



ICAO

ENVIRONMENT

Workshop on Dissemination of Environmental Protection Measures in International Civil Aviation

2 to 5 April 2024

CORSIA





1 **CORSIA overview**



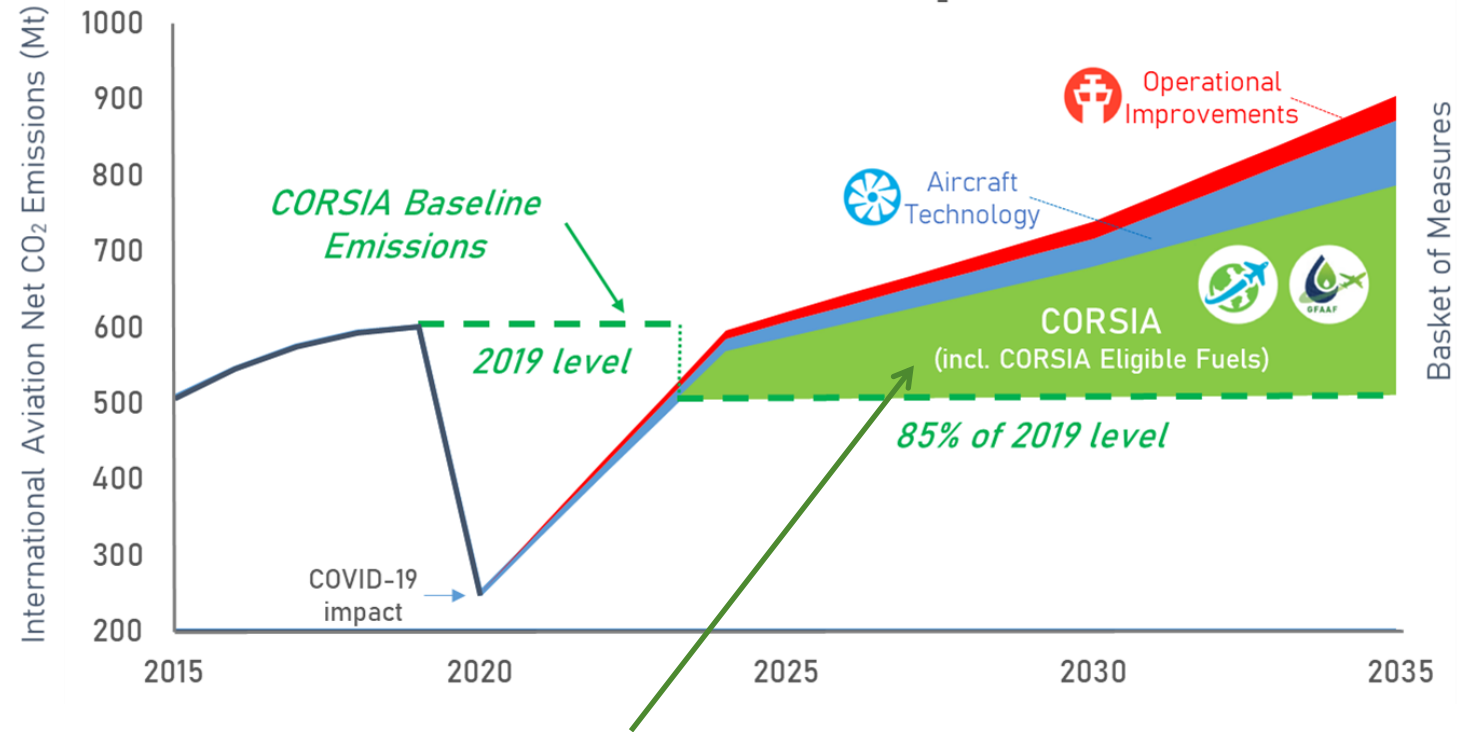
The first global market-based measure for any industry sector

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)

CONTRIBUTION OF CORSIA FOR REDUCING INTERNATIONAL AVIATION NET CO₂ EMISSIONS



CORSIA addresses the remaining “emissions gap” to achieve CNG2020



Second phase participation criteria:

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

Exemptions:
LDCs, LLDCs, SIDS



88 States for 2021

Afghanistan	El Salvador	Kenya	Republic of Korea
Albania	Equatorial Guinea	Latvia	Republic of Moldova
Armenia	Estonia	Lithuania	Romania
Australia	Finland	Luxembourg	Rwanda
Austria	France	Madagascar	San Marino
Azerbaijan	Gabon	Malaysia	Saudi Arabia
Belgium	Georgia	Malta	Serbia
Benin	Germany	Marshall Islands	Singapore
Bosnia and Herzegovina	Ghana	Mexico	Slovakia
Botswana	Greece	Monaco	Slovenia
Bulgaria	Guatemala	Montenegro	Spain
Burkina Faso	Guyana	Namibia	Sweden
Cameroon	Honduras	Netherlands	Switzerland
Canada	Hungary	New Zealand	Thailand
Costa Rica	Iceland	Nigeria	Turkey
Côte d'Ivoire	Indonesia	North Macedonia	Uganda
Croatia	Ireland	Norway	Ukraine
Cyprus	Israel	Papua New Guinea	United Arab Emirates
Czechia	Italy	Philippines	United Kingdom
Democratic Republic of the Congo	Jamaica	Poland	United Republic of Tanzania
Denmark	Japan	Portugal	United States
Dominican Republic	Kazakhstan	Qatar	Zambia

107 States for 2022

- Bahamas
- Grenada
- Palau
- Trinidad and Tobago
- Barbados
- Kiribati
- Saint Kitts and Nevis
- Tuvalu
- Belize
- Mali
- South Sudan
- Vanuatu
- Cook Islands
- Nauru
- Suriname
- Gambia
- Oman
- Tonga
- Uruguay

115 States for 2023

- Zimbabwe
- Federated States of Micronesia
- Maldives
- Timor-Leste
- Saint Vincent and the Grenadines
- Cuba
- Cambodia
- Iraq

126 States for 2024

- Antigua and Barbuda
- Bahrain
- Ecuador
- Kuwait
- Samoa
- Seychelles
- Sierra Leone
- Solomon Islands
- Mauritius
- Malawi
- Haiti

Available here: <https://www.icao.int/environmental-protection/CORSIA/Pages/state-pairs.aspx>



States joining in 2024

- Antigua and Barbuda
- Bahrain
- Ecuador
- Kuwait
- Samoa
- Seychelles
- Sierra Leone
- Solomon Islands
- Mauritius
- Malawi
- Haiti

- The 41st ICAO Assembly strongly encouraged all States to voluntarily participate in the pilot phase and the first phase (A41-22, paragraph 9 c))
- More States **are expected** to join CORSIA from 1 January 2025:
 - Deadline for informing ICAO: 30 June 2024



