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ICAO Annex 16: Volumes IV Overview of CORSIA and Administrative Aspects

ICAO-CASSOA-RCAA ENV Workshop

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Structure and Objective

- Two main parts to this presentation:
  - Overview of CORSIA
  - CORSIA Administrative Aspects

- Objective:
  - Highlight key elements of CORSIA and Annex 16, Volume IV
  - Incorporate information from Frequently Asked Questions (FAQs) published on the CORSIA website

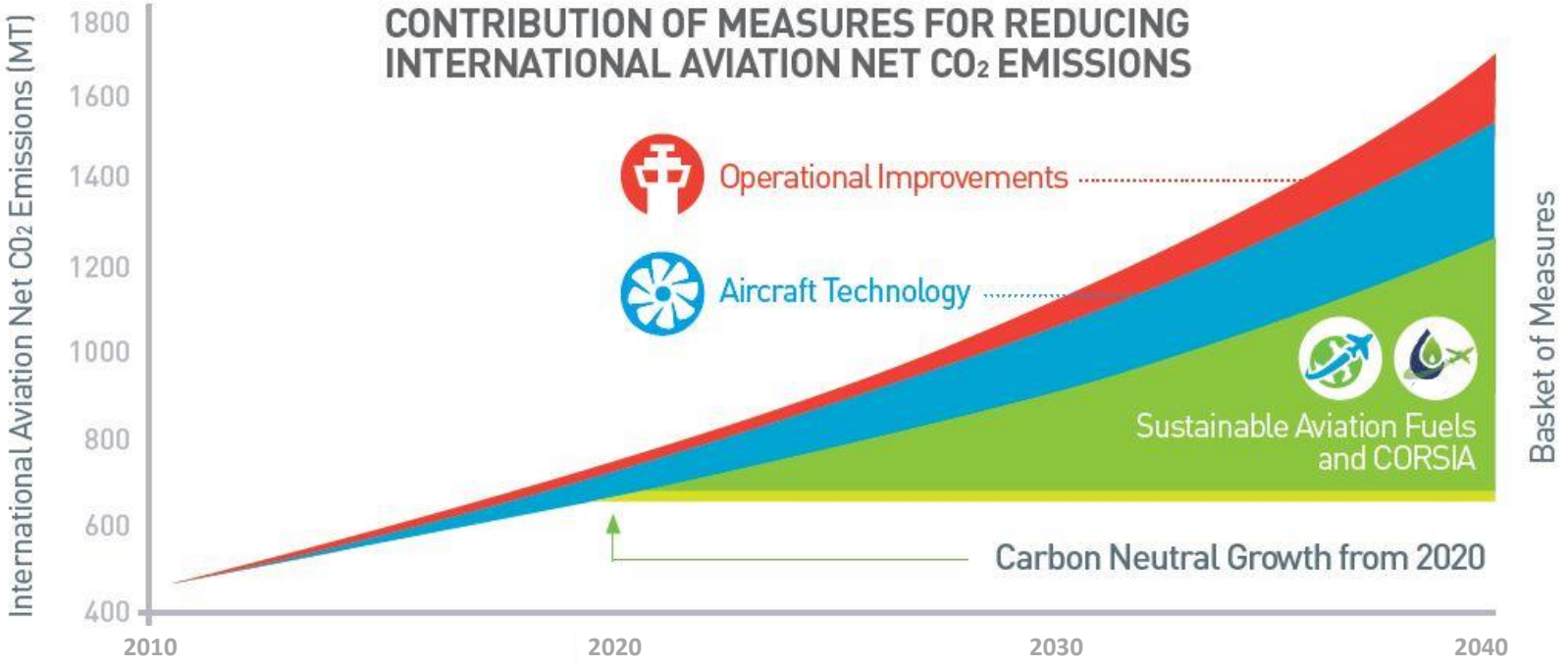
Overview of CORSIA

Adopted through Assembly Resolution 39-3

The **first global MBM scheme** for any industry sector

To achieve ICAO's global aspirational goal of carbon neutral growth from 2020 (CNG 2020), CORSIA is **one complementary element in the basket of measures** to:

- **aircraft technology**
- **operational improvements**
- **sustainable aviation fuels**



- FAQ: What is offsetting and how does it work?

