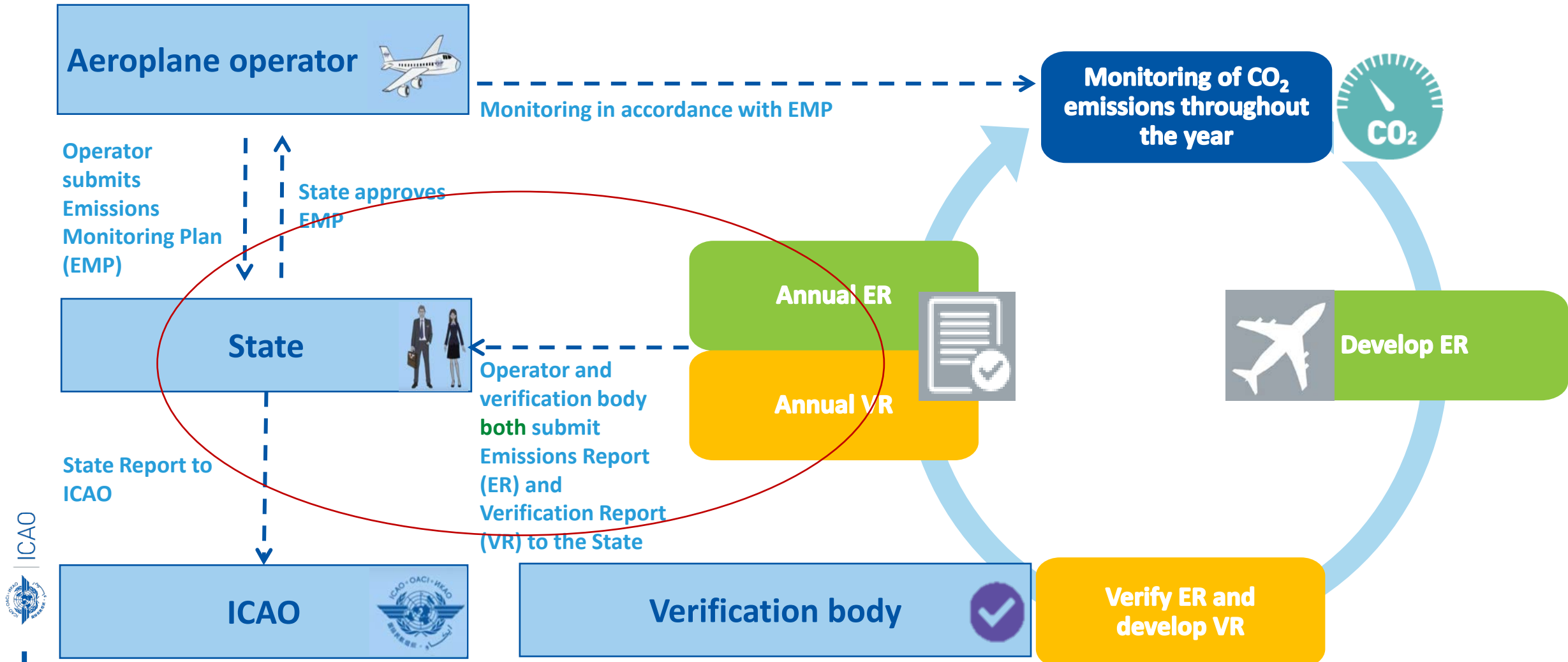
From 1 January 2019, all States with operators performing international flights have to establish a monitoring, reporting and verification (MRV) system for CO₂ emissions.

From 1 January 2019, all operators performing international flights have to monitor CO₂ emissions - operators with emissions more than 10,000 tonnes annually have to verify CO₂ emissions and report to State.

All operators performing international flights between States participating in CORSIA have to comply with the CORSIA offsetting requirements.



CORSIA CO2 MRV



The objective of the State's order of magnitude check of an aeroplane operator's Emissions Reports is to assess the completeness of data reported by the operator.

Extract from Annex 16 vol. 4 and ETM vol. 4

2.4.1.6 The State shall perform an **order of magnitude** check of the Emissions Report in accordance with the timeline, as defined in Appendix 1.

*Note.— Further guidance material on the **order of magnitude** check is provided in the Environmental Technical Manual (Doc 9501), Volume IV — Procedures for demonstrating compliance with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA).*

3.3.4.4 Order of magnitude check by State

The State will perform an order of magnitude check of the Emissions Report of the aeroplane operator, as described in Annex 16, Volume IV, Part II, Chapter 2, 2.4.1.6. The order of magnitude check will follow a set of standardized requirements, as outlined in Table 3-11. For an average sized aeroplane operator with a satisfactory verified Emissions Report, the order of magnitude check should not take longer than approximately three hours.