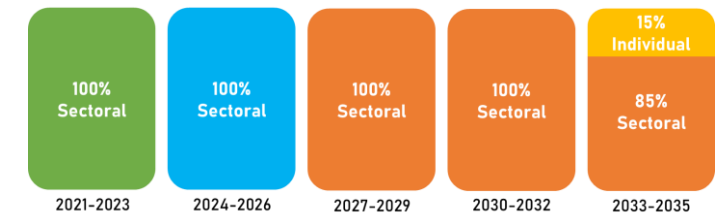
- Periodic review of CORSIA every three years – **First 2022 review was completed prior to A41**
- Allows the Council to make informed decisions on whether it is necessary to make adjustments to the next phase(s) of the scheme
- Special review by end of 2032 on termination of the scheme, its extension or any other improvements of the scheme beyond 2035
- At the request of A41, the Council to develop a methodology and timeline for future reviews





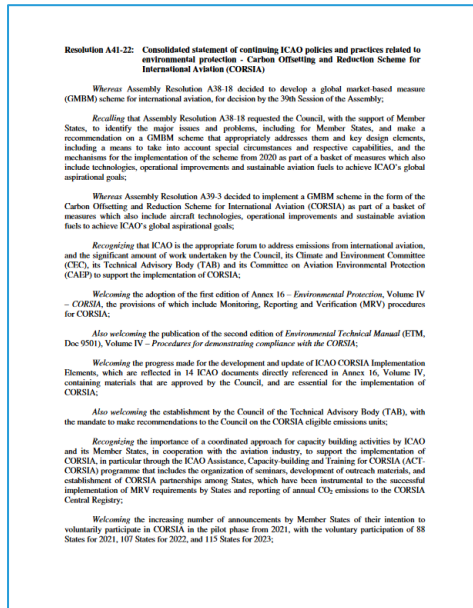
Based on the recommendations by the ICAO Council from the 2022 CORSlA review, the 41st Session of the ICAO Assembly adopted:

- Adjustments to CORSlA baseline emissions:
 - For pilot phase (2021 – 2023): 2019 CO₂ emissions (*as per Council decision in June 2020*)
 - From 2024 onwards: 85% of 2019 CO₂ emissions
- Changes to the percentage use of sectoral and individual operator's growth factors for the calculation of CORSlA offsetting requirements:
 - 100% sectoral and 0 % individual for 2021 – 2032
 - 85 % sectoral and 15% individual for 2033 – 2035
- Use of 2019 emissions to determine new entrants



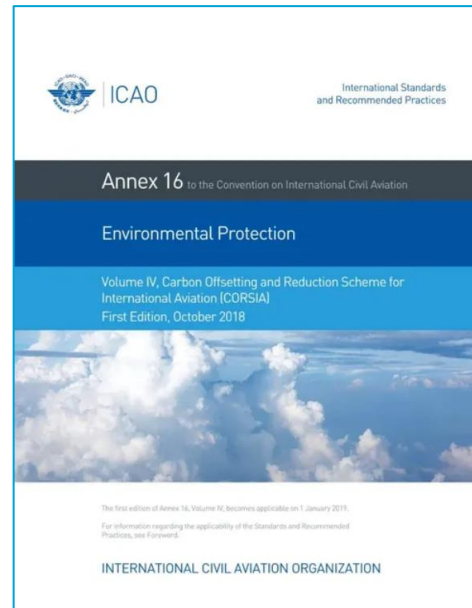


Assembly Resolutions in force (A41-22)



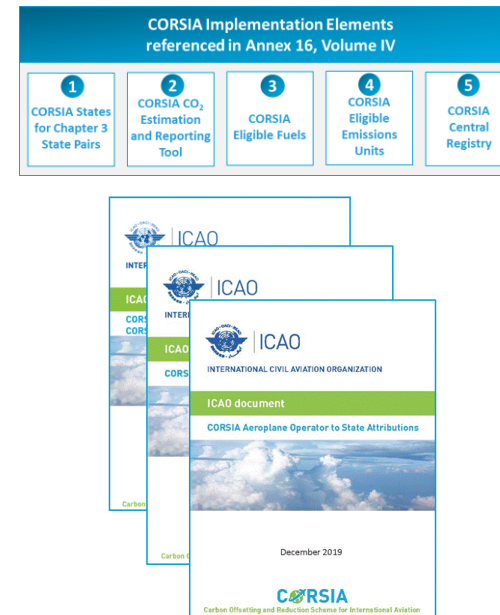
Decisions made by 193 ICAO Member States

Annex 16, Volume IV 2nd Edition



Standards and Recommended Practices (SARPs)

CORSIA Implementation Elements and ICAO CORSIA documents



Essential information for CORSIA implementation

Doc 9501 (ETM), Vol. IV 3rd Edition



Guidance to support CORSIA implementation



- Assembly Resolution A41-22 — Consolidated statement of continuing ICAO policies and practices related to environmental protection — Carbon Offsetting and Reduction Scheme for International Aviation (CORSA)

- A41-22 supersedes previous CORSIA-related Assembly Resolutions:

- A39-3 (2016)
- A40-19 (2019)

Resolution A41-22: Consolidated statement of continuing ICAO policies and practices related to environmental protection - Carbon Offsetting and Reduction Scheme for International Aviation (CORSA)

Whereas Assembly Resolution A38-18 decided to develop a global market based measure (GMM) 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 GMM 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 GMM scheme in the form of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) 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 CORSA;

Welcoming the adoption of the first edition of Annex 16 - Environmental Protection, Volume IV - CORSA, the provisions of which include Monitoring, Reporting and Verification (MRV) procedures for CORSA;

Also welcoming the publication of the second edition of *Environmental Technical Manual (ETM, Doc 9501)*, Volume IV - Procedures for demonstrating compliance with the CORSA;

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 CORSA;

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 CORSA, in particular through the ICAO Assistance, Capacity-building and Training for CORSIA (ACT-CORSA) 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;

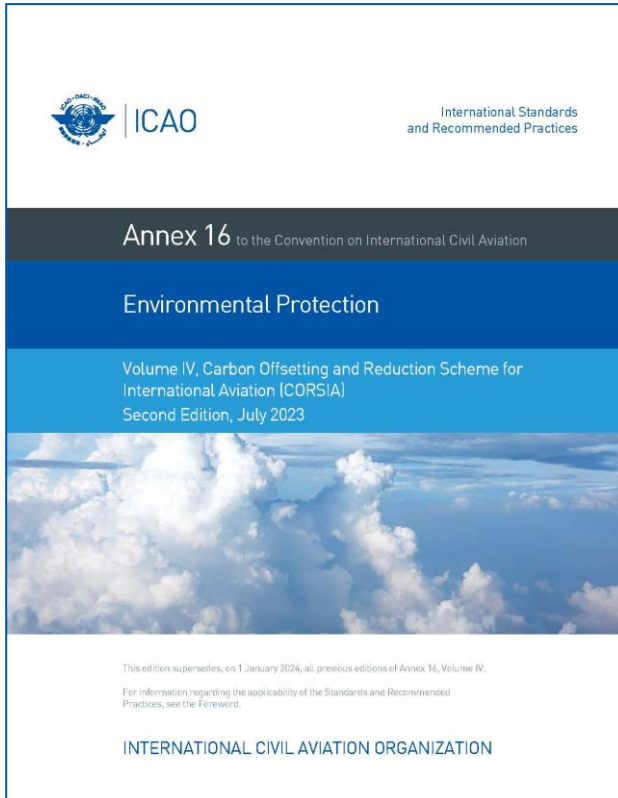
Welcoming the increasing number of announcements by Member States of their intention to voluntarily participate in CORSA in the pilot phase from 2021, with the voluntary participation of 88 States for 2021, 107 States for 2022, and 115 States for 2023;