- Offsetting through the purchase and cancellation of emissions units:
  - Different sources of emissions reductions (mechanisms, programmes, projects)
  - Buying and selling of eligible emissions units through the carbon market
  - Price of the emissions units influenced by law of supply and demand

- “Cancelling” means the permanent removal and single use of an emissions unit.
  - Done after an aeroplane operator has purchased emissions units from the carbon market

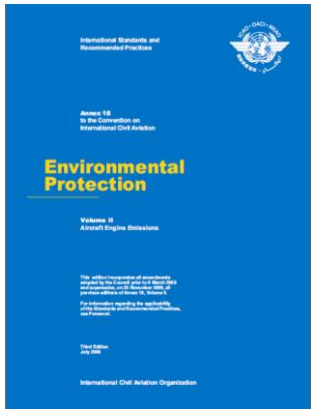
ICAO Policies, SARPs, and Guidance

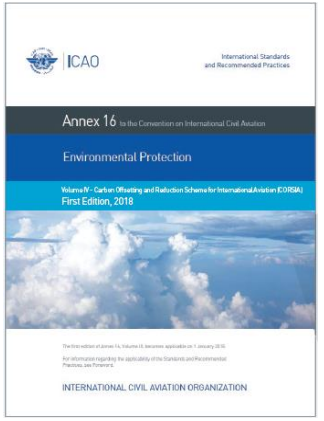
ICAO Policy

Chicago Convention

ICAO Assembly Resolutions A41-20, A41-21 and A41-22: 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 CO_2 Emissions

Volume IV, CORSIA

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)

CORSIA Implementation Components

1. Standards and Recommended Practices (SARPs) – Annex 16, Volume IV
   - Necessary actions by States and operators (the “what” and “when”) to implement CORSIA
2. Environmental Technical Manual (ETM) Volume IV
   - Guidance on the process (the “how”) to implement CORSIA
3. CORSIA Implementation Elements
   - Directly referenced in Annex 16, Volume IV, and essential for the implementation of CORSIA

Structure of Annex 16, Volume IV

Part I. DEFINITIONS, ABBREVIATIONS AND UNITS

Part II. CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION

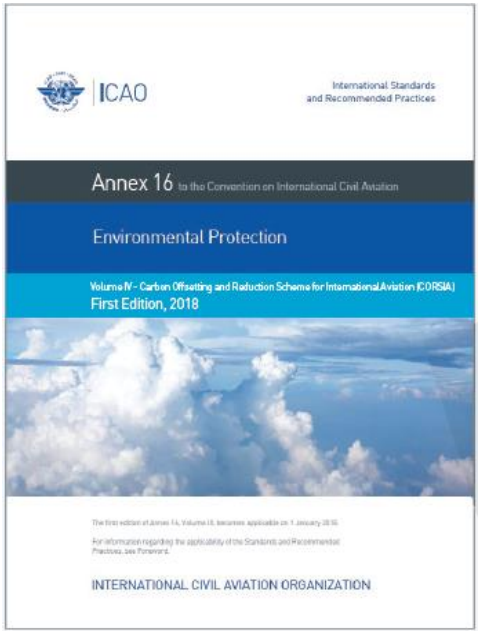
- **CHAPTER 1**. Administration
- **CHAPTER 2**. Monitoring, Reporting and Verification
- **CHAPTER 3**. CO_2 Offsetting Requirements and Emissions Reductions from CORSIA Eligible Fuels
- **CHAPTER 4**. Emission Units

APPENDICES

- **APPENDIX 1**. Administrative Processes
- **APPENDIX 2**. Fuel Use Monitoring Methods
- **APPENDIX 3**. CO_2 Emissions Estimation and Reporting Methods and Tools
- **APPENDIX 4**. Emissions Monitoring Plans
- **APPENDIX 5**. Reporting
- **APPENDIX 6**. Verification

ATTACHMENTS

- **Attachment A**. Attribution Processes
- **Attachment B**. Applicability of MRV Requirements to International Operations
- **Attachment C**. Processes for Fuel Use Monitoring



Structure of CORSIA ETM Volume IV

CHAPTER 1. INTRODUCTION

CHAPTER 2. GENERAL GUIDELINES

- **2.1** Applicability of MRV of Annual CO_2 Emissions from an Aeroplane Operator
- **2.2** Applicability of CO_2 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

