



Information Meeting on the

Carbon Offsetting and Reduction Scheme for
International Aviation CORSIA

CORSIA Standards and Recommended Practices
(CORSIA SARPs Package)

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Bern, May 15th 2018



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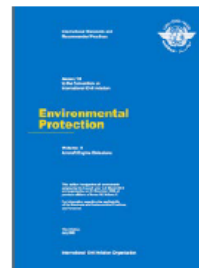
1. CORSIA SARPs Package

ICAO Policy



Chicago Convention
ICAO Assembly Resolutions A39-1, A39-2 and A39-3:
Consolidated statement of continuing ICAO policies and practices related to environmental protection

ICAO Standards and Recommended Practices (SARPs)



Annex 16 - Environmental Protection:

Volume I, Aircraft Noise
Volume II, Aircraft Engine Emissions
Volume III, Aeroplane CO₂ Emissions
Volume IV, CORSIA
- Under Development



ICAO Guidance



Various guidance on noise, LAQ and climate change, e.g.:

Environmental Assessment of Proposed ATM Operational Changes (Doc 10031)
Environmental Technical Manual Volume IV (Doc 9501)
- Under Development





1. CORSIA SARPs Package

① SARPs Annex 16 Volume IV

Mandatory Actions



Part I. DEFINITIONS, ABBREVIATIONS AND UNITS

Part II. CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION (CORSIA)

CHAPTER 1. Administration

CHAPTER 2. Monitoring, Reporting and Verification

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APPENDIX 5. Reporting

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ATTACHMENTS

Attachment A. Attribution Processes

Attachment B. Applicability of MRV Requirements to International Operations

Attachment C. Processes for Fuel Use Monitoring



1. CORSIA SARPs Package

2 ETM Volume IV

Guidance Material



CHAPTER 1. INTRODUCTION

CHAPTER 2. GENERAL GUIDELINES

- 2.1 Applicability of MRV of Annual CO₂ Emissions from an Aeroplane Operator
- 2.2 Applicability of CO₂ Offsetting Requirements

CHAPTER 3. GUIDELINES ON MONITORING, REPORTING AND VERIFICATION

- 3.1 Monitoring
- 3.2 Reporting
- 3.3 Verification

CHAPTER 4. GUIDELINES ON CALCULATION OF OFFSETTING REQUIREMENTS

- 4.1 Calculation of Offsetting Requirements During the 2021-2030 Compliance Period
- 4.2 Calculation of Offsetting Requirements During the 2031-2035 Compliance Period
- 4.3 Baseline Emissions from 2019-2020 for Calculation of Offsetting Requirement
- 4.4 Sector Growth Factor

CHAPTER 5. ADMINISTRATIVE PARTNERSHIPS UNDER CORSIA

- 5.1 Example of a Bilateral Agreement

APPENDIX 1.

STANDARDIZED EMISSIONS MONITORING PLAN AND REPORTING TEMPLATES



1. CORSIA SARPs Package

3 ICAO CORSIA Implementation Elements

(Directly referenced in the SARPs)

Five ICAO CORSIA Implementation Elements will be reflected in fourteen ICAO documents directly referenced in the upcoming Volume IV of Annex 16 and will contain material to be approved by the ICAO Council for publication by ICAO to support such Annex. These publications will be made available on the ICAO CORSIA website when they are completed and may only be amended by the ICAO Council.

1 CORSIA STATES FOR CHAPTER 3 STATE PAIRS

- **Description:** States' participation in CORSIA, to define route-based emissions coverage every year from 2021.
- **Expected availability:** 30 July 2020.
- **Periodicity of updates:** updated annually.

2 ICAO CORSIA CO₂ ESTIMATION AND REPORTING TOOL (CERT)

- **Description:** ICAO tool for simplified monitoring, reporting and verification (MRV) procedures.
- **Expected availability:** 2018 (estimation functionality only).
- **Periodicity of updates:**
 - 2019 version (reporting function to be added).
 - 2021 version (reporting by route-coverage).

3 CORSIA SUSTAINABLE AVIATION FUELS

- **Description:** Information related to CO₂ emissions reduction from sustainable aviation fuels.
- **Expected availability:** No later than 2021.
- **Periodicity of updates:** as needed (e.g., updates of default life-cycle methodologies / values for new fuels and eligible certification schemes).

4 CORSIA ELIGIBLE EMISSIONS UNITS

- **Description:** Emissions units criteria and eligible emissions units programmes.
- **Expected availability:** No later than 2021.
- **Periodicity of updates:** Periodic updates of the list of eligible programmes.