State's Order of Magnitude Check

Table 3-11. State order of magnitude checklist for the Emissions R

ETM vol. 4, Para 3.3.4.4

Main sections

Aeroplane Operator

Administrative aspects

Emissions Monitoring Plan

Aeroplane fleet

Data gaps

CORSIA Eligible Fuels

Verification body and verification report



Insert aeroplane operator's name: _____

Reporting year: _____

Amount of verified emissions (in tonnes): _____

Emissions from international flights subject to offsetting (in tonnes): _____

Reviewed by: _____

Additional details: _____

No	Question/Issue	Additional information	Status: OK/Yes/No/ Not applicable	Notes and results of checks
Aeroplane operator identification				
1	Is the name of the aeroplane operator given and unambiguous? If applicable, is there a valid ICAO Designator for aeroplane operating agencies?	Ensure unambiguous identification of aeroplane operator. Get back to aeroplane operator in case of uncertainties.		

Aeroplane fleet				
16	Is the aeroplane fleet plausible?	In case of significant change to the last Emissions Report, with available data sources (website of aeroplane operator databases) to roughly confirm aeroplane fleet.		
17	Have registration marks been indicated multiple times?	If so, get back to aeroplane operator.		
18	Are there other defects or comments?			
Data analysis				
19	Does the number of total international flights and emissions roughly correspond to the flight activity of earlier years and to the size of the aeroplane fleet? If not, what	Utilization for short- and medium-haul flights is higher than for long-haul aeroplanes. Domestic flights are not reported under CORSIA. External information such as restrictions in international travel, economic downturns or operator-specific information		

CORSIA eligible fuels (CEF)				
38	Is the sum of emissions reductions claimed correct and supported by attached Proof of Sustainability (PoS) or Proof of Compliance (PoC) documentation confirming eligibility under CORSIA?	The State should, at a minimum, cross-check CEF claim totals between the Emissions Report and the Verification Report, and conduct spot checks of PoS or PoC documentation for individual batches.		
39	Does a spot check of the documentation confirm that claimed volumes were blended before the end of the compliance cycle?	As per Annex 16, Volume IV, Part II, Chapter 2, 2.3.3.3.		
40	Confirm that the verification body performed checks on double claiming (Verification Report).	The verification body should compare CEF batch numbers with those contained in the CORSIA Central Registry (CCR) and Sustainability Certification Schemes (SCSs) annual reports from the current compliance		

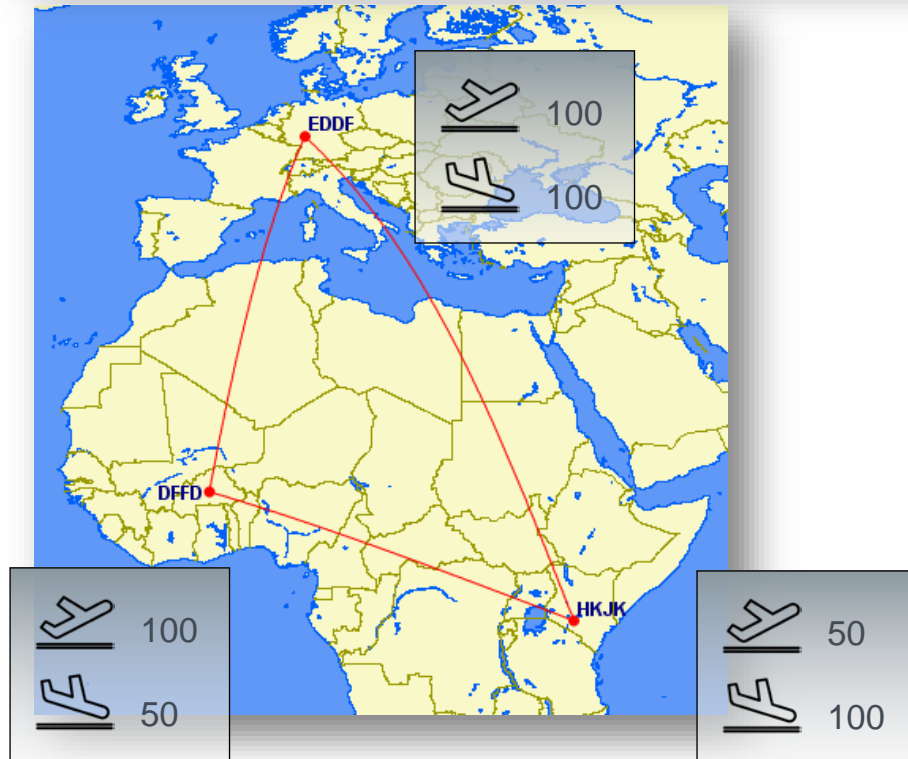
Template of State Order of Magnitude Checklist for Emissions Report (to be used by States)

An updated standardized template of a State Order of Magnitude Checklist for Emissions Report in the format of a spreadsheet is available to States for download below.