<https://www.icao.int/environmental-protection/CORSA/Pages/default.aspx>



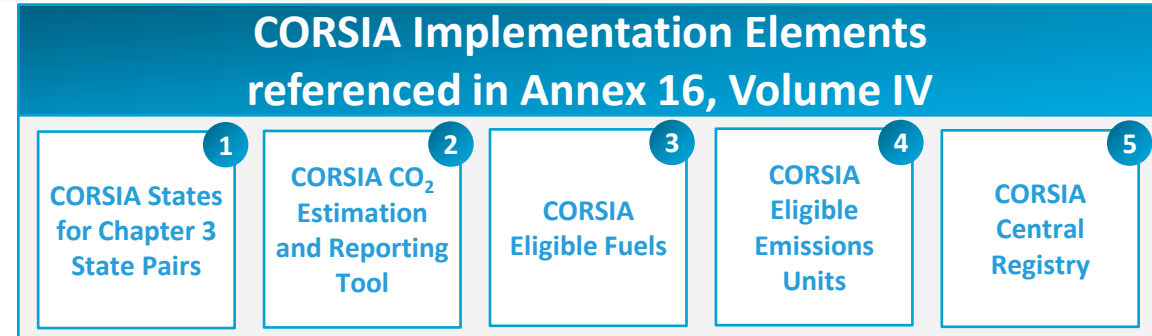
Second Edition

- Applicable from 1 January 2024
- Contains the definitions and standards to be followed in the implementation of CORSIA





- 5 CORSIA Implementation Elements...
- ... reflected in 14 ICAO documents



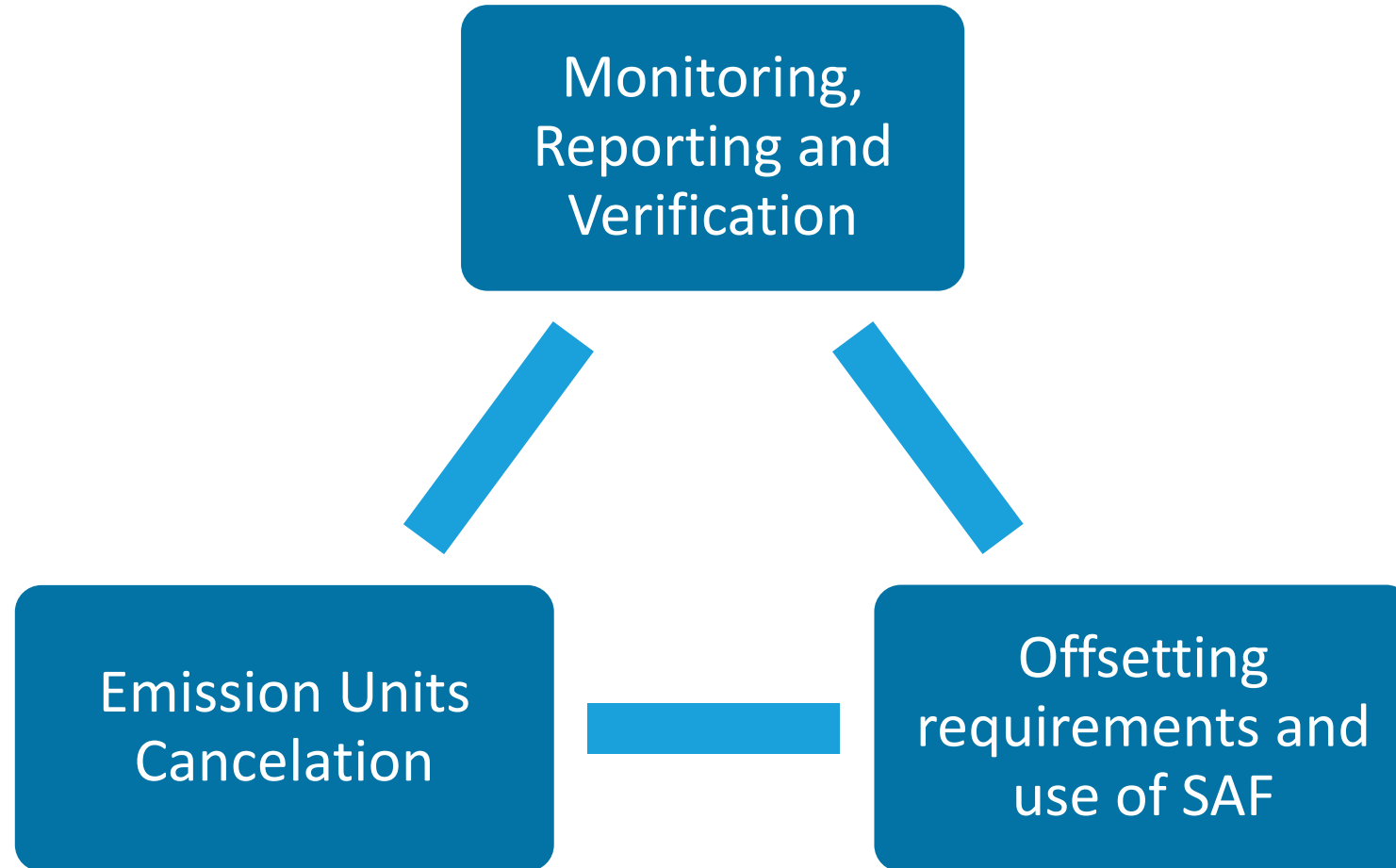
- Directly referenced in Annex 16, Volume IV
- Contain material approved by the ICAO Council for publication by ICAO to support Annex 16, Volume IV, and essential for the implementation of CORSIA





- **Doc 9501 (Environmental Technical Manual), Volume IV (CORSA):
*Procedures for demonstrating compliance with CORSA***
- Guidance on the process (the “how”) to implement CORSA
- Editions published in support of the first edition of Annex 16, Volume IV:
 - 1st edition (2018)
 - 2nd edition (2019)
- 3rd edition (already published) will be used to support the implementation of the second edition of Annex 16, Volume IV