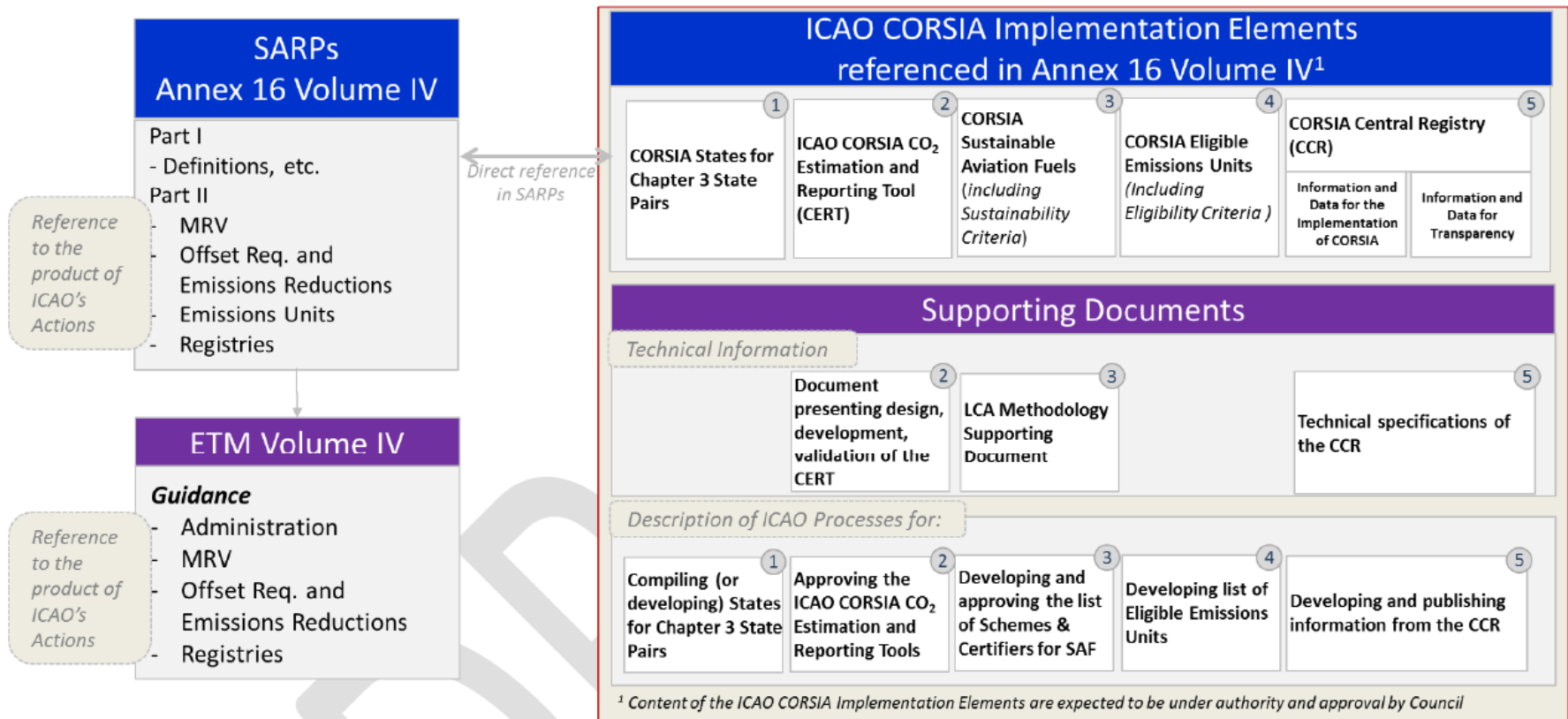
5 CORSIA CENTRAL REGISTRY (CCR)

- **Description:** Information to be made available from the CORSIA central registry, to allow implementation of CORSIA.
- **Expected availability:** 2020.
- **Periodicity of updates:**
 - From 2020, annual update of total CO₂ emissions data.
 - From 2025, triennial update of information on emissions units and compliance.

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1. CORSIA: SARP Package



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2. Who has Obligations under the CORSIA?

ICAO:

- Publishes and maintains ICAO CORSIA Implementation Elements referenced in Annex 16 Vol. 4
- Collects and compiles CO₂-emissions data of international flights
- Calculates sectoral growth factor and offsetting requirements
- Holds and publishes information in CORSIA Central Registry
- Calculates total emissions volume offset

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2. Who has Obligations under the CORSIA?

States:

ALL ICAO MEMBER STATES with aeroplane operators conducting international flights are required to monitor, report and verify CO₂ emissions from these flights every year from 2019, independent of their participation in CORSIA.