(EN) (FR) (SP) (RU) (AR) (ZH)

Example : Inbound/Outbound flights per State (almost) identical?

State of Departure	State of Arrival	Total No. of flights	Type of Fuel
Germany	Kenya	100	Jet-A1
Kenya	Burkina Faso	50	Jet-A1
Burkina Faso	Germany	100	Jet-A1



	Departures	Arrivals	Gap
Germany	100	100	0 ✓
Kenya	50	100	50 !
Burkina Faso	100	50	50 !

➔ Departures from and arrivals at any State in the ER should be roughly equal

Example: Correctness Check fuel consumption

28	Are there State pairs or aerodrome pairs with more than 250 tonnes of average fuel consumption per flight?	The calculation is: fuel consumption of respective State pair or aerodrome pair divided by number of flights. In case of fuel consumption greater than 250 tonnes per flight, investigate further with the aeroplane operator. This refers to all reported State pairs.
----	--	---

→ Please note: This is the maximum tank capacity of an A380

No	Question/Issue	Additional information	Status: OK/Yes/No/ Not applicable	No re of
29	Are there State pairs or aerodrome pairs with less than 1 tonne of fuel consumption per flight?	The calculation is: fuel consumption of respective State pair or aerodrome pair divided by amount of flights. In case of fuel consumption below 1 tonne per flight, investigate further with the aeroplane operator. This refers to all reported State pairs.		

→ Please note: This is equivalent of <1h flight time with an A320



Departure		Arrival		Total No. of flights	Type of Fuel	Total Amount of Fuel used (in tonnes)	Fuel Conversion Factors	CO ₂ emissions (in tonnes)	Total Amount of Fuel used / Total No. Of flights
ICAO airport code	State	ICAO airport code	State						
ZWWW	China	OMSJ	United Arab Emirates	146	Jet-A1	1,906	3.16	6,022.96	13.1
OMSJ	United Arab Emirates	ZWWW	China	146	Jet-A1	171	3.16	540.36	1.2
KATL	United States	EDDM	Germany	30	Jet-A1	12,000	3.16	37,920.00	400.0
KATL	United States	EDDM	Germany	166	Jet-A1	11,851	3.16	37,449.16	71.4

→ The fuel consumption appears to be outside the range typically expected. Further checks / enquiries required.

Are the types of fuel reported plausible and contained in the EMP?

Since emissions factors are fuel type-specific, deviation might lead to implausible amount of calculated emissions.

Example:

An aeroplane operator has reported the following information in its ER:

- Total amount of Jet A1 Fuel = 250,000 tonnes (FCF = 3.16 tonnes of CO₂/tonne of fuel)
- Total amount of AvGas = 50,000 tonnes (FCF = 3.10 tonnes of CO₂/tonne of fuel)

You can use this information to calculate the total CO₂ emissions:

$$\text{CO}_2 \text{ emissions} = (250,000 \times 3.16) + (50,000 \times 3.10) = 790,000 + 155,000 = 945,000 \text{ tonnes}$$

Compare the result with total reported CO₂ emissions



Example – Number of Flights Check

Is the given information regarding number of flights plausible?

Does aeroplane operator report a noticeable small number of flights on typical destinations of the airline?

Example based on reporting State pairs:

An aeroplane operator has reported the following information in its ER:

- Total # of flights per year = 7,500
- Total # of aeroplanes = 5

You can use this information to calculate an average number of flights per aeroplane:

Average = $7,500 \text{ flights} / (365 \text{ days} \times 5 \text{ aeroplanes}) = \text{about } 4 \text{ flights/aeroplane/day}$

Could be considered as plausible for an operator on short- and medium-haul flights



- Essential for the collection and publication of CORSIA data.
- The CCR allows:
 - States to submit information that is related to CORSIA, and
 - ICAO to compile information specific to the implementation and transparency of CORSIA.
- Consolidated data from the CCR is published on the ICAO CORSIA website for public access.



CORSIA Central Registry (CCR)



173
States have access to CCR

281
CCR Users Accounts



Information to be reported by States to ICAO through the CCR and associated deadlines