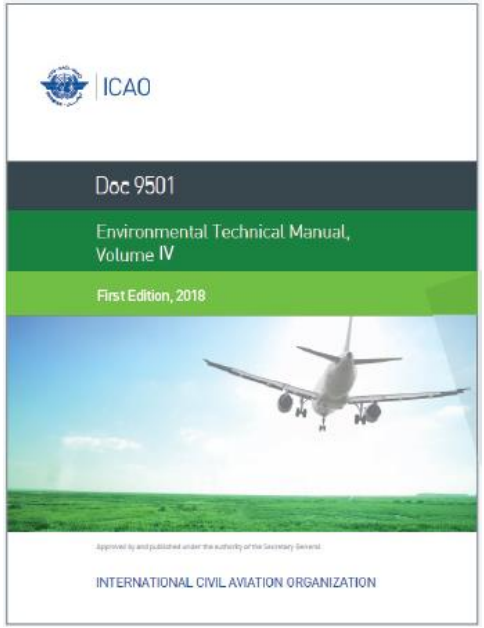
- **4.1** Calculation of Offsetting Requirements During the 2021-2030 Period
- **4.2** Calculation of Offsetting Requirements During the 2031-2035 Period
- **4.3** Baseline Emissions from 2019-2020 for Calculation of Offsetting Requirement
- **4.4** Sector Growth Factor

CHAPTER 5. ADMINISTRATIVE PARTNERSHIPS UNDER CORSIA

- **5.1** Example of a Bilateral Agreement

APPENDIX 1.

STANDARDIZED EMISSIONS MONITORING PLAN AND REPORTING TEMPLATES



CORSIA Implementation Elements

- The CORSIA Implementation Elements will be made available in separate documents, due to the following characteristics:
  - Nature of the information
  - Availability of the information at the time of adoption
  - Periodicity of the information updates
  - Users of the information

- Different Implementation Elements will become available at different points in time:
  - For example, the first version of the CERT is already available, while the decision on CORSIA Eligible Emissions Units are expected later

- Once completed, they are considered for approval by the Council and made available on the ICAO CORSIA webpage

CORSIA Implementation Elements

Five Implementation Elements:

- Reflected in 14 ICAO documents
- Directly referenced in Annex 16, Volume IV
- Will contain material approved by the ICAO Council for publication by ICAO to support the implementation of CORSIA

❸ 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 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 after they are approved by the ICAO Council.

❶ 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.

❷ ICAO CORSIA CO_2 ESTIMATION AND REPORTING TOOL (CERT)

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

❸ CORSIA ELIGIBLE FUELS

- **Description:** Information related to CO_2 emissions reduction from CORSIA Eligible Fuels.
- **Expected availability:** No later than 2021.
- **Periodicity of updates:** as needed (e.g., updates of default life-cycle methodologies / default life cycle values for new fuels and new eligible certification schemes).

❹ 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.

❺ 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 CO_2 emissions data.
  - From 2025, triennial update of information on emissions units and compliance.

The information on actions for CORSIA implementation contained in this leaflet is based on the First Edition of Annex 16, Volume IV (Standards and Recommended Practices relating to CORSIA) that became applicable on 1 January 2019, and the First Edition of the Environmental Technical Manual (DOC 9501), Volume IV. All reasonable efforts have been made to ensure accuracy, but ICAO makes no warranties in relation to the information contained herein and assumes no responsibility or liability arising in connection with its use or misuse.