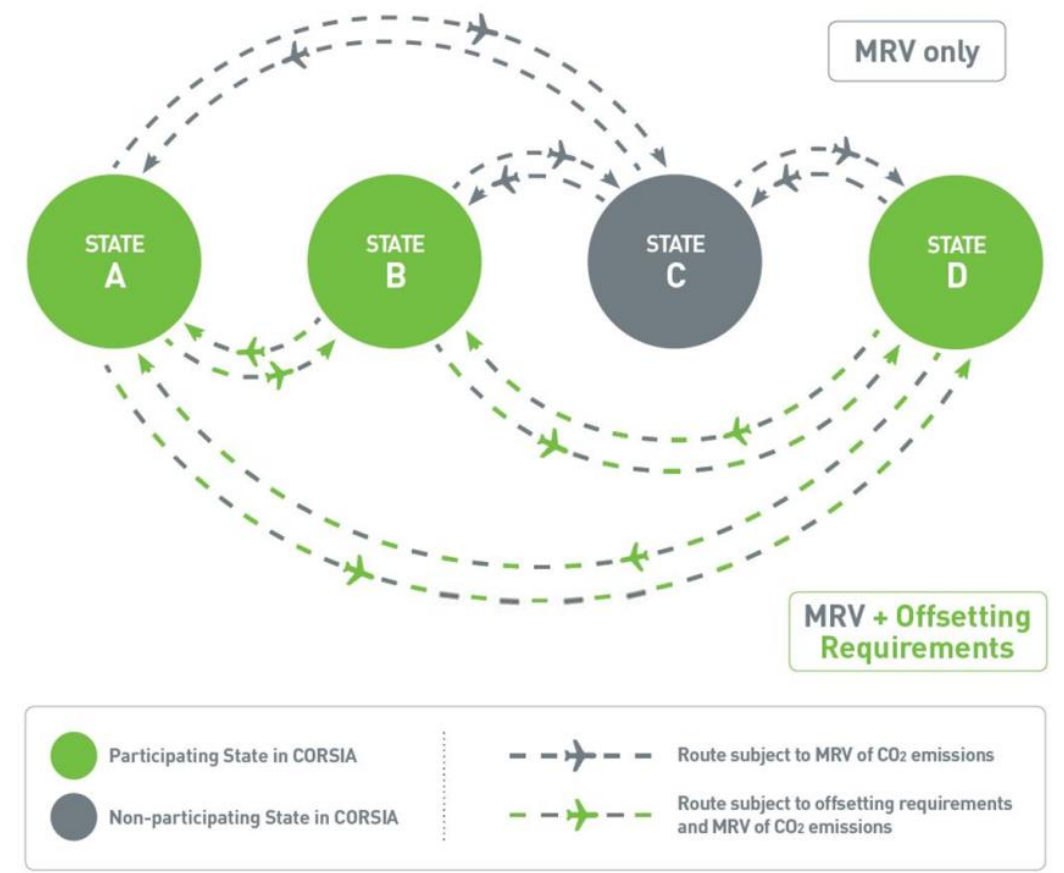
2 Monitoring, Reporting and Verification



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





- A monitoring, reporting and verification (MRV) system is a key component of CORSIA implementation
 - Implementation of the MRV system from 1 January 2019 for all international flights is essential to establish CORSIA's baseline (to be used from 2021)
 - Purpose of MRV is to collect information on international aviation CO₂ emissions on an annual basis and compare emissions from 2021 against the baseline emissions



Monitoring

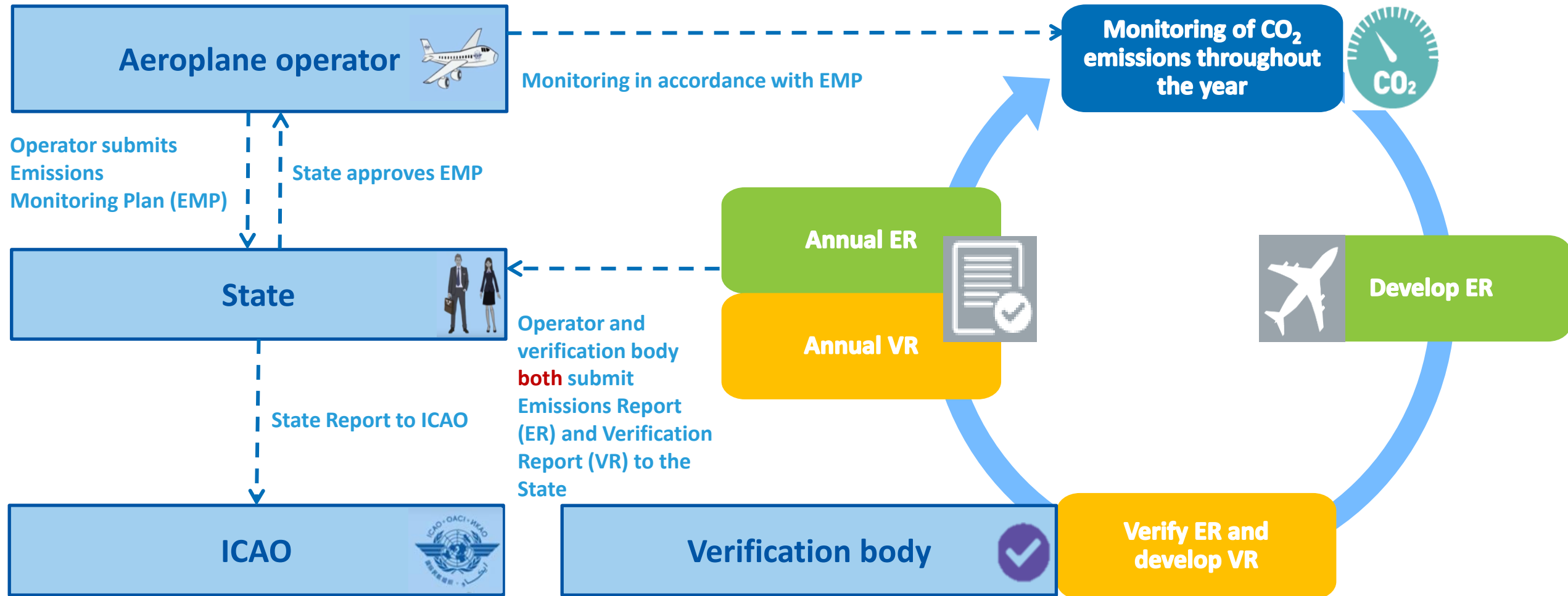
Monitoring of CO₂ emissions is either based on a Fuel Use Monitoring Method, or the use of the ICAO CORSIA CERT

Reporting

CO₂ emissions will be reported from aeroplane operators to their State Authority, and from States to ICAO

Verification

CO₂ emissions information is accurate and free of errors





The CERT supports aeroplane operators in fulfilling their monitoring and reporting requirements, including:

1. Assessing whether or not it is within the applicability scope of the Chapter 2 MRV requirements;
2. Assessing its eligibility to use Fuel Use Monitoring Methods in support of their Emissions Monitoring Plan;
3. Filling any CO₂ emissions data gaps; and
4. Developing an Emissions Report.