State Report	CORSIA First Phase			CORSIA Second Phase		
	2024	2025	2026	2027	2028	2029
Aeroplane Operators	30 Nov <i>(2024 AOs)</i>	30 Nov <i>(2025 AOs)</i>	30 Nov <i>(2026 AOs)</i>	30 Nov <i>(2027 AOs)</i>	30 Nov <i>(2028 AOs)</i>	30 Nov <i>(2029 AOs)</i>
Verification Bodies	30 Nov <i>(2024 VBs)</i>	30 Nov <i>(2025 VBs)</i>	30 Nov <i>(2026 VBs)</i>	30 Nov <i>(2027 VBs)</i>	30 Nov <i>(2028 VBs)</i>	30 Nov <i>(2029 VBs)</i>
CO ₂ Emissions	31 Jul <i>(2023 Emissions)</i>	31 Jul <i>(2024 Emissions)</i>	31 Jul <i>(2025 Emissions)</i>	31 Jul <i>(2026 Emissions)</i>	31 Jul <i>(2027 Emissions)</i>	31 Jul <i>(2028 Emissions)</i>
CORSIA Eligible Fuels*	31 Jul <i>(2023 CEF)</i>	31 Jul <i>(2024 CEF)</i>	31 Jul <i>(2025 CEF)</i>	31 Jul <i>(2024-2026 CEF)</i>	31 Jul <i>(2027 CEF)</i>	31 Jul <i>(2028 CEF)</i>
Cancelled Emissions Units					31 Jul <i>(2024 – 2026 CEUs)</i>	

* CEF reported annually or once at the end of each three-year compliance cycle

Annex 16, Volume IV - Appendix 1: Information to be reported by States to ICAO through the CCR and associated deadlines.

- **ICAO Assistance, Capacity-building and Training on CORSIA (ACT-CORSIA)** was launched in July 2018, to provide States with the CORSIA implementation support
- ACT CORSIA is designed to support a coordinated approach to harmonize and promote coherence to all capacity building efforts for implementation of CORSIA Annex 16, Volume IV (Resolution A42-22, paragraph 21)
- ACT-CORSIA also allows to monitor the global progress on CORSIA implementation and enhance transparency

CORSIA NEWSLETTER

ACT-CORSIA

[CORSIA Buddy Partnerships](#)

[Examples of Good Practice](#)

» [Model regulations](#)

» [CO₂ Aggregation](#)

[Frequently Asked Questions](#)

[Brochure and Leaflets](#)

[Videos \(Navigating CORSIA\)](#)

[Seminars](#)

[Background Information](#)



- ACT-CORSIA includes the **organization of seminars and training sessions**, development of **outreach materials** (e.g., brochure, leaflets, videos, newsletters) and establishment of **CORSIA buddy partnerships among States**, which have been instrumental to the successful implementation of MRV requirements
- Under ACT-CORSIA buddy partnerships, technical experts from supporting States are working together with CORSIA Focal Points of support-requesting States to provide on-site / remote training and follow-up on the required actions, in **close coordination with the Secretariat (HQ and ROs)**



ACT-CORSIA Buddy Partnerships

Different phases with specific focus areas in order to support necessary actions by States with different timelines

Phase I (Sep 2018 – Apr 2019): 15 supporting States and 98 requesting States

- Development and approval of Emissions Monitoring Plans
- Establishment of national/regional regulatory frameworks

Phase II (May 2019 – Apr 2020): 16 supporting States and 114 requesting States

- CO2 Emissions reporting and verification

Phase III (Apr 2020 – Dec 2024): 17 supporting States and 119 requesting States

Use of the CORSIA Central Registry (CCR)

Phase III (Jan 2025 – Ongoing): 16 supporting States and 125 requesting States

- Lessons learned and improved support to MRV

The focus areas of each Phase can form the basis for checklist to assess the progress made and milestones achieved in order to determine the need for a tailored approach to training.



CORSIA Periodic Review

- **Periodic reviews of CORSIA** are undertaken by the ICAO Council every three years, with the technical support of its **Committee on Aviation Environmental Protection (CAEP)**.
- It allows the Council to make **informed decisions** on whether it is necessary to make adjustments to the next phase(s) of the scheme.
- First periodic review (2022) was completed prior to the 41st Session of the Assembly, and led to changes to the CORSIA design elements arising from the impacts of the COVID-19 pandemic on the international aviation sector.



- CORSIA is working as designed and anticipated. **CORSIA implementation is on track.**
- Despite the lack of offsetting requirements during CORSIA’s Pilot Phase, **markets started to develop and prepare** to meet potential and future demand for emissions reductions from CORSIA Eligible Fuels and CORSIA Eligible Emissions Units.
- **Offsetting requirements are expected during the First Phase of CORSIA (2024 – 2026).**
- Operators to make a decision on the mix of CORSIA Eligible Fuels and CORSIA Eligible Emissions Units used to address offsetting requirements
- **Programmes are expected to generate enough CORSIA Eligible Emissions Units** for the First Phase, but their **market availability is subject to countries’ issuance of Letters of Authorization.**

Additional Information

- CORSIA Homepage
- ICAO publishes monthly newsletters to update stakeholder on CORSIA Implementation
- CORSIA Frequently Asked Questions (FAQs)



Template of State Order of Magnitude Checklist for Emissions Report (to be used by States)

An updated standardized template of a State Order of Magnitude Checklist for Emissions Report in the format of a spreadsheet is available to States for download below.



(EN) (FR) (SP) (RU) (AR) (ZH)

Thank You