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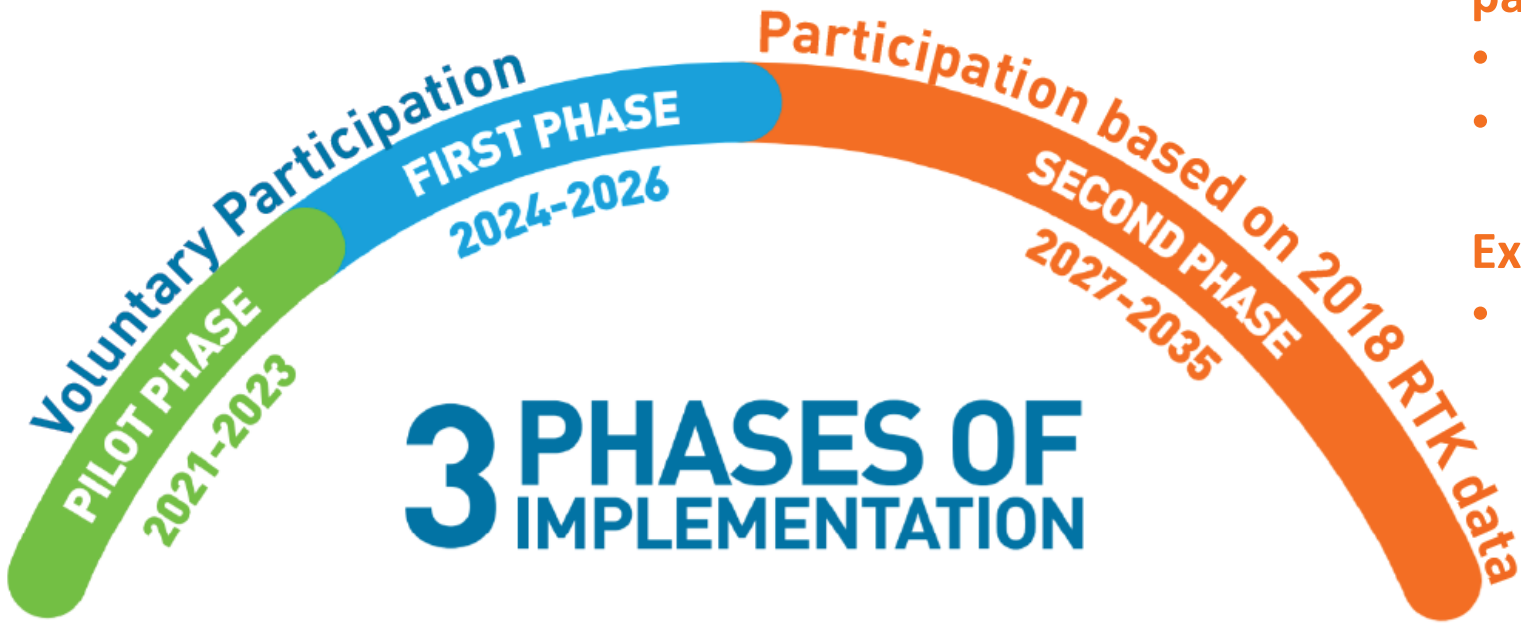
Assembly Resolution A41-22

- Key design features of CORSIA:
  - Phased implementation
  - Emissions coverage: route-based approach
  - Offsetting requirements
  - New entrants
  - Technical exemptions
  - Review mechanism

- CORSIA implementation features:
  - Monitoring, Reporting and Verification

Phased Implementation



Second phase participation criteria:

- 90% of global RTK
- 0.5% of RTK

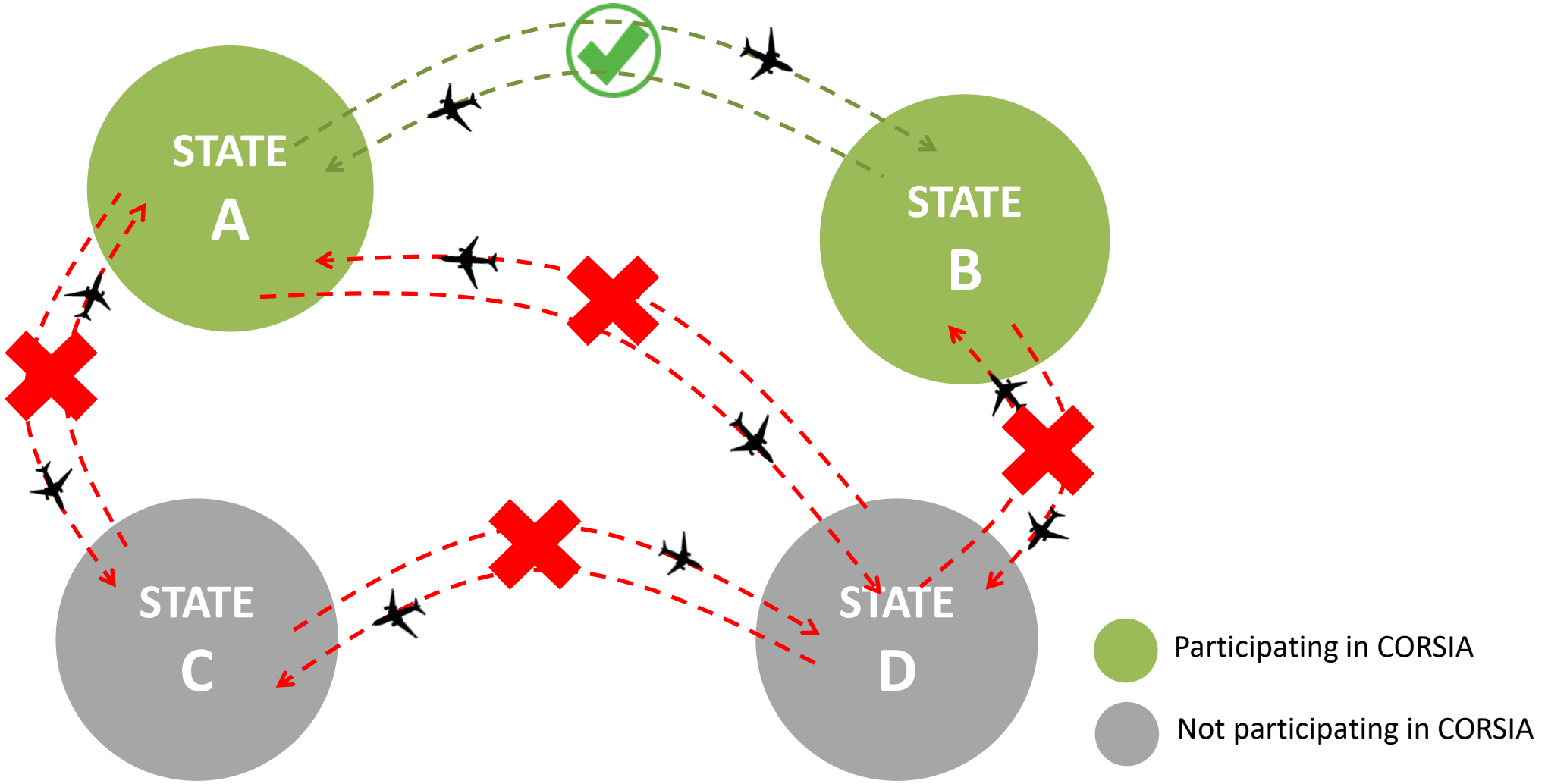
Exemptions:

- LDCs, LLDCs, SIDS

All Member States are encouraged to participate in the pilot and first phase of the CORSIA

Reference: Assembly Resolution A41-22

Emissions Coverage: Route-based Approach



Can the "covered" or "not covered" routes change over time?

- Assembly Resolution A41-22 determines the characterization of a route as "covered" or "not covered" by the CORSIA offsetting requirements, on the basis of whether the States connecting the route participates in CORSIA offsetting.
  - The voluntary participation of States in different phases of the CORSIA will determine the overall coverage of the scheme
  - Deadline of 30 June every year for States to notify ICAO of their intention to voluntarily participate in the scheme, or discontinue their participation, from 1 January of the following year

Do States and AOs that do not participate in the CORSIA offsetting have any requirements?

- all States whose aircraft operator undertakes international flights need to develop a monitoring, reporting and verification (MRV) system for CO_2 emissions from international flights starting from 1 January 2019.
  - The requirement to monitor, report and verify CO_2 emissions from international aviation is independent from the offsetting requirement.
  - The data reported by States will be used for the calculation of the CORSIA baseline, which is the average of 2019 CO_2 emissions for the Pilot Phase and CORSIA Baseline after Pilot Phase (2024-2035) is 85% of 2019 emissions

What would happen if an AO of a non-participating State flies on covered routes?

- Because of the CORSIA's route-based approach, all routes between participating States would be subject to the coverage of emissions offsetting requirements under the CORSIA.
- To avoid competitive distortion between operators flying on the same route:
  - An operator of a non-participating State would be subject to offsetting requirements if it had a flight between two participating States.

What if a State without an AO undertaking international flights decides to participate?