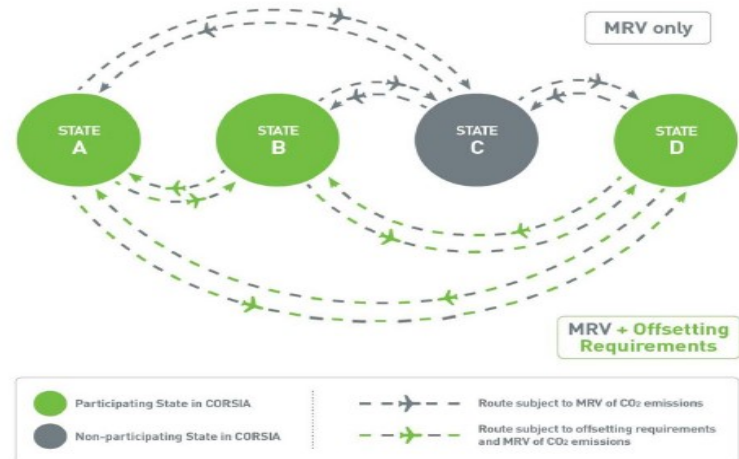
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2. Who has Obligations under the CORSIA?

States:

ICAO MEMBER STATES PARTICIPATING IN CORSIA need to ensure that their aeroplane operators comply with the CORSIA offsetting requirements every three years (starting in 2021), in addition to annual CO₂ MRV.



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2. Who has Obligations under the CORSIA?

Operators:

All aeroplane operators conducting international flights are required to monitor, report and verify CO₂-emissions from these flights every year starting on 1 January 2019

Technical Exemptions (outside CORSIA scope)

- Emissions from aeroplane operators emitting less than 10 000 metric tonnes of CO₂ emissions from international aviation per year
- Emissions from aircraft with less than 5 700 kg of Maximum Take Off Mass (MTOM)
- Emissions from humanitarian, medical and firefighting operations

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2. Who has Obligations under the CORSIA?

Operators:

New Entrants

- New entrant (aeroplane operator) is exempted from CORSIA offsetting requirements for the first 3 years or until its annual emissions exceed 0.1% of total 2020 CO₂ emissions from international flights, whichever comes first.
- Example: Operators A and B start operations in year 2022 as shown in the table below. According to the paragraph above, Operator A will have offsetting requirements in 2025, and Operator B in 2024.

Operator	Emissions (% of total emissions in 2020)			
	2022	2023	2024	2025
A	0.02	0.04	0.06	0.08
B	0.06	0.11	0.16	0.21

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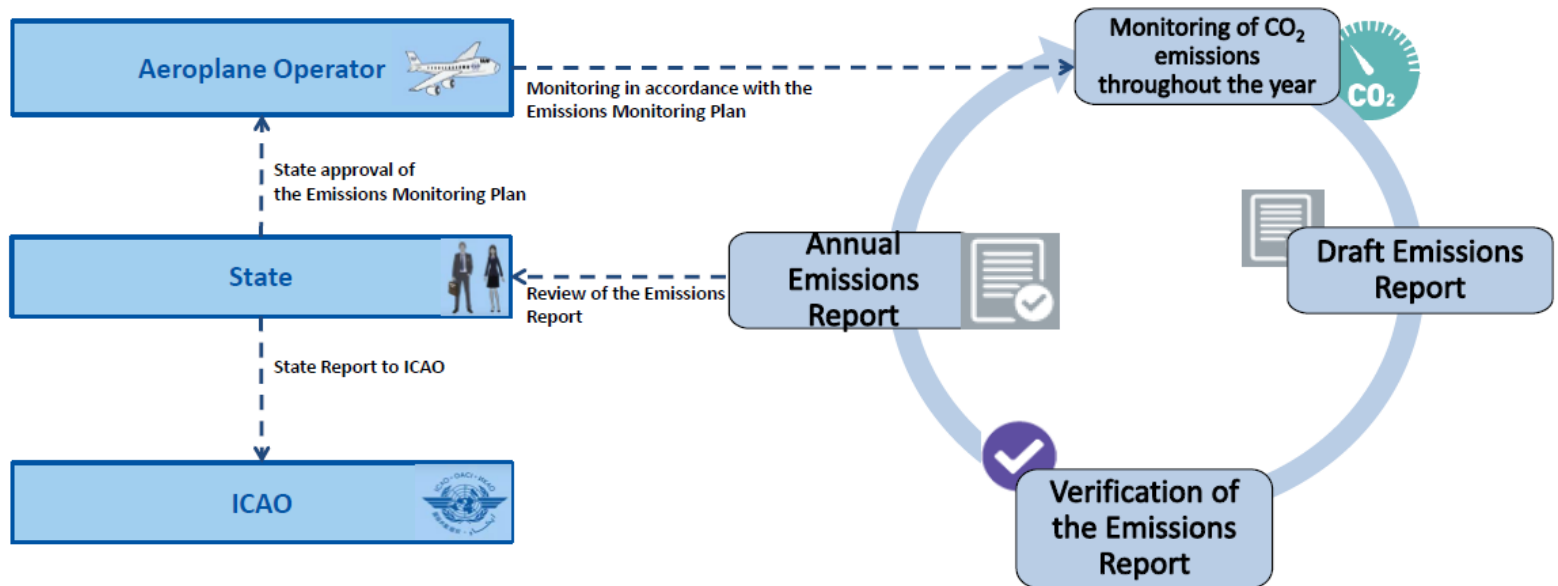