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CORSIA Emissions and Reporting Tool (CERT)



2023 version currently available on the CORSIA webpage*

ICAO / Environmental Protection / CORSIA / ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT)

ENV Homepage
CORSIA Homepage
CORSIA IMPLEMENTATION
 A41-22
 Annex 16 Volume IV
 ETM - Volume IV
 CORSIA Implementation Elements
 Additional Material for CORSIA Implementation
ACT CORSIA
 Buddy Partnerships
 Example Regulatory Framework
 FAQs
 Brochure and Leaflets
 Videos
 Seminars
 Online Tutorials
 Background Information

ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT)

This ICAO CORSIA Implementation Element is reflected in the ICAO document entitled "ICAO CORSIA CO₂ Estimation and Reporting Tool", referenced in Annex 16, Volume IV.

ICAO document "ICAO CORSIA CO₂ Estimation and Reporting Tool"

Version 2023 of the ICAO CORSIA CERT is available for [download here](#)

CSV file templates for importing data into the ICAO CORSIA CERT:

- a) Template for the "Summary of assessment of applicability of CORSIA and eligibility to use the ICAO CORSIA CERT in 2024" functionality is available for [download here](#).
- b) Template for the "CO₂ Estimation and Reporting for 2023" functionality is available for [download here](#).

The ICAO CO₂ Estimation Models (CEMs) is a set of equations underpinning the ICAO CORSIA CERT, which allow for the estimation of CO₂ emissions as a function of Great Circle Distance or Block Time for a given aircraft type. The 2023 Version of the ICAO CEMs is available for [download here](#).

The ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) can be used by an aeroplane operator to support the monitoring and reporting of their CO₂ emissions, in accordance with the requirements from ICAO Annex 16, Volume IV, Part II, Chapter 2, 2.2 and Appendix 3.



*<https://www.icao.int/environmental-protection/CORSIA/Pages/CERT.aspx>

For assistance, please contact CERT@icao.int

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CORSIA CO₂ Estimation & Reporting Tool (CERT) Version 2023

Main page | Background information

Step: **1** Choose below the purpose of the use of the ICAO CORSIA CERT 2023 (click on the appropriate checkbox):

- Assessment of (1) whether the operator is within the applicability scope of the Annex 16, Volume IV, Part II, Chapter 2 requirements towards the submission of the Emissions Monitoring Plan and (2) the operator's eligibility to use the ICAO CORSIA CERT as a monitoring method in 2024. Click on ->
- Estimation of 2023 Emissions and/or Generation of an Emissions Report. Click on -> **Next**

Background information on the ICAO CORSIA CERT

The ICAO CORSIA CO₂ Estimation and Reporting Tool (CERT) can be used by an aeroplane operator to support the monitoring and reporting of their CO₂ emissions, in accordance with the requirements from ICAO Annex 16, Volume IV, Part II, Chapter 2, 2.2, 2.5.1 and Appendix 3.

The ICAO CORSIA CERT supports aeroplane operators in fulfilling their monitoring and reporting requirements by populating the standardized Emissions Monitoring Plan and Emissions Report templates provided in Appendix 1 of the Environmental Technical Manual (Doc 9501), Volume IV. This support includes:

- (i) assessing whether or not they are within the applicability scope of the Chapter 2 MRV requirements;
- (ii) assessing their eligibility to use Fuel Use Monitoring Methods in support of their Emissions Monitoring Plan (Annex 16, Volume IV, Part II, Chapter 2, 2.2; and
- (iii) filling any CO₂ emissions data gaps (Annex 16, Volume IV, Part II, Chapter 2, 2.5.1).

The 2023 version of the ICAO CORSIA CERT is valid for the assessment of (1) whether the operator is within the applicability scope of the Annex 16, Volume IV, Part II, Chapter 2 requirements towards the submission of the Emissions Monitoring Plan and (2) the operator's eligibility to use the ICAO CORSIA CERT as a monitoring method in 2023. For operators within the scope of applicability of the Annex 16, Volume IV, Part II, Chapter 2, the ICAO CORSIA CERT 2023 can be used to support the development of an Emissions Report.

Users of the tools can report issues and request support via CERT@icao.int

References: The ICAO CORSIA CERT is based on several references, as listed below:

Document	Description	Revision/Issue	Version
CORSIA Emissions Report (ER) Template	CORSIA Emissions Report (ER) Template	ETM Volume IV, Second Edition	Version: 7 June 2019
CERT Aircraft db	ICAO CORSIA CERT Aircraft database	v5.2	Version: 26 June 2023
ICAO eDoc 7910	eDoc 7910 - Location Indicators	Edition 189	Last Updated: 28 September 2023



Upcoming deadlines

by 30 April 2024

Aeroplane operators and verification bodies to submit to States the verified Emissions Reports and associated Verification Reports for 2023 CO₂ emissions

by 30 June 2024

States to notify their decision to voluntarily participate in CORSIA in 2025

by 31 July 2024

States to conduct order of magnitude check of verified Emissions Reports, aggregate data, and use the CCR to submit aggregate 2023 CO₂ emissions data to ICAO

by 30 November 2024

States report the list of Attributed Aeroplane Operators and Accredited Verification Bodies

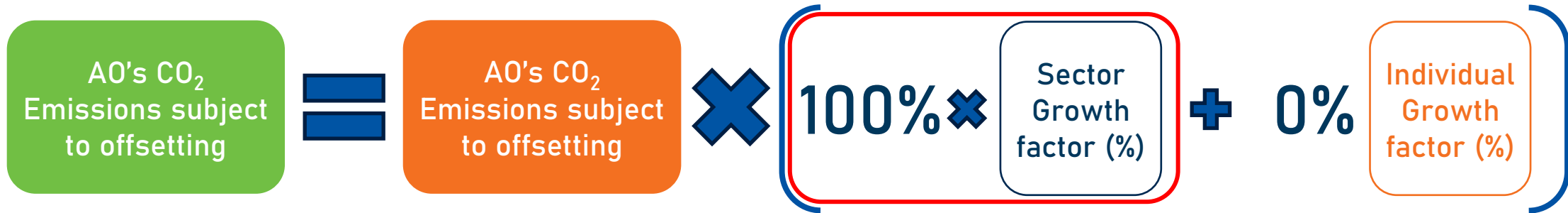


3 Offsetting requirements and use of CEF



Offsetting requirements are calculated based on the aeroplane operator's emissions between participating States and a combination of the Sectoral Growth Factor and the air operator's Individual growth factor

From 2021 to 2032: 100% sectoral and 0% individual



From 2033 to 2035: 85% sectoral and 15% individual





CORSIA eligible fuel (CEF) is CORSIA sustainable aviation fuel (SAF) or CORSIA lower carbon aviation fuel (LCAF), which an operator may use to reduce its offsetting requirements.