- States without an operator flying international flights are encouraged to participate in all phases of the CORSIA.
  - If such a State decides to participate, flights to and from that State to other participating States are additionally included for the CORSIA's offsetting requirements, due to the route-based approach
  - The total international emissions covered by CORSIA offsetting would ultimately increase

CORSIA Offsetting requirements

The State will calculate the AO's amount of CO_2 emissions required to be offset in a given year *from 01 Jan 2021-31 Dec 2032 prior to consideration of CORSIA eligible fuels, as follows*:

$$OR_y = OE \times SGF_y$$

Sector's Growth Factor (SGF):

$$SGF = \frac{(SE_y - SE_{B,y})}{SE_y}$$

The State will calculate the AO's amount of CO_2 emissions required to be offset in a given year (*y*) *from 01 Jan 2033 -31 Dec 2035 prior to the consideration of CORSIA eligible fuels, every year as follows*:

$$\boldsymbol{OR_y} = \%S_y * (\boldsymbol{OE_y} \times \boldsymbol{SGF_y}) + \%O_y * (\boldsymbol{OE_y} \times \boldsymbol{OGF_y})$$

A41-22:CORSIA

First CORSIA periodic review in 2022 during A41

1. CORSIA Baseline *(Paragraph 11)*

Baseline **for** the Pilot Phase *(Paragraph 11)*

- 2019 emissions

CORSIA Baseline **after** the Pilot Phase (2024-2035)

- 85% of 2019 emissions

2. Offsetting Requirements: % Sectoral/ Individual *(Paragraph 11)*

- For 2030-2032
  - 100% sectoral growth
  - *(Previously included at least 20% individual)*
- For 2033-2035
  - 85% sectoral growth/ 15% individual growth
  - *No longer 30% sectoral and 70% Individual*

3. New entrants: *(Paragraph 12)*

- Now 0.1% of 2019 emissions for all CORSIA Phases
  - Extended beyond the Pilot Phase until 2035

New Entrants

- New entrant (aeroplane operator) is exempted from CORSIA offsetting requirements until
  - its annual emissions exceed 0.1% of total 2019 CO2 emissions from international flights,
  - extended beyond the Pilot Phase until 2035.