3. Monitoring, Reporting, Verification

- 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 (2019-2020)
 - Purpose of MRV is to collect information on international aviation CO₂ emissions on an annual basis and compare emissions against the baseline emissions
- Components of the MRV system:
 - **Monitoring** of fuel use on each flight and calculation of CO₂ emissions
 - **Reporting** of CO₂ emissions information between aeroplane operators, States and ICAO
 - **Verification** of reported emissions data to ensure completeness and to avoid



3. Monitoring, Reporting, Verification





3. Monitoring, Reporting, Verification

Monitoring of CO₂-Emissions

- An aeroplane operator shall monitor and record its fuel use from international flights in accordance with an eligible monitoring method
- Monitoring method shall be approved by the State as a part of aeroplane operator's Emissions Monitoring Plan
- The aeroplane operator shall use the same eligible monitoring method for the entire compliance period



3. Monitoring, Reporting, Verification

Monitoring of CO₂-Emissions - Emissions Monitoring Plan

- An Emissions Monitoring Plan (EMP) is a collaborative tool between the State and the aeroplane operator. The EMP:
 - Identifies the most appropriate means and methods for CO₂ emissions monitoring on an operator-specific basis; and
 - Facilitates the reporting of required information to the State.
- An aeroplane operator shall submit an EMP to the State to which it is attributed for approval.
- The State and aeroplane operator should maintain clear and open communication during the development and review of an EMP.

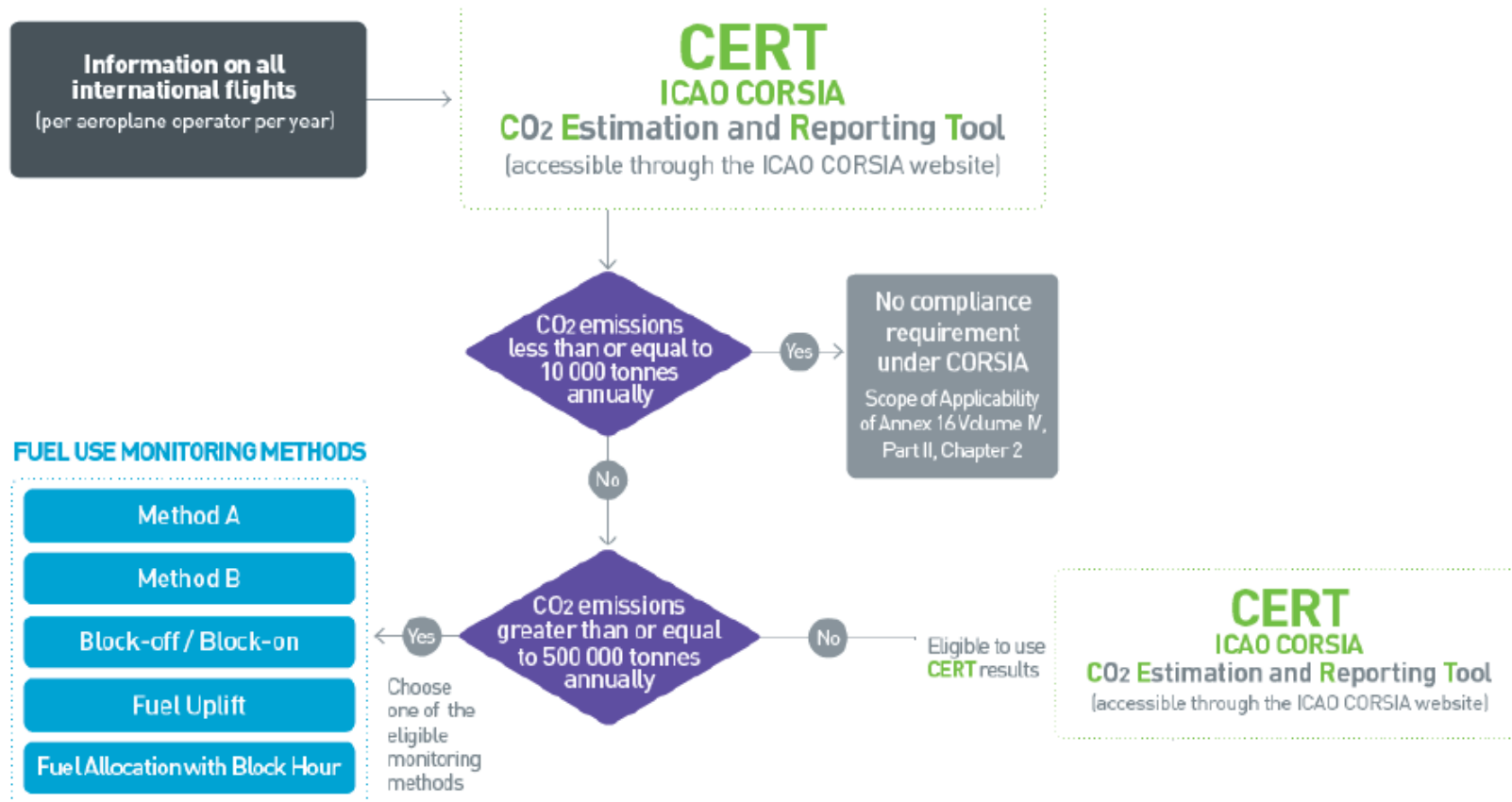
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To be discussed in more details in a later presentation