CEF needs to be certified based on the CORSIA Sustainability Criteria, including its life-cycle emissions values, by an approved Sustainability Certification Scheme (SCS)

SAF Definition

SAF is defined as a *renewable or waste-derived aviation fuel* that meets the **CORSIA Sustainability Criteria**

LCAF definition




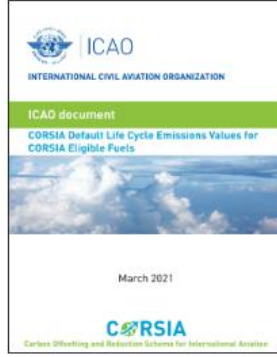
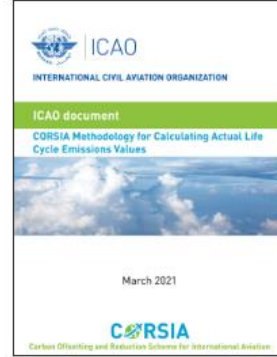
LCAF is defined as a *fossil-based aviation fuel* that meets the **CORSIA Sustainability Criteria**





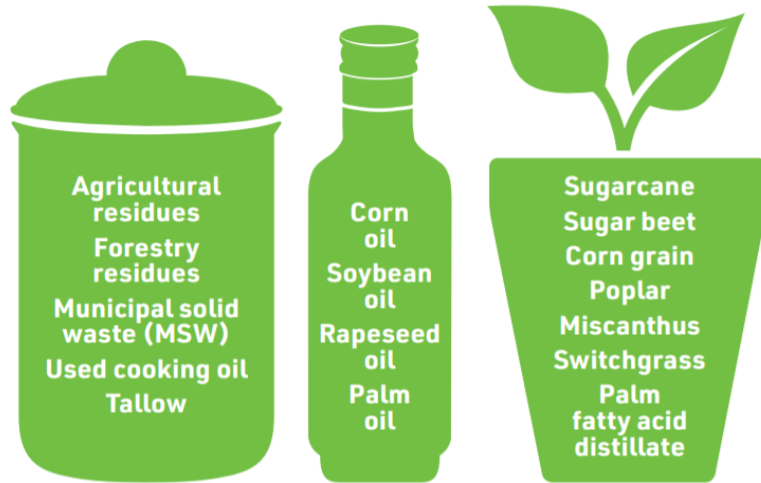
All documents are available in the **CORSIA Eligible Fuels website**

<https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Eligible-Fuels.aspx>

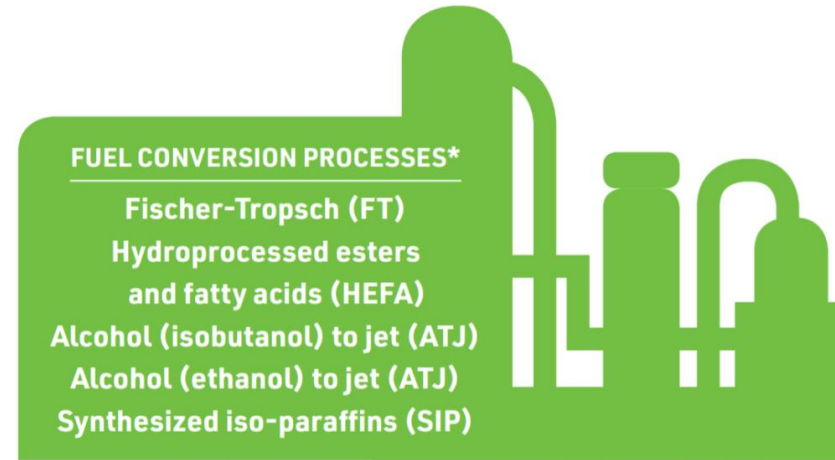
				
<p>CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes Second Edition, June 2022</p>	<p>CORSIA Approved Sustainability Certification Schemes* Second Edition, June 2023</p>	<p>CORSIA Sustainability Criteria for CORSIA Eligible Fuels** Third Edition, November 2022</p>	<p>CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels*** Fourth Edition, June 2022</p>	<p>CORSIA Methodology for Calculating Actual Life Cycle Emissions Values Third Edition, June 2022</p>



FEEDSTOCKS



FUEL CONVERSION

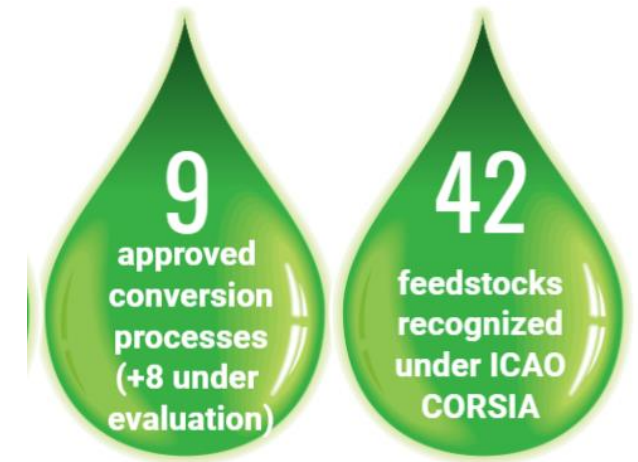


*Reference: ASTM 7566 and ASTM 1655 – ensures the technical specifications of the fuel

- More feedstocks and conversion processes will become available as the industry evolves.
- Up-to-date information is available on the ICAO website

https://www.icao.int/environmental-protection/Pages/SAF_Feedstocks.aspx

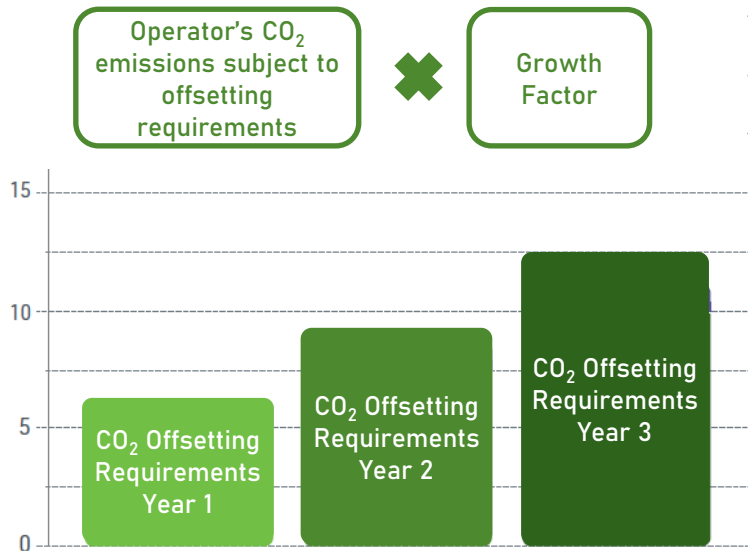
<https://www.icao.int/environmental-protection/GFAAF/Pages/Conversion-processes.aspx>