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

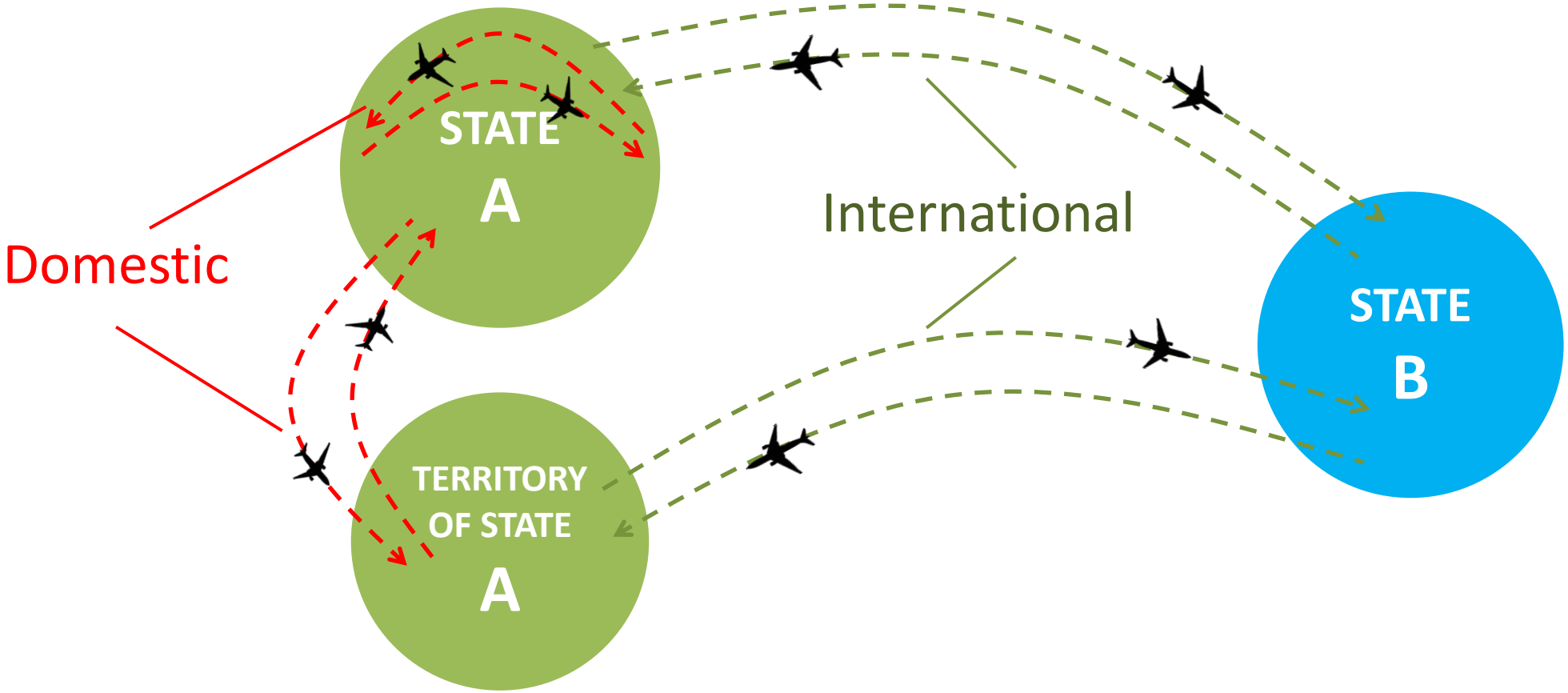
Review Mechanism

- Periodic review will allow the Council to make informed recommendations to the Assembly on whether it is necessary to make adjustments to the next phases of the scheme
  - Periodic review of the CORSIA every three years starting in 2022
  - Special review by the end of 2032 on termination of the scheme, its extension or any other improvements of the scheme beyond 2035

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Phases	Pilot Phase (voluntary, 3 years)			First Phase (voluntary, 3 years)			Second Phase (all non-exempted States, 9 years)								
Compliance cycles	Cycle 1 (3 years)			Cycle 2 (3 years)			Cycle 3 (3 years)			Cycle 4 (3 years)			Cycle 5 (3 years)		
Periodic reviews		Review 1			Review 2			Review 3			Review 4	Special		Review 5	
Assemblies		A41			A42			A43			A44			A45	

CORSIA Administration – Annex 16, Part II, Chapter 1

Definition of Flights in CORSIA



Reference: Annex 16, Volume IV, Part II, Chapter 1, paragraph 1.1.2

How are diverted flights handled in CORSIA?

- Diversion of flights can lead to any of the following scenarios:
  - A flight originally subject to MRV requirements, which continues to be subject to such requirements as a result of the diversion;
  - A flight originally not subject to MRV requirements, which continues not to be subject to such requirements as a result of the diversion;
  - A flight originally subject to MRV requirements, which is no longer subject to such requirements as a result of the diversion; or
  - A flight originally not subject to MRV requirements, which continues not to be subject to such requirements as a result of the diversion.

- In any of these scenarios, the actual aerodromes of departure and arrival for a flight, rather than the scheduled ones, will be taken as a reference to determine whether or not that flight is subject to MRV requirements.

What does a "State pair" mean? Is it uni- or bidirectional?

- In CORSIA, a State pair is being defined as a group of two States composed of a departing State or its territories and an arrival State or its territories.
  - For example, when reporting CO_2 emissions from international flights between States A and B, an aeroplane operator will report both directions as separate State pairs (A-B and B-A).

Annex 16, Chapter IV, Part II, Chapter 1 - Outline

- Annex 16, Volume IV, Part II, Chapter 1 and Appendix 1:
  - 1.1Attribution of international flights to aeroplane operators
  - 1.2Attribution of an aeroplane operator to a State
  - 1.3State – Administrative Partnerships
  - 1.4Record keeping
  - 1.5Compliance periods and timeline (Appendix 1)

Purpose of Attribution

- Ensure completeness
  - Identify all applicable international flights
  - Emissions from all applicable international flights must be reported
- Avoid duplication
  - Each international flight is allocated to a single aeroplane operator
  - Each aeroplane operator is allocated to a single State

Attribution of International Flight to Operator

- Attribution based on information in the flight plan form (see Doc 4444, ICAO model flight plan item 7 – Aircraft identification):
  - ICAO designator, or
  - Registration marks
- If none of the above, attribution to the aeroplane owner

ICAO model flight plan form

FLIGHT PLAN
PLAN DE VOL

PRIORITY
Priorité
FF

ADDRESSEE(S)
Destinataire(s)

FILING TIME
Heure de dépôt

ORIGINATOR
Expéditeur

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR
Identification précise du(des) destinataire(s) et/ou de l'expéditeur