3. Monitoring, Reporting, Verification

Monitoring of CO₂-Emissions (2019 & 2020)





3. Monitoring, Reporting, Verification

Reporting of CO₂-Emissions

- CORSIA requires aeroplane operators conducting international flights^(*) to report on related CO₂ emissions information
 - First reporting year: 2020 (for data related to 2019 international flights)
 - Frequency of reporting: on an annual basis
 - Reporting format: Emissions Report
 - Reporting recipient: State

(*) aeroplane operators that produce annual CO₂ emissions greater than 10 000 tonnes from international flights conducted by aeroplanes with a maximum certificated take-off mass greater than 5 700 kg (with the exception of humanitarian, medical and firefighting flights)



3. Monitoring, Reporting, Verification

Reporting of CO₂-Emissions

Contents of an aeroplane operator's Emissions Report (1/4)

- Aeroplane operator information
 - Name, contact information, State of attribution, etc.
- Reporting year (year during which emissions were monitored)
 - E.g. 2019 (for the Emissions Report to be prepared in 2020)
- Reference of the aeroplane operator's Emissions Monitoring Plan that is the basis for the emissions monitoring in the reporting year
 - Version number, date of approval, date of validity, date of last update, etc.



3. Monitoring, Reporting, Verification

Reporting of CO₂-Emissions

Contents of an aeroplane operator's Emissions Report (2/4)

- List of operator's aeroplane fleet
 - Applicable to all operator's aeroplanes (with MTOM \geq 5 700 kg) operating international flights during the reporting year
 - Leased aeroplanes have to be included
- Details on use of CERT (if operator is eligible for use of CERT)
- Total fuel mass per type of fuel
 - When using CERT, operators will not report this information



3. Monitoring, Reporting, Verification

Reporting of CO₂-Emissions

Contents of an aeroplane operator's Emissions Report (3/4)

- Number of international flights during the reporting period, including:
 - Total number of operator's international flights during the reporting period
 - Breakdown per State pair (minimum information requirement) OR per aerodrome pair
 - a) per State pair (minimum information requirement); or
 - b) per aerodrome pair

During the preparation of the Emissions Monitoring Plan, the operator will be informed by the State of the level of aggregation to be used when reporting on international flights



3. Monitoring, Reporting, Verification

Reporting of CO₂-Emissions

Contents of an aeroplane operator's Emissions Report (4/4)

- CO₂ emissions:
 - Total CO₂ emissions from reported flights
 - Breakdown per State pair OR per aerodrome pair (same level of aggregation as for the reporting of the number of international flights)
 - From the start of CORSIA's pilot phase (i.e. reporting of CO₂ emissions for 2021 and beyond), reporting will include sub-totals for flights subject to offsetting requirements and flights not subject to offsetting requirements
- Information on verification body that has verified the Emissions Report
 - Name, contact information
(More information on this is provided in the second part of this presentation)



3. Monitoring, Reporting, Verification

Verification of CO₂-Emissions Report

- Verification of an aeroplane operator's annual Emissions Report
 - **Step 1:** an aeroplane operator should perform a voluntary internal **pre-verification** of its Emissions Report prior to the verification by a verification body
 - **Step 2:** an aeroplane operator shall **engage an accredited verification body** for the verification of its annual Emissions Report
 - **Step 3:** following the verification of the Emissions Report by the verification body, the verification body **produces a Verification Report**
 - **Step 4:** aeroplane operator and verification body shall **both submit a copy of the Emissions Report and associated Verification Report to the State**
 - **Step 5:** The State shall perform an **order of magnitude check** of the Emissions Report



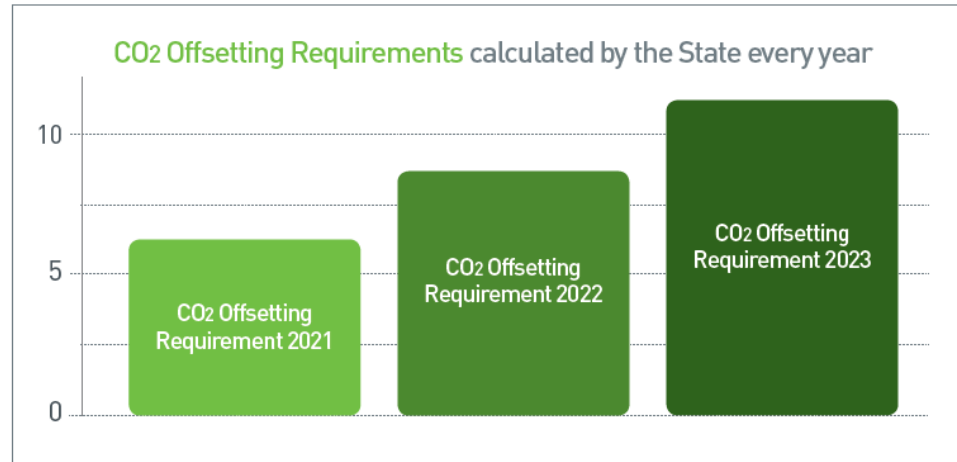
4. Offsetting Requirements

The State calculates the offsetting requirements attributed to an aeroplane operator.

$$\text{Operator's annual emissions} \times \text{Growth Factor} = \text{CO}_2 \text{ offset requirements}$$

In a given year from 2021, the **Growth Factor** is the percent increase in the amount of emissions from the baseline, and is calculated by ICAO.

The **Growth Factor** changes every year taking into account both the sector's and the individual operator's emissions growth.

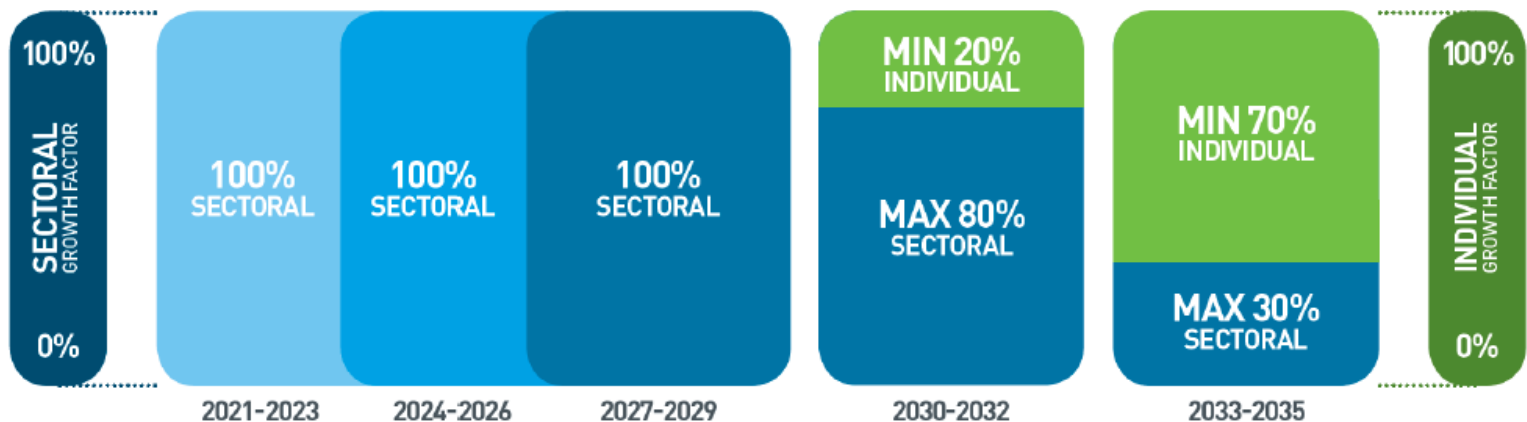




4. Offsetting Requirements

$$\text{Operator's annual emissions} \times \text{Growth Factor} = \text{CO}_2 \text{ offset requirements}$$

The Growth Factor changes every year taking into account both the sectoral and the individual operator's emissions growth. The Growth Factor is the percent increase in the amount of emissions from the baseline to a given future year, and is calculated by ICAO.





5. Sustainable Alternative Fuels / Final Offsetting Requirements

The operator reports the use of sustainable aviation fuels (SAF) for a 3-year compliance period.

The State accounts for the benefits from the use of SAF and informs the operator of its final CO₂ offsetting requirements for a 3-year compliance period.

One of the Implementation Elements "CORSIA Sustainable Aviation Fuels" will provide default life cycle emissions values for different fuel conversion processes for SAF, and methodologies for calculation of actual life cycle emissions values, as well as sustainability criteria and Sustainability Certification Schemes (SCSs) that can certify aviation alternative fuels against the sustainability criteria.

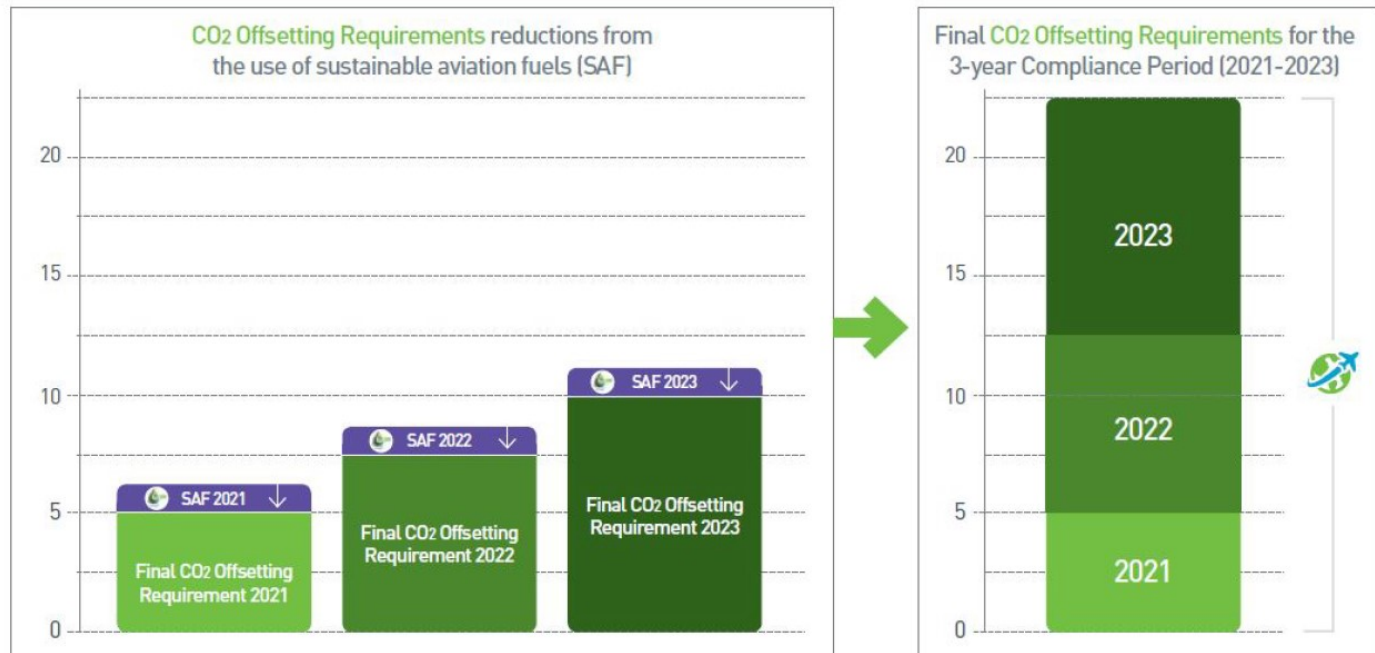
In practice, the operator will...

1. Use the amounts of SAF purchased, based on purchase records
2. Use the life-cycle emissions values of SAF to determine emissions reduction factors
3. Submit valid sustainability certification document
4. Report SAF benefits (see session #3 for reporting) to claim reduction of CORSIA offsetting requirements



5. Sustainable Alternative Fuels / Final Offsetting Requirements

The State accounts for the benefits from the use of SAF and informs the operator of its final CO₂ offsetting requirements for a 3-year compliance period.



Final offsetting requirements are the those CO₂ emissions required to be offset and are determined by subtracting the requirements with emissions reductions from the use of SAF



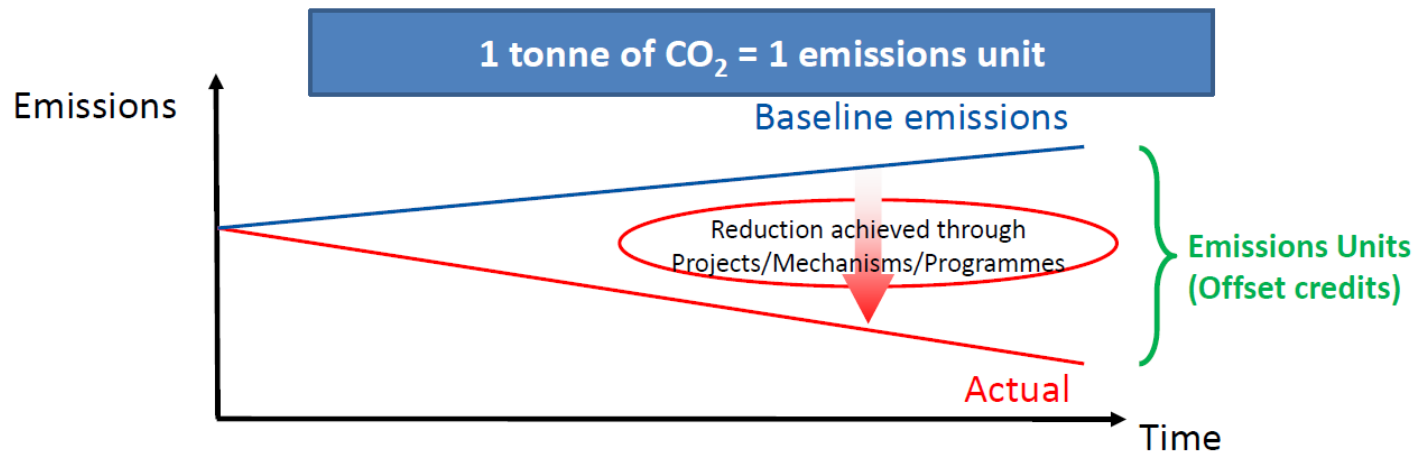
6. Eligible Emissions Units / Compliance with Obligation to Offset

What are Emissions Units?

Arising from emissions reduction achieved by the implementation of projects elsewhere (various sectors – including domestic aviation);

Issued by crediting schemes through mechanisms, programmes, projects;

Calculation of the difference between baseline emissions (in the absence of the project activity) and actual emissions (after the project is implemented).





6. Eligible Emissions Units / Compliance with Obligation to Offset

Emissions reduction projects generate emissions units that are sold in carbon markets on a per-tonne basis;

Owners of emissions units can cancel these units to offset emissions;

There are different types of carbon markets: compliance markets and voluntary markets;

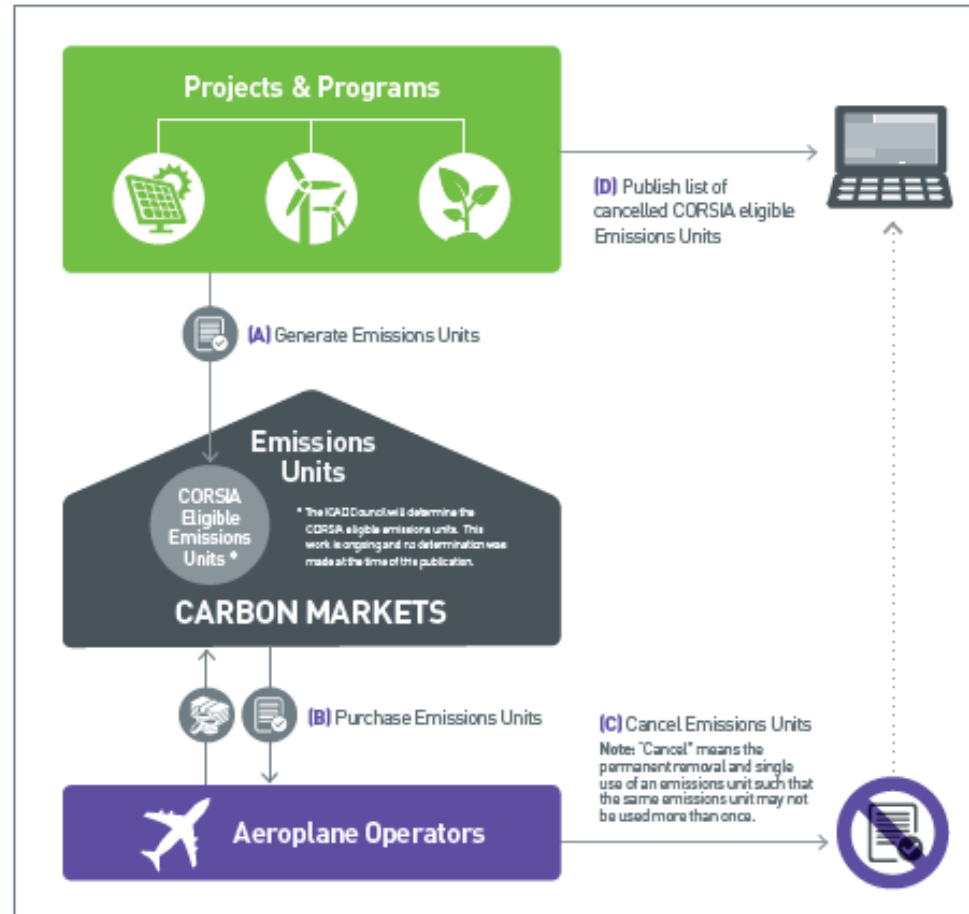
Buying and selling of units affect prices of emissions units.



The ICAO Council will determine the CORSIA eligible emissions units.



6. Eligible Emissions Units / Compliance with Obligation to Offset



The operator provides a verified Emissions Units Cancellation Report to the State, who checks the Report and informs ICAO.

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7. Discussion / Q & A