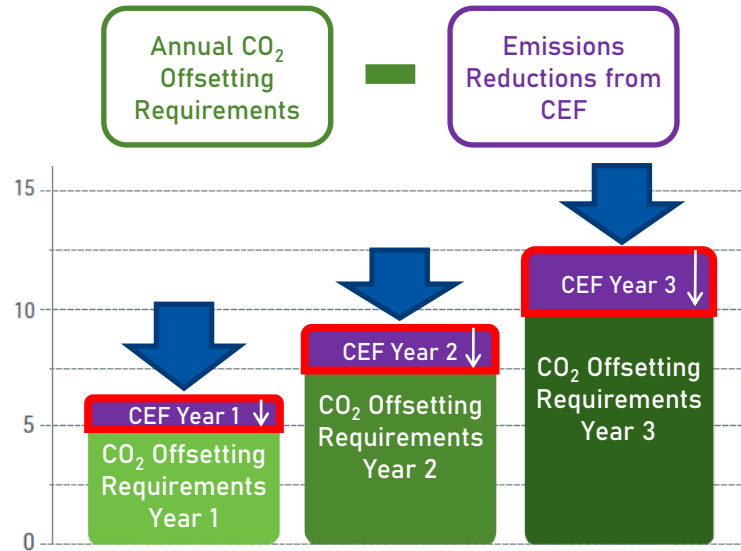


An aeroplane operator can reduce its CORSIA offsetting requirements by claiming emissions reductions from the use of CORSIA Eligible Fuels (CEF)

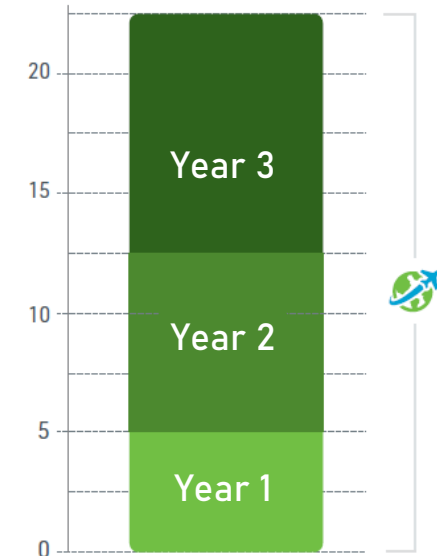
① **CO₂ Offsetting Requirements** calculated by the State for each year



② Emissions reductions claimed from the use of CORSIA Eligible Fuels (CEF)



③ **Total Final CO₂ Offsetting Requirements** for a 3-year Compliance Period



Total final CO₂ offsetting requirements will be met by operators through the cancellation of CORSIA eligible emissions units

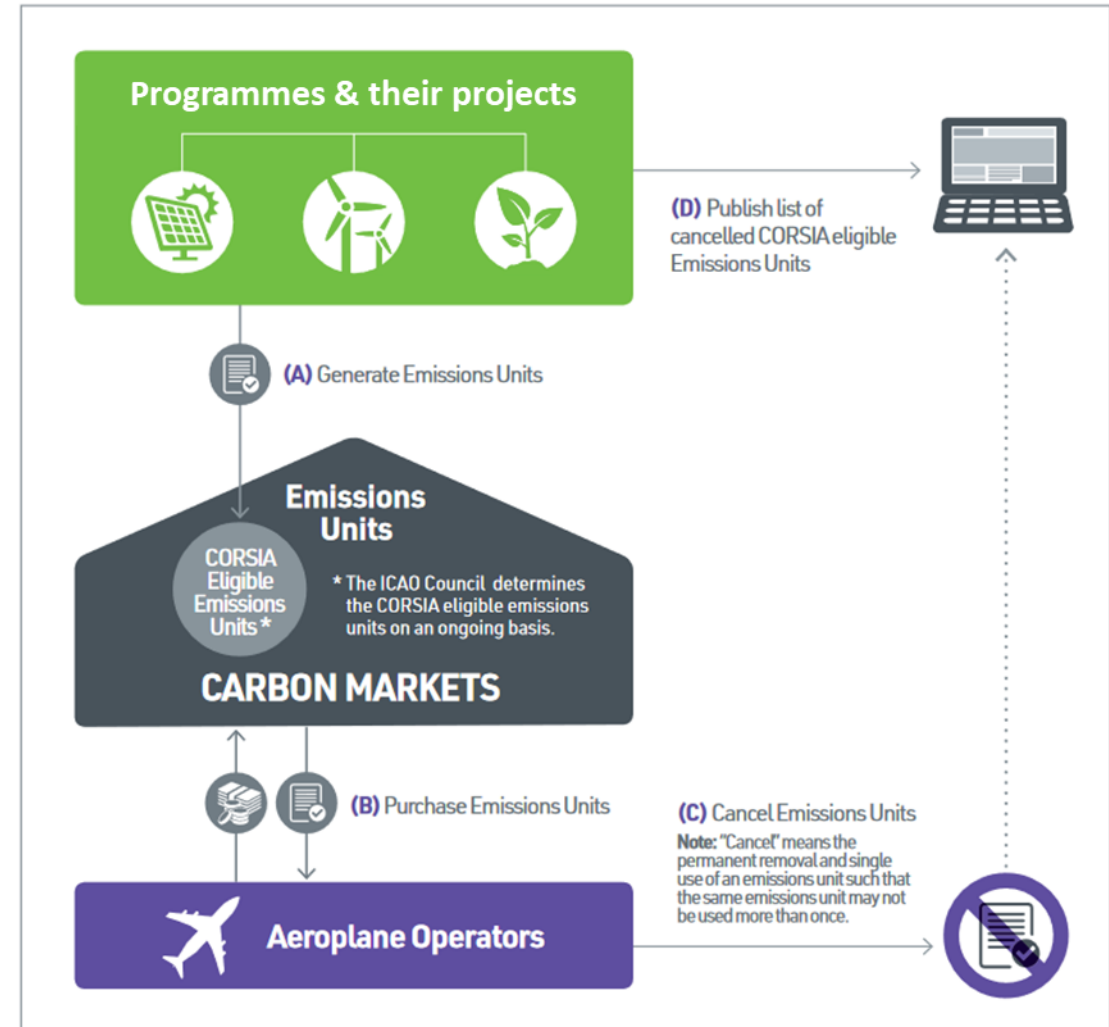


4 Emission Units Cancellation



To fulfil its CORSIA offsetting requirements for a compliance period, an aeroplane operator must ***purchase and cancel*** CORSIA eligible emissions units (CEUs) equivalent to its **total final CO₂ offsetting requirements** (see previous slide):

- CEUs are generated by eligible CEU programmes that meet the CORSIA eligibility criteria (A)
- Operators purchase CEUs from the international carbon market (B)
- The cancellation of CEUs takes place within a registry designated by an eligible CEU programme (C)
- For transparency, cancellations are to be published on the registry’s public website (D)





5 The CORSIA Central Registry (CCR)



- 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.