3 MESSAGE TYPE
Type de message
(FPL

7 AIRCRAFT IDENTIFICATION
Identification de l'aéronef

8 FLIGHT RULES
Règles de vol

TYPE OF FLIGHT
Type de vol

9 NUMBER
Nombre

TYPE OF AIRCRAFT
Type d'aéronef

WAKE TURBULENCE CAT.
Cat. de turbulence de sillage

10 EQUIPMENT
Équipement

13 DEPARTURE AERODROME

TIME

Attribution of Aeroplane Operator to State

- Attribution of an aeroplane operator based on:
  - ICAO designator, or
  - Air operator certificate, or
  - Place of juridical registration

Reference: Annex 16, Volume IV, Part II, Chapter 1,

Each State shall submit to ICAO a list of aeroplane operators which are attributed to it – update regularly, as necessary

Reference: Annex 16, Volume IV, Part II, Chapter 1,

Recommendation: The State should use the ICAO document entitled "CORSIA Aeroplane Operator to State Attributions"

Reference: Annex 16, Volume IV, Part II, Chapter 1,

ICAO Doc 8585

Attribution of Aeroplane Operator to State

- Clarifications :

- "Place of juridical registration" refers to the State in which the entity (company or person) is legally registered
  - Jurisdictional clarity in cases of enforcement, such as international court measures
  - The place of juridical registration may differ from the principal place of business

- "AOC (or equivalent)", is used because in some States the AOC is named differently:
  - The "AOC" refers to an official document issued by a State that gives an aeroplane operator license to operate and that contains the identification of the aircraft operator and may also contain aircraft registration marks
  - The use of general aviation operating certificates and other certificates permitting non-commercial air transport could thus be appropriate as long as these certificates are issued/approved by a State

Who will ensure that aeroplane operators comply with the requirements of Annex 16, Volume IV?

- According to Assembly Resolution A41-22, ICAO Member States will take necessary action to ensure that the national policies and regulatory framework be established for the compliance and enforcement of CORSIA
  - The State is primarily responsible for ensuring that the aeroplane operator complies with the CORSIA requirements

Subsidiary Aeroplane Operators

- An aeroplane operator with a wholly owned subsidiary aeroplane operator, and legally registered in the same State can be treated as a single consolidated aeroplane operator liable for compliance with the requirements of Annex 16, Volume IV, subject to the approval of the State.

- Evidence shall be provided in the aeroplane operator's Emissions Monitoring Plan to demonstrate that the subsidiary aeroplane operator is wholly owned
  - The two operators will be administered as a single entity, and their emissions aggregated. Therefore, the applicability of the requirements of Annex 16, Volume IV will be based on their aggregated emissions

Reference: Annex 16, Volume IV, Part II, Chapter 1,

State – Administrative Partnerships

- Delegation of administrative processes
  - A State may delegate administration processes to another State through an Administrative Partnership based on a bilateral agreement among the respective States.
  - A State shall not delegate enforcement of the requirements in this Volume, or their administrative tasks towards ICAO, to another State.

Reference: Annex 16, Volume IV, Part II, Chapter 1

Example of a Bilateral Agreement

- Chapter 5 of the ETM provides an example of a bilateral agreement on an administrative partnership (referred to as the BAAP)
  - Could be used as a template and adjusted, as appropriate

- Ten suggested sections for such a bilateral agreement covering all aspects of the cooperation:
  - Contracting administrative authorities
  - Guiding principles of cooperation
  - Basic principles
  - Legal grounds
  - Language, formalities, deadlines, failure of compliance
  - Scope
  - Duration
  - Notification on non-compliance
  - Termination
  - Protection of aeroplane operator data

Record Keeping

- Aeroplane Operator
  - Keep relevant records for a period of 10 years

Recommendation: The aeroplane operator should keep records relevant to its CO_2 emissions per State pair during the 2019-2020 period in order to cross-check its offsetting requirements calculated by the State during the 2030-2035 compliance periods.

- State
  - Keep records relevant to the Aeroplane Operator's CO2 emissions per State pair during the period of 2019-2020 in order to calculate the Aeroplane Operator's offsetting requirements during the 2030-2035 compliance periods.

Reference: Annex 16, Volume IV, Part II, Chapter 1,

Thank You

ICAO