List of attributed aeroplane operators



List of accredited verification bodies



CO₂ emissions



CORSIA eligible fuels



Cancelled emissions units



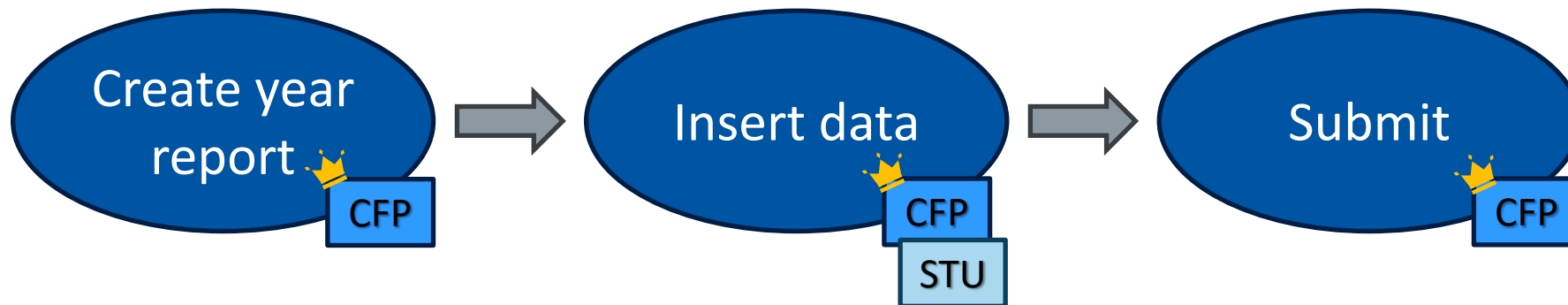
The CCR roles:



CORSIA Focal Point (CFP)

State User (STU)

The reporting steps:



This applies to all data



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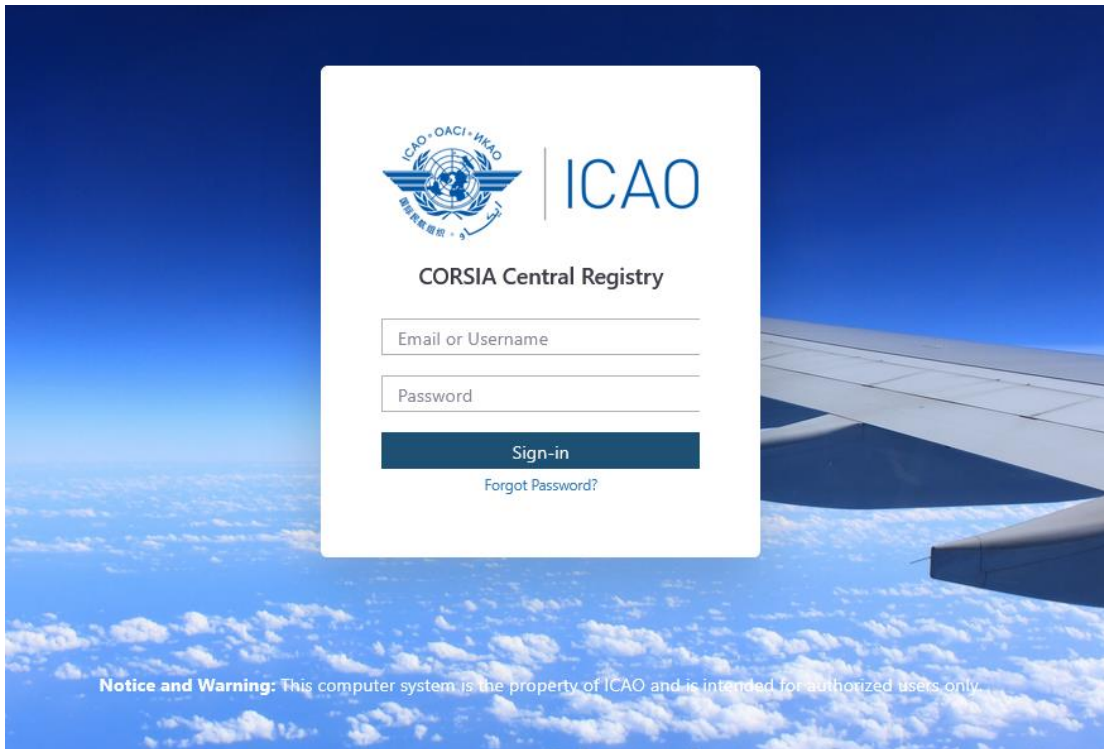
ENVIRONMENT

CORSIA Central Registry (CCR)



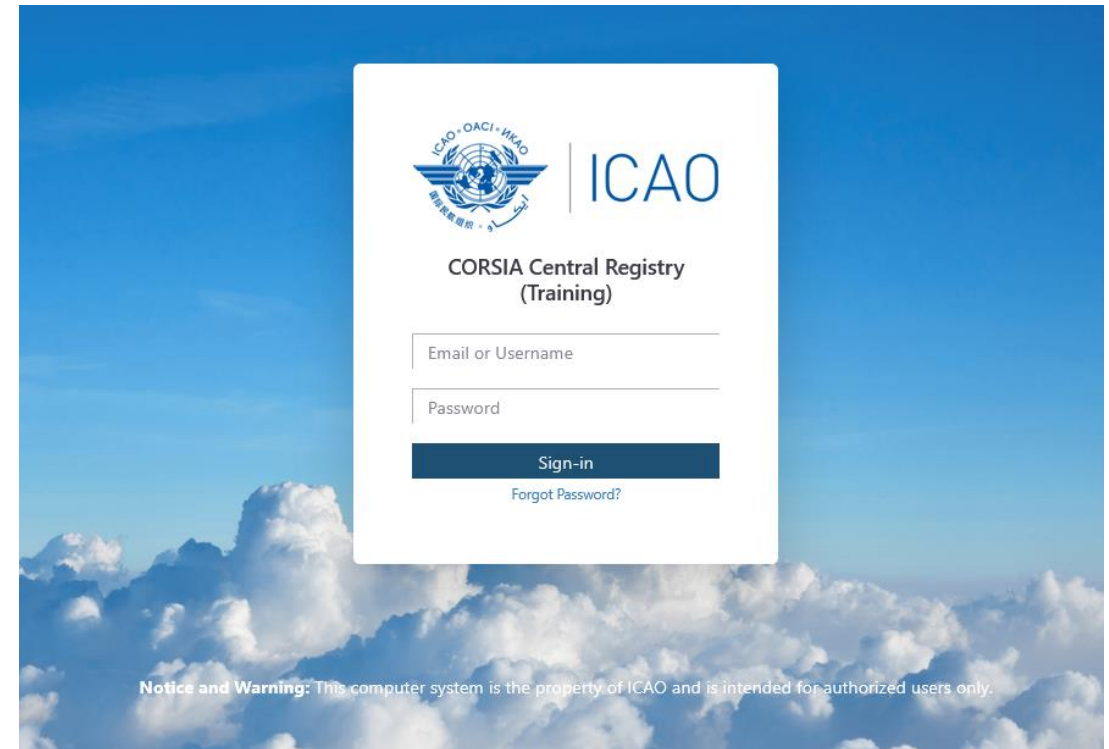
Reporting/Production Portal

<https://ccr.icao.int>



Training Portal

<https://ccr-training.icao.int>



For technical support: ccr@icao.int



Questions?



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Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU