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# ICAO Environment Workshop on CORSA Implementation Elements

*What the Pilot Phase means for AOs*

ICAO Secretariat:  
ESAF RO ENV/MET & WACAF RO ENV

*Virtual meeting, 3 June 2021*



## Vision

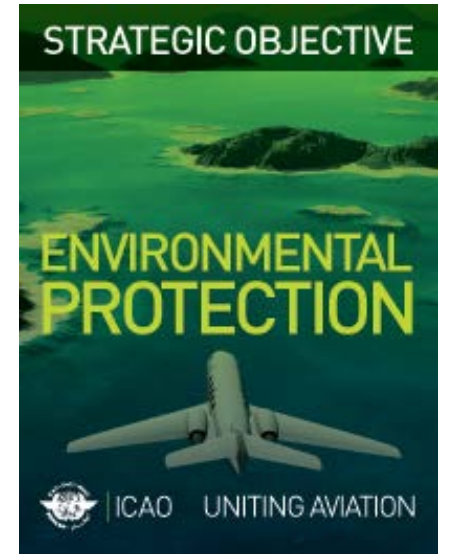
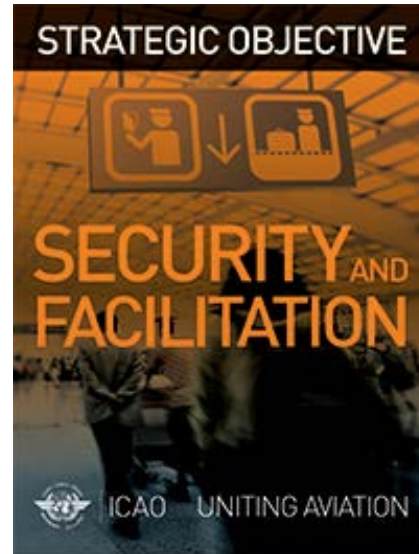
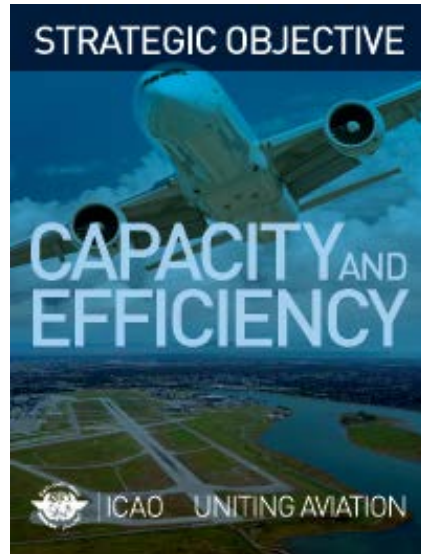
Achieve the sustainable growth of the global civil aviation system.



## Mission

To serve as the global forum of States for international civil aviation.

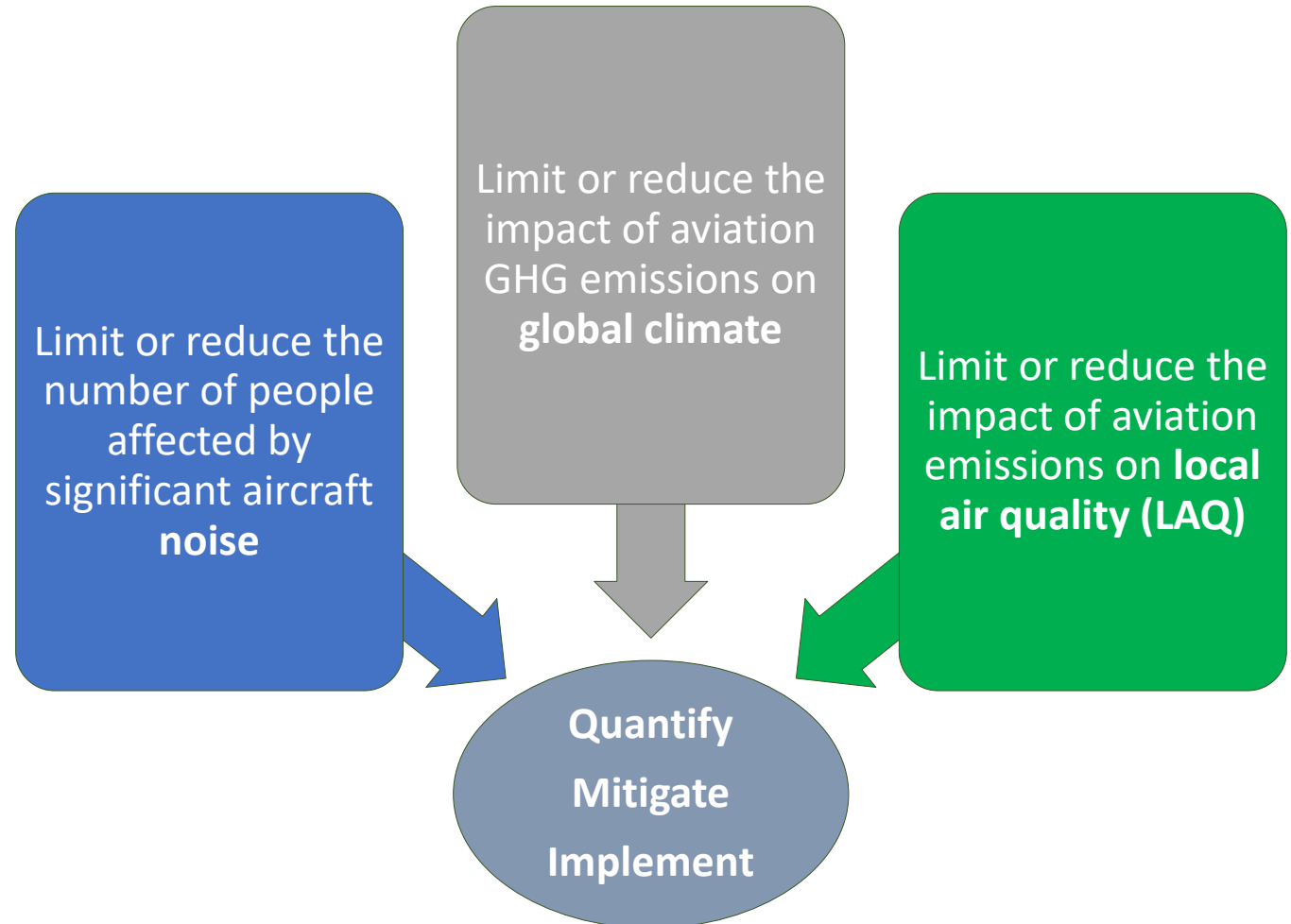
## ICAO Strategic Objectives





## ICAO Strategic Objective Environmental Protection:

**Minimize the adverse effect of global civil aviation on the environment**





- The 39th ICAO Assembly requested the Council:
  - *“to develop, with the technical contribution of CAEP, the SARPs and related guidance material for the implementation of the MRV system under the CORSIA, including simplified MRV procedures, for adoption by the Council by 2018”*
- It also requested Member States:
  - *“whose aircraft operator undertakes international flights to develop the necessary arrangements, in accordance with the MRV SARPs, for implementation from 1 January 2019”*



**Resolution A39-3: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme**

*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 finalize the work on the technical aspects, environmental and economic impacts and modalities



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# CORSIA Implementation Package



**Resolution A40-19: 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 (GMIM) scheme for international aviation, for decision by the 79th 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 GMIM 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 GMIM 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 Advisory Group on CORSIA (AGC), its Technical Advisory Body (TAB) and its Committee on Aviation Environmental Protection (CAEP) to support the implementation of CORSIA;

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

Also welcoming the publication of the first edition of Environmental Technical Manual (ETM, Doc 9501), Volume IV – Procedures for demonstrating compliance with the CORSIA;

Welcoming the progress made for the development 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;

Welcoming the increasing number of announcements by Member States of their intention to voluntarily participate in CORSIA in the pilot phase from 2021;

Recognizing that strong capacity building activities can facilitate the decision of Member States to voluntarily participate in CORSIA;

Res. A40-19

ICAO International Standards and Recommended Practices

Annex 16 to the Convention on International Civil Aviation

Environmental Protection

Volume IV, Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)  
First Edition, October 2018

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Annex 16, Volume IV (CORSIA SARPs)

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Doc 9501

Environmental Technical Manual

Volume IV – Procedures for demonstrating compliance with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)  
Second Edition, 2019

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ETM Volume IV

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INTERNATIONAL CIVIL AVIATION ORGANIZATION

ICAO document

CORSIA Aeroplane Operator to State Attributions

December 2019

CORSIA  
Carbon Offsetting and Reduction Scheme for International Aviation

CORSIA Implementation Elements (ICAO documents)



- The five (5) CORSIA Implementation Elements

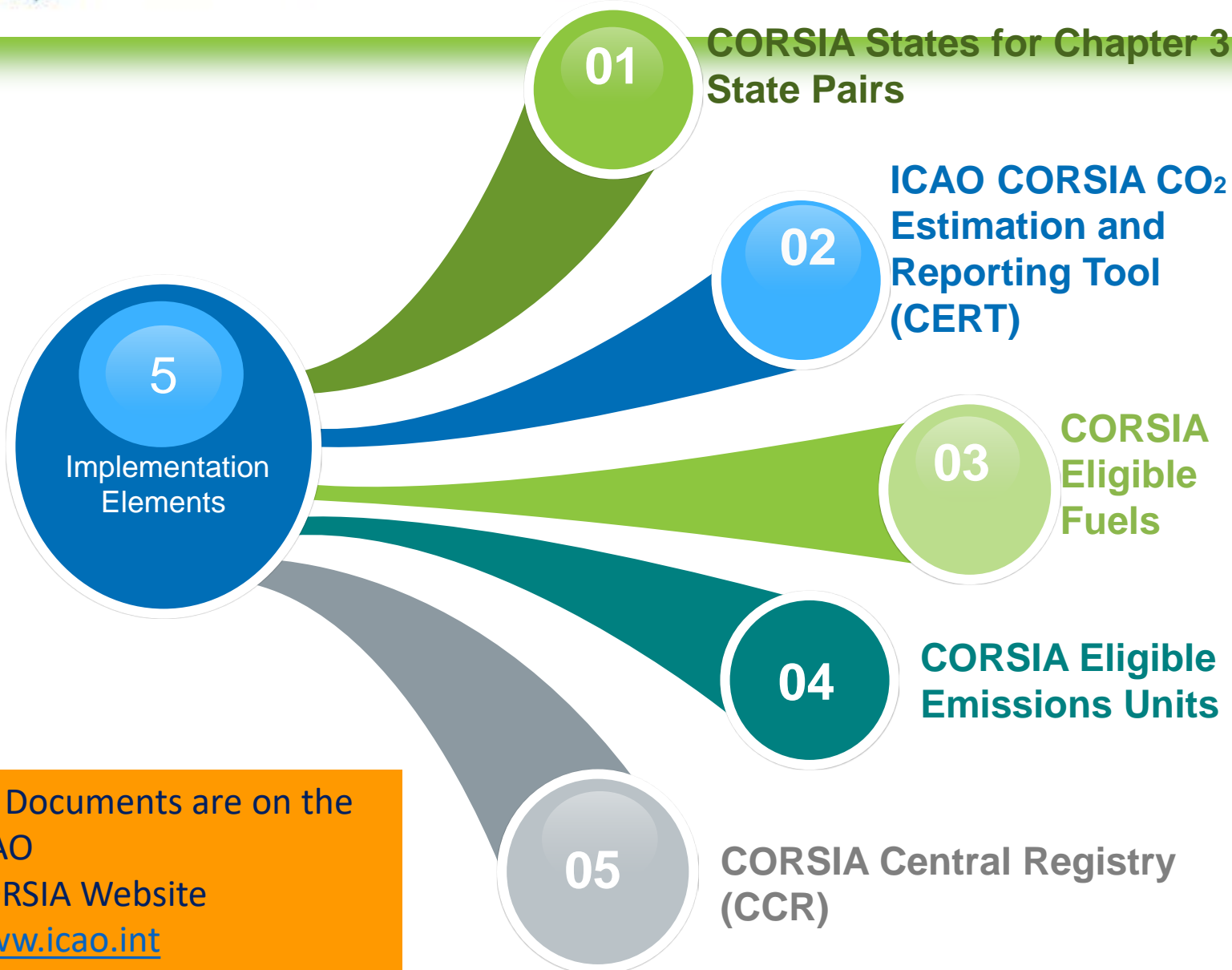
- CORSIA States for Chapter 3 State Pairs;
- ICAO CORSIA CO2 Estimation and Reporting Tool (CERT)
- CORSIA Eligible Fuels
- CORSIA Eligible Emissions Units
- CORSIA Central Registry (CCR)



All Documents are on the ICAO CORSIA Website [www.icao.int](http://www.icao.int)



# ICAO Documents



1. *CORSIA States for Chapter 3 State Pairs*
2. *ICAO CORSIA CO<sub>2</sub> Estimation and Reporting Tool*
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*
8. *CORSIA Eligible Emissions Units*
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13. *CORSIA Annual Sector's Growth Factor (SGF)*
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# CO<sub>2</sub> Offsetting requirements during the Pilot Phase





88 States to participate  
in the pilot phase  
*(As of July 2020)*



**Second phase participation criteria:**

- 90% of global RTK
- 0.5% of RTK

**Exemptions:**

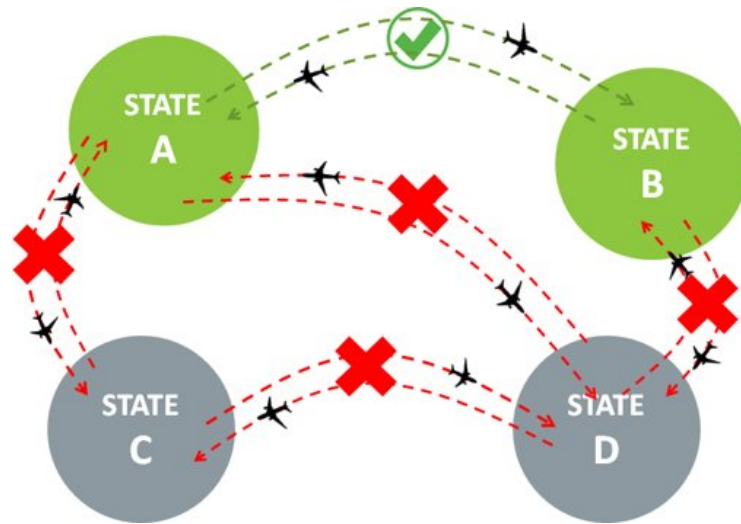
- LDCs, LLDCs, SIDS

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



## CORSIA States for Chapter 3 State Pairs;

### – What are “Chapter 3 State Pairs”?



- All routes between States participating in CORSIA offsetting in a given year (starting in 2021) are termed “Chapter 3 State Pairs”
- These routes will be subject to offsetting requirements as per the provisions in Annex 16, Volume IV, Part II, Chapter 3



## CORSIA States for Chapter 3 State Pairs

- Only one Document for Implementation Element 1
  - "CORSIA States for Chapter 3 State Pairs"
  - The first edition of this ICAO document has been approved by the ICAO Council. It contains the States that will participate in CORSIA from 1 January 2021.
  - <https://www.icao.int/environmental-protection/CORSIA/Pages/state-pairs.aspx>



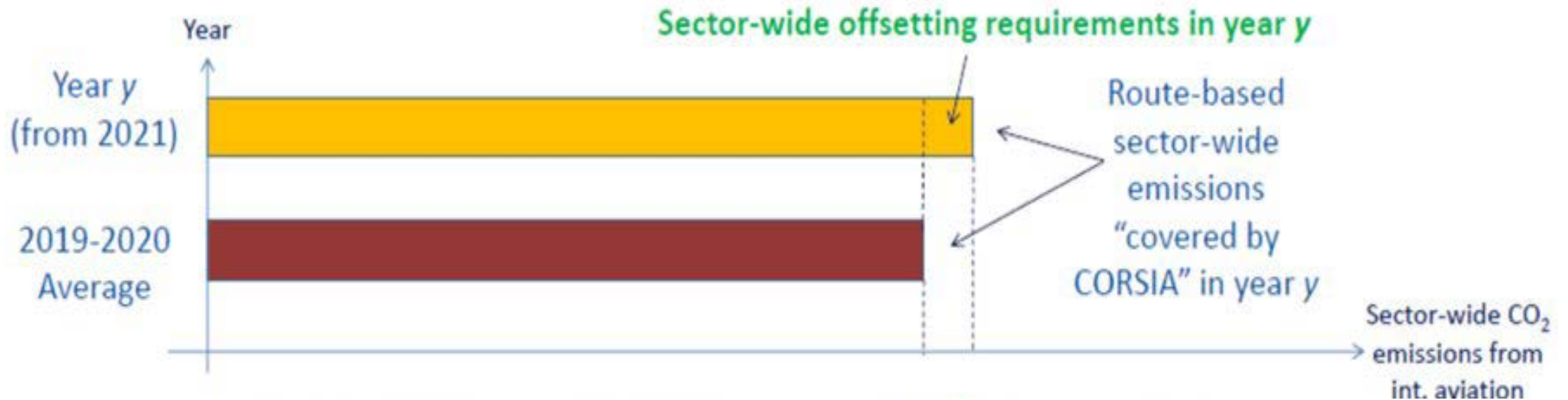


- **Offsetting requirements shall be applicable:**
  - From 01 January 2021 to 31 December 2035;
  - To an Aeroplane Operator (AO) with international flights as defined between States defined in the ICAO document entitled, “CORSIAS States for Chapter 3 State Pairs.”
- **States that have notified ICAO of their decision to voluntarily participate**
  - Shall be included in the ICAO document entitled, “**CORSIA States for Chapter 3 State Pairs.**”
  - The doc will also contain States which meet the compliance criteria for Phase II (from 01 Jan 2027- 31 Dec 2035)-with the exception of LDCs, LLDCs and SIDS.



- Total amount of sector-wide offsetting requirements in a given year  $y$  (from 2021) under CORSIA

1. Calculate the 2019 to 2020 average levels of sector-wide emissions, with the route-coverage by CORSIA in year  $y$
2. Calculate the year  $y$  levels of sector-wide emissions, with the route-coverage by CORSIA in year  $y$
3. Difference between 1 and 2 is the total amount of sector-wide offsetting requirements in year  $y$





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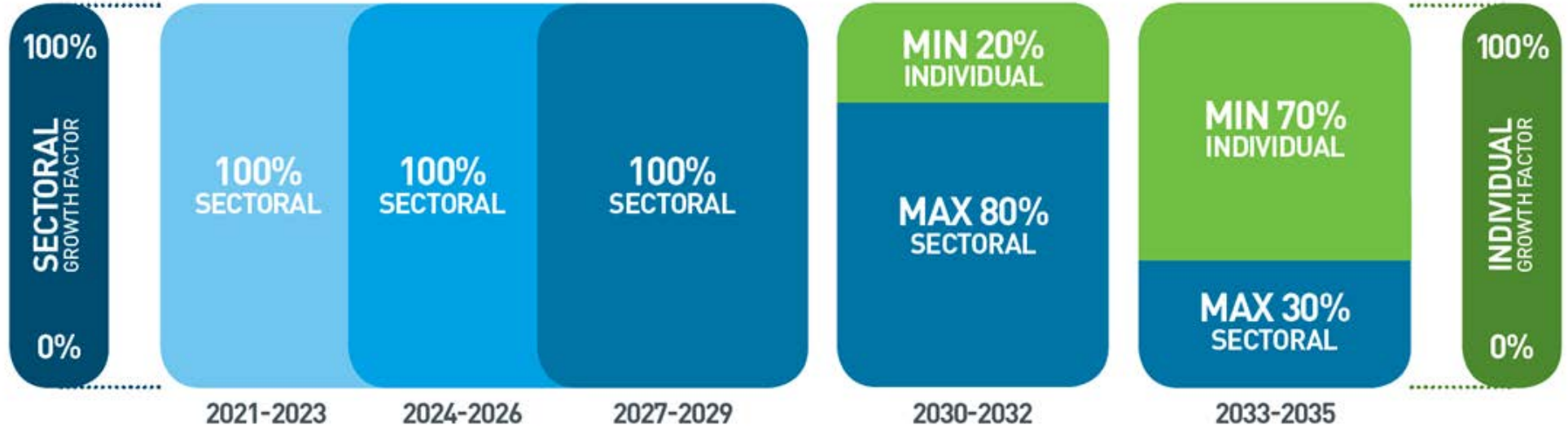
# Offsetting requirements steps





**Operator's annual emissions X Growth Factor = CO<sub>2</sub> 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.



Reference: Assembly Resolution A40-19, Paragraph 11



## CORSIA Annual Sector's Growth Factor (SGF)



**CORSIA ANNUAL SECTOR'S GROWTH FACTOR (SGF)**



THE DOCUMENT WILL INCLUDE THE SECTOR'S GROWTH FACTOR FOR A GIVEN YEAR Y



STARTING IN 2021 (SGFY).



THE FIRST EDITION OF THIS ICAO DOCUMENT, CONTAINING SECTOR'S GROWTH FACTOR FOR YEAR 2021, WILL BECOME AVAILABLE, FOLLOWING APPROVAL BY THE ICAO COUNCIL,



BY 31 OCTOBER 2022.

COMING SOON

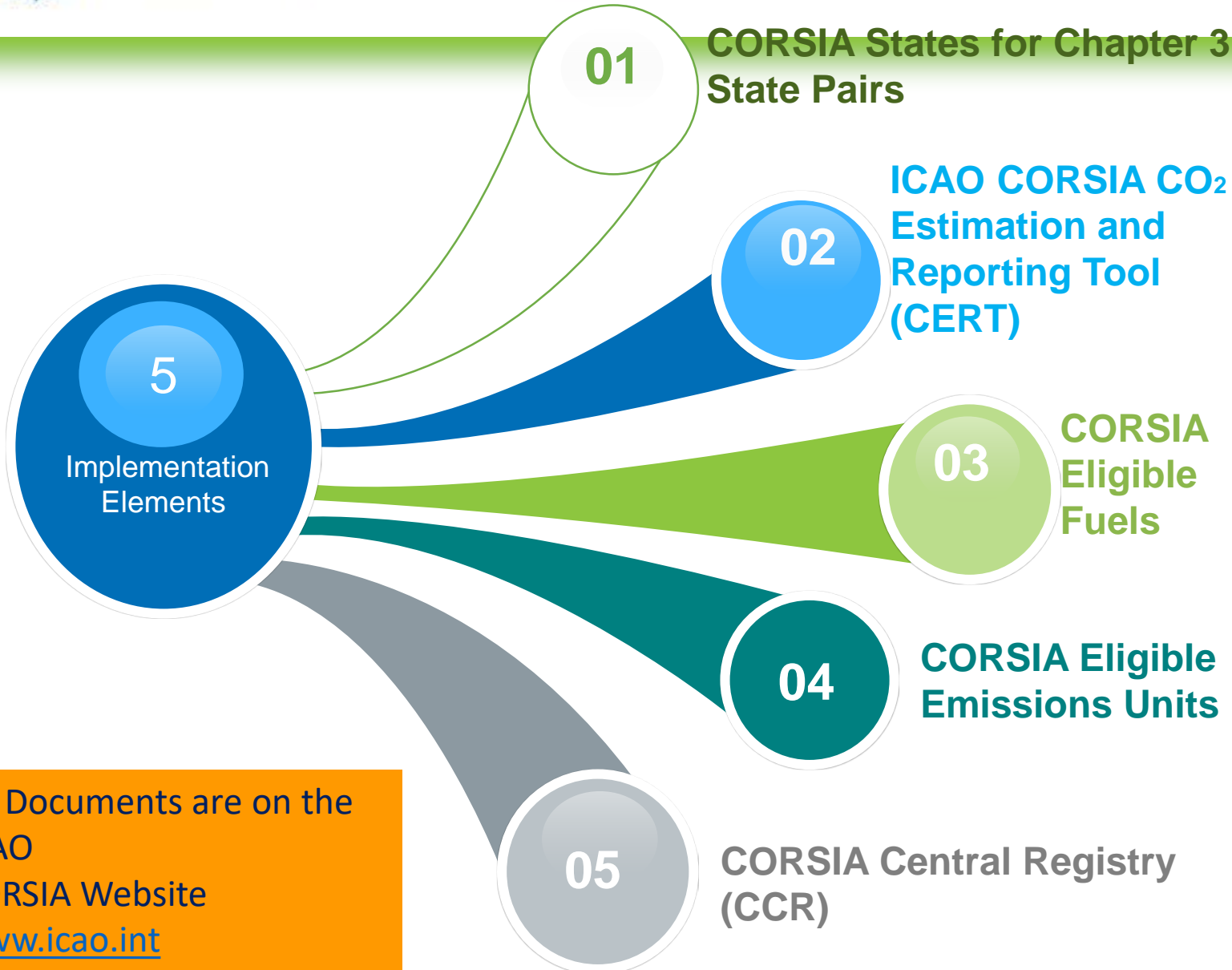
### Sectoral Baseline

The average of 2019 and 2020 emissions from routes covered by CORSIA in a given year (from 2021)

**Recall: How do we calculate the SGF?** 
$$\frac{(SE_y - SE_{B,y})}{SE_y}$$

where  $SE_y$  = Total sectoral CO<sub>2</sub> emissions covered by 3.1 in the given year y and  $SE_{B,y}$  = Average total annual sectoral CO<sub>2</sub> emissions during 2019 and 2020 covered by 3.1 in the given year y.





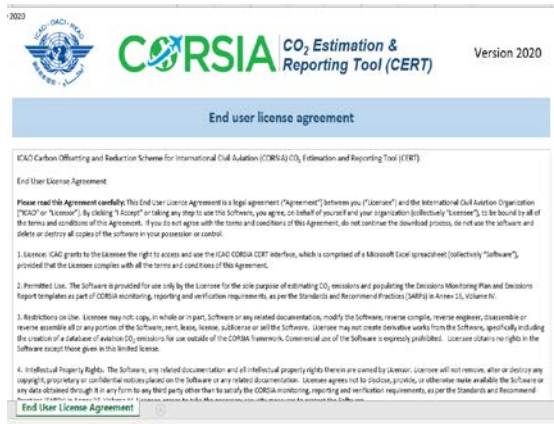
# ICAO Documents

1. *CORSIA States for Chapter 3 State Pairs*
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All Documents are on the ICAO CORSIA Website  
[www.icao.int](http://www.icao.int)



# CERT – CORSIA Estimation Reporting Tool



## The ICAO CORSIA CERT

- a simplified tool, developed for aeroplane operators:
  - to support the monitoring and reporting of their CO2 emissions under CORSIA.
  - reflected in the ICAO document entitled "ICAO CORSIA CO2 Estimation and Reporting Tool", referenced in Annex 16, Volume IV.
- Different versions of ICAO CORSIA CERT

2020 version of the tool to be used by AOs to support the monitoring and reporting of their 2020 CO2 emissions

December 2020

Version 2020 of the ICAO CORSIA CERT is available for download in the ICAO CORSIA website.

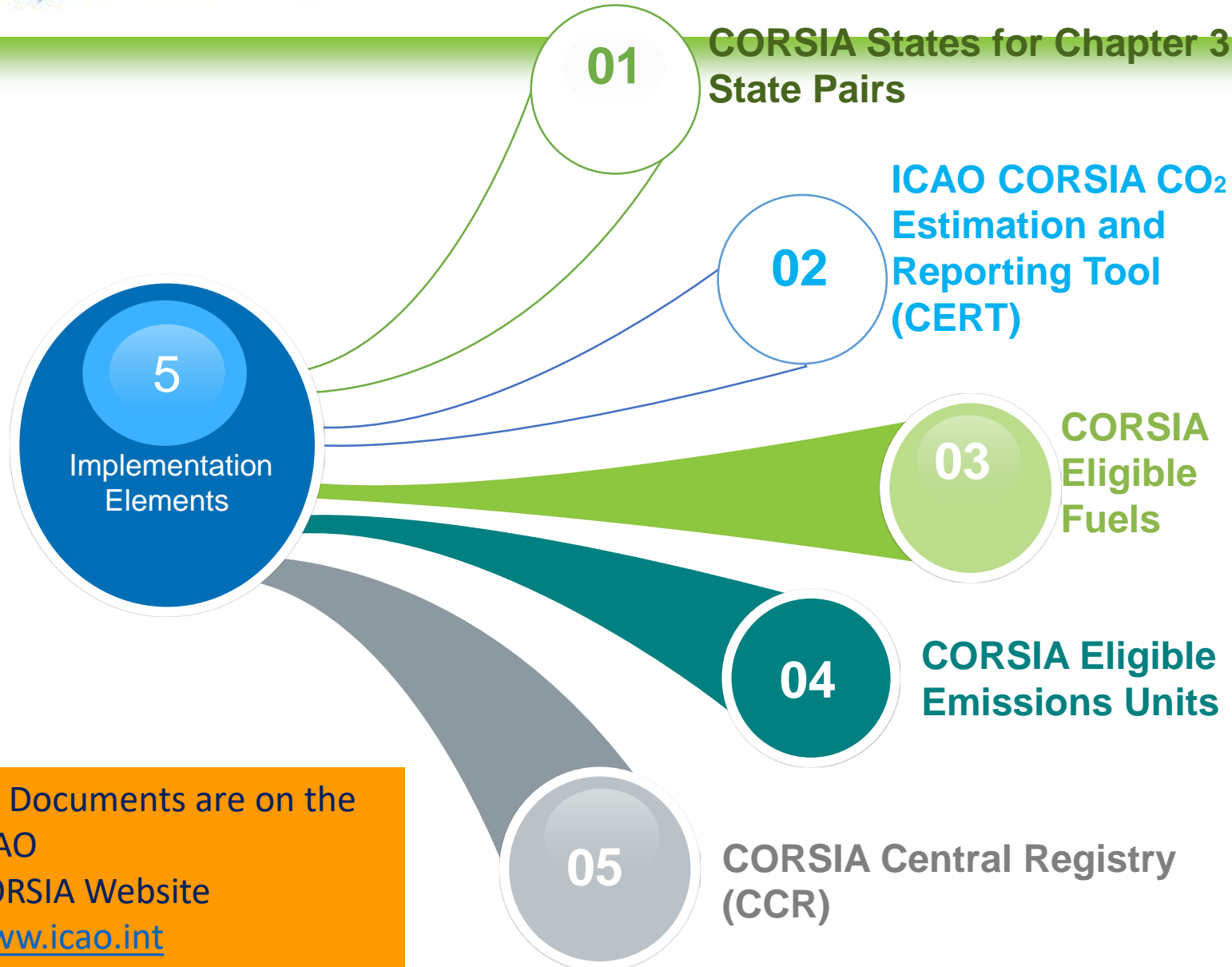


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# Emissions Reductions from the Use of CORSA Eligible Fuels



# ICAO Documents

1. *CORSIA States for Chapter 3 State Pairs*
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• CORSIA Eligible Fuels – 5 ICAO Documents



**CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes**

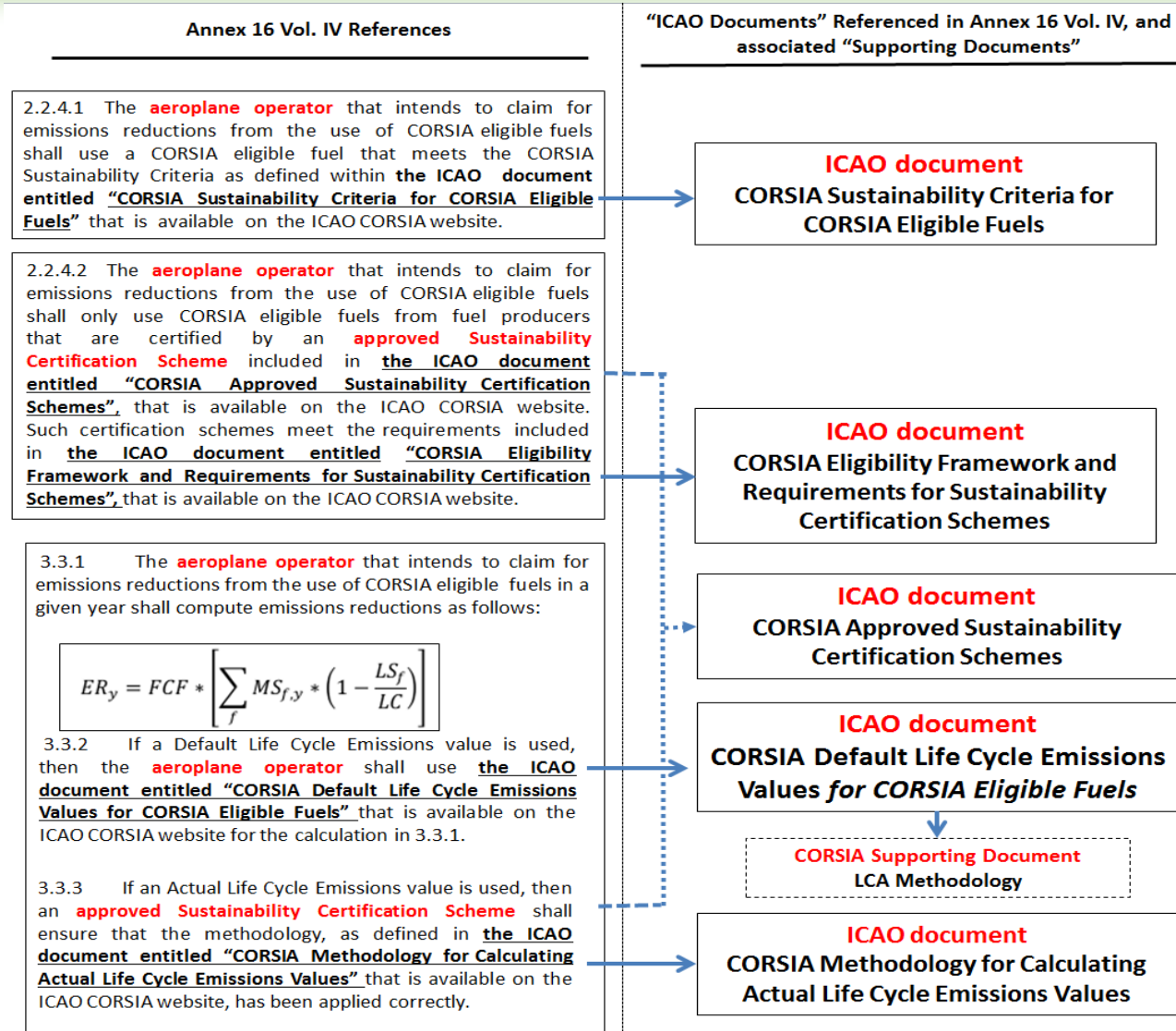
**CORSIA Approved Sustainability Certification Schemes**

**CORSIA Sustainability Criteria for CORSIA Eligible Fuels**

**CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels**

**CORSIA Methodology for Calculating Actual Life Cycle Emissions Values**

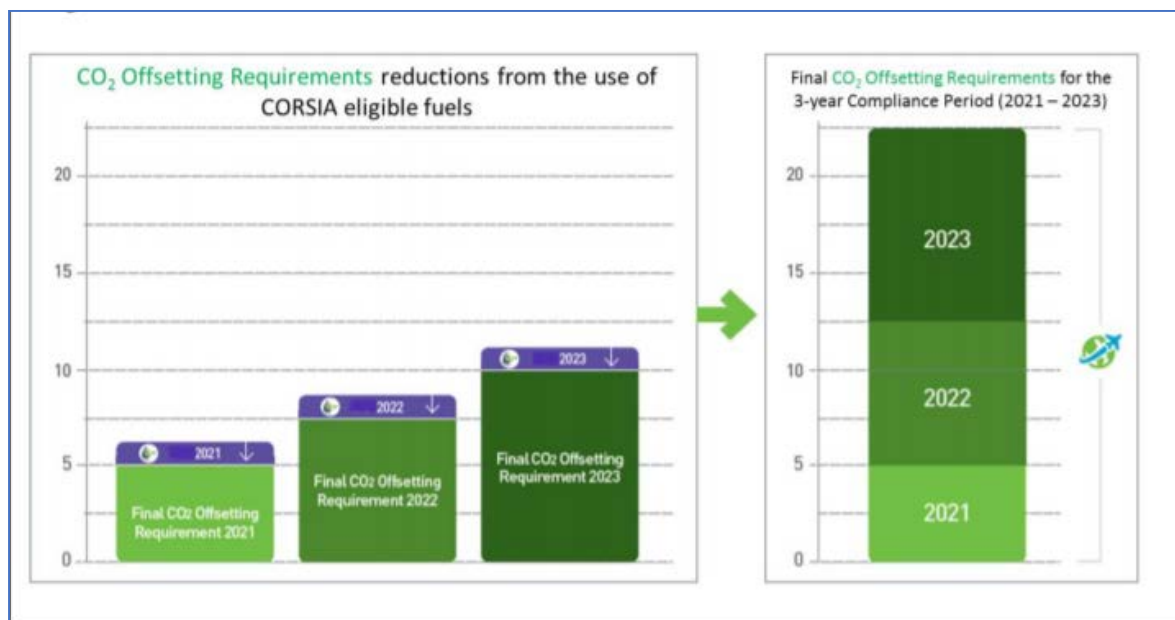
Available on the ICAO CORSIA website



This chart presents the relation between these documents and the Annex 16 Vol. IV references



## CORSIA Eligible Fuels



This figure provides an illustration of accounting the benefits from CORSIA Eligible Fuels

**An aeroplane operator can reduce its CORSIA offsetting requirements in a given year by claiming emissions reductions from the use of CORSIA eligible fuels (CEF)**

Annex 16, Volume IV provides the following definitions in this respect:

### **CORSIA Eligible Fuel:**

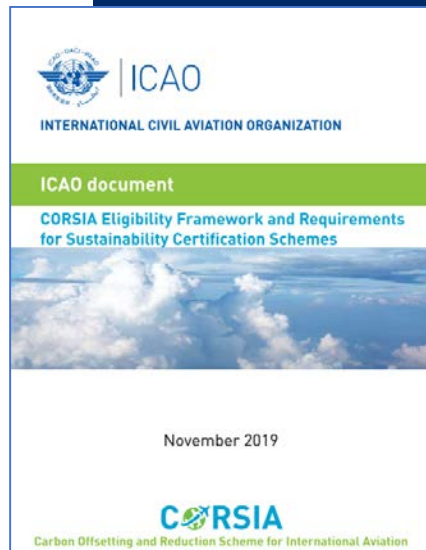
**“A CORSIA sustainable aviation fuel or a CORSIA lower carbon aviation fuel, which an operator may use to reduce their offsetting requirements.”**

- **CORSIA sustainable aviation fuel:** “A renewable or waste-derived aviation fuel that meets the CORSIA Sustainability Criteria under this Volume.”
- **CORSIA lower carbon aviation fuel:** “A fossil-based aviation fuel that meets the CORSIA Sustainability Criteria under this Volume.”



## CORSIA Eligible Fuels -1

### CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes



**Sustainability Certification Schemes (SCS).** Organizations that certify economic operators against the sustainability criteria and ensure that economic operators calculate actual life cycle emissions values using the agreed methodology.

SCS define sustainability certification requirements, set requirements for certification bodies, auditors and accreditation bodies, and monitor effectiveness of the assurance system.

The approval of SCS will be exclusively carried out centrally by the ICAO Council with the technical assistance of CAEP, which will assess the compliance of the SCS with the eligibility requirements listed in this ICAO document.

**Only the SCS that meet all the eligibility requirements will be included in the list of approved SCS.**





## CORSIA Eligible Fuels - 2

**CORSIA Approved Sustainability Certification Schemes**



The **Sustainability Certification Schemes** are approved by the ICAO Council as meeting the requirements included in the first edition of the ICAO document “*CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes*”

- The SCS listed **are eligible to certify CORSIA eligible fuel producers for compliance** with the first edition of the ICAO document “CORSIA Sustainability Criteria for CORSIA eligible fuels”, and

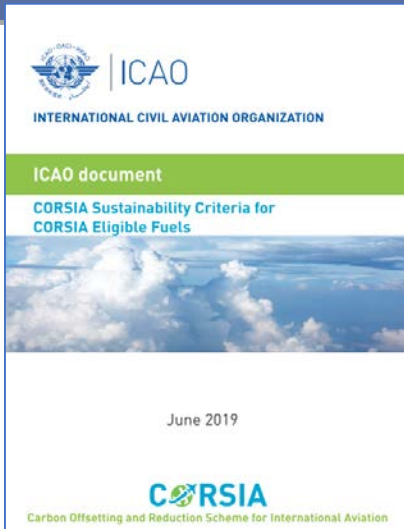
They ensure that the methodology defined in the first edition of the ICAO document “CORSIA Methodology for Calculating Actual Life Cycle Emissions Values” has been applied correctly.

Name of the Sustainability Certification Scheme	Date of approval	Website	Applications and other Supporting Information	Application date
International Sustainability and Carbon Certification (ISCC)	18/Nov/2020	<a href="https://www.iscc-system.org/">https://www.iscc-system.org/</a>	<a href="https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-SCS-evaluation-ISCC.aspx">https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-SCS-evaluation-ISCC.aspx</a>	30/Apr/2020
Roundtable on Sustainable Biomaterials (RSB)	18/Nov/2020	<a href="https://rsb.org/">https://rsb.org/</a>	<a href="https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-SCS-evaluation-RSB.aspx">https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-SCS-evaluation-RSB.aspx</a>	30/Apr/2020



# CORSIA Eligible Fuels -3

## CORSIA Sustainability Criteria for CORSIA Eligible Fuels



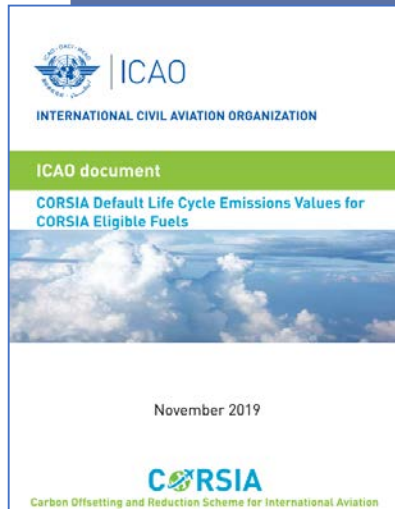
CORSIA SUSTAINABILITY CRITERIA FOR CORSIA ELIGIBLE FUELS		
Theme	Principle	Criteria
<b>1. Greenhouse Gases (GHG)</b>	Principle: CORSIA eligible fuel should generate lower carbon emissions on a life cycle basis.	Criterion 1: CORSIA eligible fuel shall achieve net greenhouse gas emissions reductions of at least 10% compared to the baseline life cycle emissions values for aviation fuel on a life cycle basis.
<b>2. Carbon stock</b>	Principle: CORSIA eligible fuel should not be made from biomass obtained from land with high carbon stock.	<p>Criterion 1: CORSIA eligible fuel shall not be made from biomass obtained from land converted after 1 January 2008 that was primary forest, wetlands, or peat lands and/or contributes to degradation of the carbon stock in primary forests, wetlands, or peat lands as these lands all have high carbon stocks.</p> <p>Criterion 2: In the event of land use conversion after 1 January 2008, as defined based on IPCC land categories, direct land use change (DLUC) emissions shall be calculated. If DLUC greenhouse gas emissions exceed the default induced land use change (ILUC) value, the DLUC value shall replace the default ILUC value.</p>

Work on other themes such as Water; Soil; Air; Conservation; Waste and Chemicals; Human and labour rights; Land use rights and land use; Water use rights; Local and social development; and Food security, and related criteria, and on the application of these criteria, is ongoing under the CAEP and will be subject to approval by the Council by the end of the pilot phase



## CORSIA Eligible Fuels -4

### CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels



The **life-cycle emissions values of a CORSIA Eligible Fuel** is composed of two main elements:

1) **Core Life Cycle Assessment (LCA) emissions**, which include the **emissions associated** with: feedstock cultivation, feedstock harvesting, collection and recovery, feedstock processing and extraction, feedstock transportation to processing and fuel production facilities, feedstock to fuel conversion processes, fuel transportation and distribution, and fuel combustion in an aircraft engine

2) **Induced land-use change (ILUC) emissions** – CORSIA Eligible Fuel production may require some additional land to be used, and generate land use change GHG emissions.

These could occur where the new CORSIA Eligible Fuel production is taking place (direct land use change) but also in other locations due to the displacement of crops (or animals) for which the land was previously used (indirect land use change)

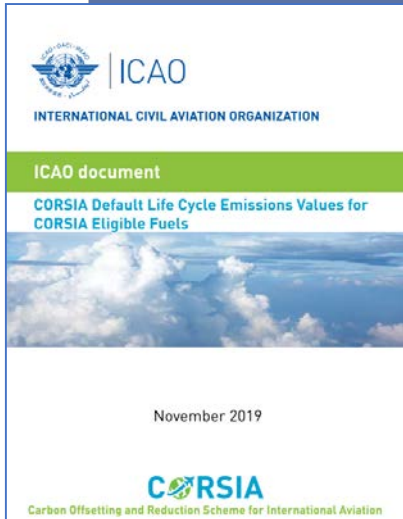


# CORSIA Eligible Fuels -4

CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels

Table 1. CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels

Fuel Conversion Process	Region	Fuel Feedstock	Core LCA Value	ILUC LCA Value	LS <sub>r</sub> (gCO <sub>2</sub> e/MJ)
Fischer-Tropsch (FT)	Global	Agricultural residues	7.7	0.0	7.7
	Global	Forestry residues	8.3		8.3
	Global	Municipal solid waste (MSW), 0% non-biogenic carbon (NBC)	5.2		5.2
	Global	Municipal solid waste (MSW) (NBC given as a percentage of the non-biogenic carbon content)	NBC*170.5 + 5.2		NBC*170.5 + 5.2
	USA	Poplar (short-rotation woody crops)	12.2	-5.2	7.0
	USA	Miscanthus (herbaceous energy crops)	10.4	-32.9	-22.5
	EU	Miscanthus (herbaceous energy crops)	10.4	-22.0	-11.6
	USA	Switchgrass (herbaceous energy crops)	10.4	-3.8	6.6
Hydroprocessed esters and fatty acids (HEFA)	Global	Tallow	22.5	0.0	22.5
	Global	Used cooking oil	13.9		13.9
	Global	Palm fatty acid distillate	20.7		20.7
	Global	Corn oil (from dry mill ethanol plant)	17.2		17.2
	USA	Soybean oil	40.4	24.5	64.9
	Brazil	Soybean oil	40.4	27.0	67.4
	EU	Rapeseed oil	47.4	24.1	71.5
	Malaysia & Indonesia	Palm oil – closed pond	37.4	39.1	76.5
	Malaysia & Indonesia	Palm oil – open pond	60.0	39.1	99.1
Global	Agricultural residues	29.3	0.0	29.3	



The CORSIA Supporting Document “CORSIA Eligible Fuels - Life Cycle Assessment Methodology” describes the methodologies used by ICAO to calculate these Default Life Cycle Emissions Values, as well as the process for requesting the inclusion of a new conversion process, feedstock, and/or region on this table



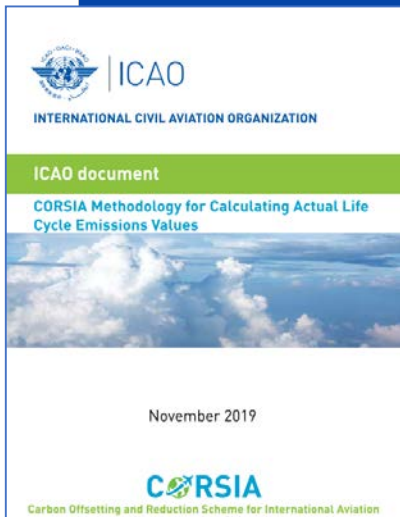


# CORSIA Eligible Fuels - 5

**CORSIA Methodology for Calculating Actual Life Cycle Emissions Values**

An aeroplane operator that intends to claim **for emissions reductions** from the use of CORSIA Eligible Fuels shall only use CORSIA Eligible Fuels from fuel producers that are **certified by an approved Sustainability Certification Scheme**.

The emissions reductions from the use of CORSIA Eligible Fuels in a given year: **based on their life cycle emission values, which depend on the feedstock, conversion process, and region where the fuel was produced.**



**2 possibilities to obtain LCA value**

**AO can use an “actual life cycle emissions value” using ICAO methodologies**

**AO can use a “default life cycle emissions value” from ICAO Doc**



## Claiming for emissions reductions from the use of CORSIA Eligible Fuels:

$$ER_y = FCF * \left[ \sum_f MS_{f,y} * \left( 1 - \frac{LS_f}{LC} \right) \right]$$

The ratio  $\left( 1 - \frac{LS_f}{LC} \right)$  is also referred to as the emissions reduction factor ( $ERF_f$ ) of a CORSIA eligible fuel.

### where:

- $ER_y$  = Emissions reductions from the use of CORSIA eligible fuels in the given year y (in tonnes);
- FCF = Fuel conversion factor, equal to 3.16 kg CO<sub>2</sub>/kg fuel for Jet-A fuel / Jet-A1 fuel and 3.10 kg CO<sub>2</sub>/kg fuel for AvGas or Jet-B fuel;
- $MS_{f,y}$  = Total mass of a neat CORSIA eligible fuel claimed in the given year y (in tonnes);
- $LS_f$  = Life cycle emissions value for a CORSIA eligible fuel (in gCO<sub>2</sub>e/MJ); and
- LC = Baseline life cycle emissions values for aviation fuel, equal to 89 gCO<sub>2</sub>e/MJ for jet fuel and equal to 95 gCO<sub>2</sub>e/MJ for AvGas.

# Offsetting Requirements



## Total final Offsetting requirements for a given compliance period From the use of CORSIA Eligible Fuels:

$$FOR_c = (OR_{1,c} + OR_{2,c} + OR_{3,c}) - (ER_{1,c} + ER_{2,c} + ER_{3,c})$$

where:

- $FOR_c$  = Aeroplane operator's total final offsetting requirements in the given compliance period  $c$ ;
- $OR_{y,c}$  = Aeroplane operator's offsetting requirements in the given year  $y$  (where  $y = 1, 2$  or  $3$ ) of the compliance period  $c$ ; and
- $ER_{y,c}$  = Emissions reductions from the use of CORSIA eligible fuels in the given year  $y$  (where  $y = 1, 2$  or  $3$ ) of the compliance period  $c$ .

# Offsetting Requirements



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# SAFs- sharing of information and best practices



SAF Guide



SAF Buddy Partnerships



SAF Technical References



SAF Feasibility Studies

All Documents and information are on the ICAO CORSIA Website [www.icao.int](http://www.icao.int)



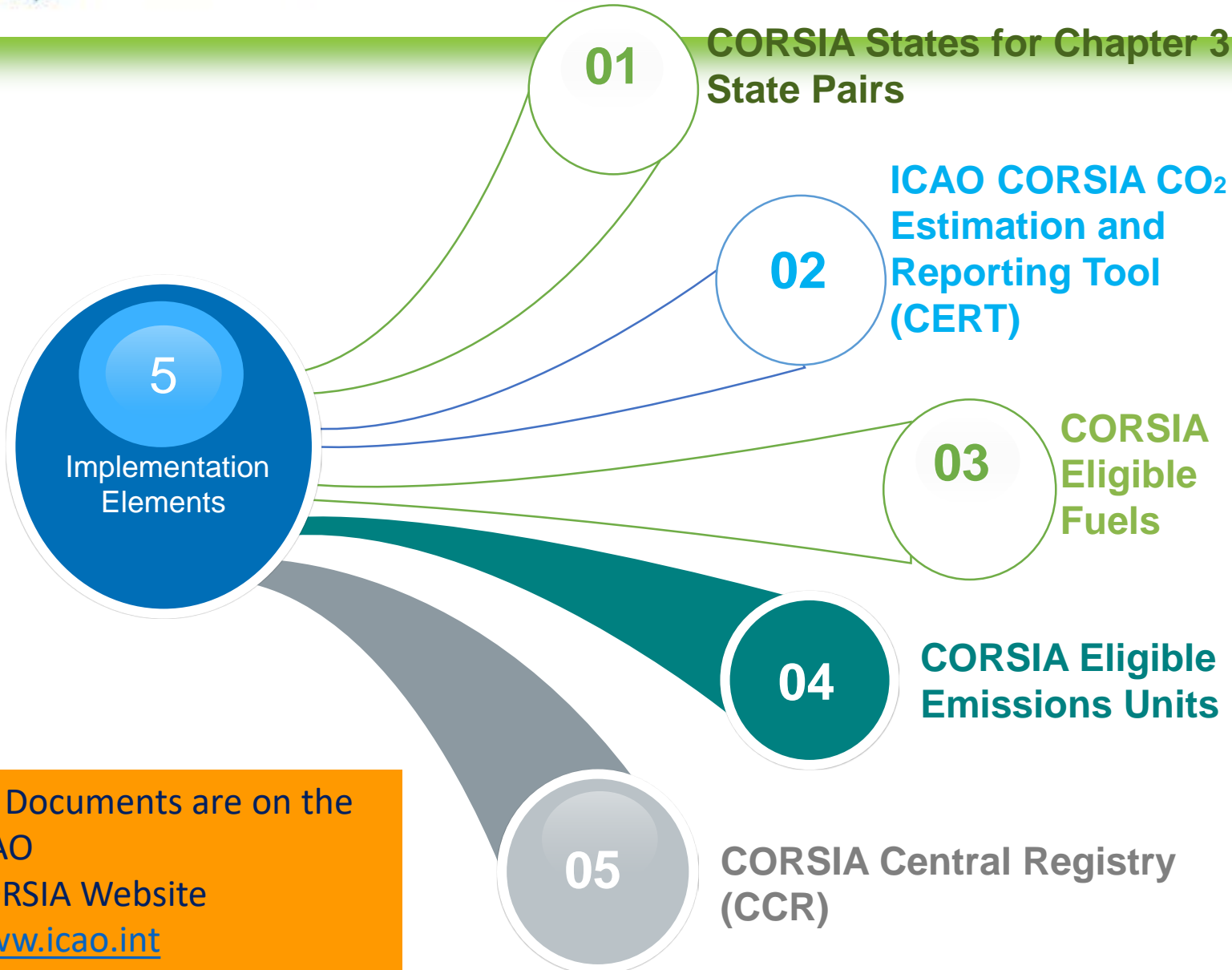


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## Emissions Units



# ICAO Documents

1. *CORSIA States for Chapter 3 State Pairs*
2. *ICAO CORSIA CO<sub>2</sub> Estimation and Reporting Tool*
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*
8. *CORSIA Eligible Emissions Units*
9. *CORSIA Emissions Unit Eligibility Criteria*
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*

All Documents are on the ICAO CORSIA Website [www.icao.int](http://www.icao.int)



- CORSIA Eligible Emissions Units – 2 ICAO Documents

**CORSIA Eligible Emissions Units**

**CORSIA Emissions Unit Eligibility Criteria**

The ICAO CORSIA Implementation Element “CORSIA Eligible Emissions Units” is reflected in two ICAO documents referenced in Annex 16, Volume IV .

Available on the ICAO CORSIA website



## CORSIA Eligible Emissions Units - 1



### CORSIA Emissions Unit Eligibility Criteria

- approved by the ICAO Council, included in the ICAO document entitled "**CORSIA Emissions Unit Eligibility Criteria**", available on the ICAO CORSIA website.
- applied to address environmental and social integrity
- **Examples of the Eligibility Criterion:**
  - Carbon offset credits must be quantified, monitored, reported and verified;
  - Carbon offset credits must have a clear and transparent chain of custody within the offset program; and
  - Carbon offset credits must represent emissions reductions, avoidance, or carbon sequestration from projects that do no net harm.



## CORSIA Eligible Emission Units -2



### Emissions Units

- CORSIA calls for international aviation to offset part of its CO<sub>2</sub> emissions through the reduction of emissions elsewhere (outside of the international aviation sector),

involving the concept of "emissions units".

**One emissions unit represents one tonne of CO<sub>2</sub> emissions reduced.**

-generated when emissions from a specific project or programme are reduced, compared to a baseline (or business-as-usual),

through the implementation of emission reductions techniques/technologies.

These projects or programmes can be implemented in various sectors, *electricity generation, industrial processes, agriculture, forestry, waste management etc.*

Emissions units are sometimes also referred to as **carbon credits**



## What is offsetting and how does it work, in general?

- Offsetting is done through the purchase and cancellation of emissions units, arising from different sources of emissions reductions achieved through mechanisms, programmes or projects.
- The buying and selling of eligible emissions units happens through the carbon market. The price of the emissions units in the carbon market is influenced by the law of supply (availability of emissions units) and demand (level of offsetting requirements).
- “**Cancelling**” means the **permanent removal and single use of an emissions unit** so that the same emissions unit cannot be used more than once. This is done after an aeroplane operator has purchased emissions units from the carbon market.
- For CORSIA, an aeroplane operator is required to meet its offsetting requirements by cancelling CORSIA Eligible Emissions Units in a quantity equal to its total final offsetting requirements for a given compliance period. CORSIA Eligible Emissions Units are to be determined by the ICAO Council, and up-to-date information on eligible units is made available on the ICAO CORSIA website



# CORSIA Eligible Emission Units -2 Cont.

## CORSIA Eligible Emissions Units

-are only those units described in the ICAO document entitled “CORSIA Eligible Emissions Units”,  
 -which meet the CORSIA Emissions Unit Eligibility Criteria contained in the ICAO document entitled “CORSIA Emissions Unit Eligibility Criteria” .  
 These ICAO documents are available on the ICAO CORSIA website.



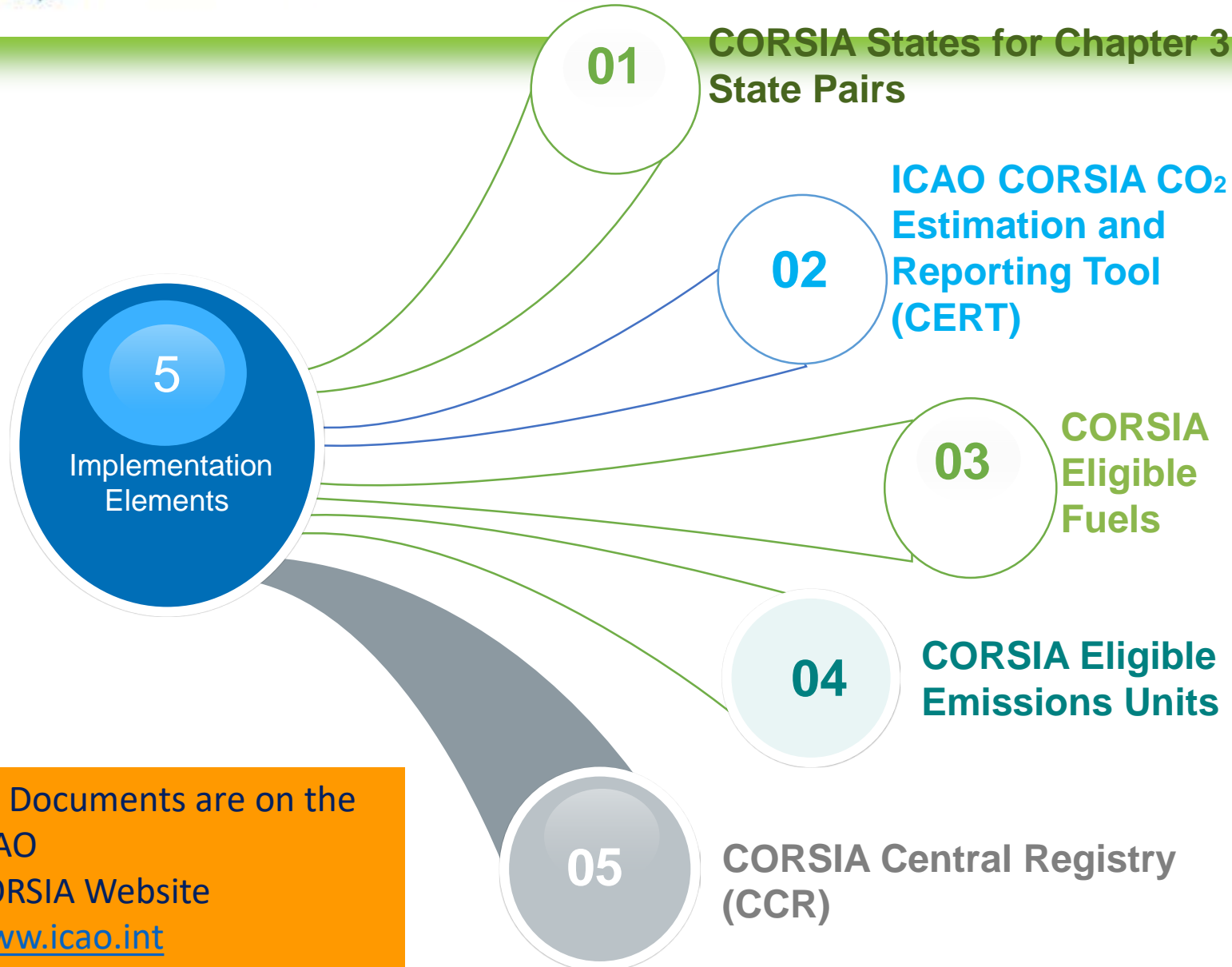
CORSIA ELIGIBLE EMISSIONS UNITS		The Gold Standard (GS)	
<p>The following Emissions Unit Programmes are approved by the ICAO Council to supply CORSIA Eligible Emissions Units. This ICAO document also identifies the registries designated by CORSIA Eligible Emissions Unit Programmes for the purpose of fulfilling the provisions set out in the CORSIA-related ICAO Standards and Recommended Practices<sup>1</sup>. CORSIA Eligible Emissions Units are identified as such by each Emissions Unit Programme, according to each programme’s respective Scope of Eligibility referred to in this ICAO document, including to reflect Eligible Unit Dates and any specifications regarding activity<sup>2</sup> and/or unit types, methodologies, programme elements, and/or procedural classes.</p>		<p>Programme-designated Registry: GSF Impact Registry<sup>3</sup>  <a href="https://registry.goldstandard.org/projects?q=&amp;page=1">https://registry.goldstandard.org/projects?q=&amp;page=1</a></p>	
<p><b>American Carbon Registry (ACR)</b></p> <p>Programme-designated Registry: ACR Registry<sup>3</sup>  <a href="https://americancarbonregistry.org/how-it-works/membership">https://americancarbonregistry.org/how-it-works/membership</a></p>	<p>Eligibility Timeframe: Eligible for cancellation for use toward CORSIA offsetting requirements in the 2021 – 2023 compliance cycle</p>	<p>Eligibility Timeframe: Eligible for cancellation for use toward CORSIA offsetting requirements in the 2021 – 2023 compliance cycle</p>	<p>Eligible Unit Dates: Issued to activities that started their first crediting period from 1 January 2016<sup>4</sup> and in respect of emissions reductions that occurred through 31 December 2020</p>
<p>Eligible Unit Dates: Issued to activities that started their first crediting period from 1 January 2016<sup>4</sup> and in respect of emissions reductions that occurred through 31 December 2020</p>	<p>Scope of Eligibility: ACR Emission Reduction Tonnes (ERTs), including any additional certifications, and with the exclusion of the following activity and/or unit types, methodologies, programme elements, and/or procedural classes:</p> <ul style="list-style-type: none"> <li>a) California Registry Offset Credits (ROCs)</li> <li>b) California Early Action Offset Credits (EAOCs)</li> <li>c) ERTs issued to all activities that are developed in REDD+ countries<sup>5</sup> and utilize methodologies in the programme’s Sectoral Scope 3 (Land Use, Land Use Change and Forestry) category and are estimated<sup>6</sup> to generate greater than 7,000 Emission Reduction Tonnes (ERTs) / annum individually or grouped.</li> </ul>	<p>Scope of Eligibility: The Gold Standard verified emissions reductions (VERs), including any additional certifications, and with the exclusion of the following activity and/or unit types, methodologies, programme elements, and/or procedural classes:</p> <ul style="list-style-type: none"> <li>a) Planned Emission Reductions (PERs)</li> <li>b) Units issued from micro scale activities where an accredited entity has not carried out validation and verification</li> <li>c) VERs issued to all activities that are developed in REDD+ countries<sup>5</sup> and utilize methodologies in the programme’s Land Use and Forestry &amp; Agriculture categories and are estimated<sup>6</sup> to generate greater than 7,000 Verified Emissions Reductions (VERs) / annum individually or grouped, with the allowable exception of activities that utilize methodologies in the Soil Organic Carbon, Agriculture, and Livestock categories.</li> </ul>	



## What are the requirements for the verification of an Emissions Unit Cancellation Report?

- Verification of an Emissions Unit Cancellation Report follows very similar process and requirements as the verification of an annual Emissions Report.
- A verification body must be accredited to ISO standard 14065:2013 (Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition), and to the relevant requirements described in Annex 16, Volume IV, Appendix 6.).
- Once accredited, the verification body is required to conduct the verification according to ISO standard 14064-3:2006 (Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions), and in accordance with the relevant requirements in Annex 16, Volume IV, Appendix 6.
- It should be noted that **an aeroplane operator may choose to use the same verification body for the verification of an Emissions Units Cancellation Report as it has engaged for the verification of the Emissions Report**, although the operator is not obligated to do so.
- Guidance on the verification of the Emissions Units Cancellation Report is included in the Environmental Technical Manual (Doc 9501), Volume IV





# ICAO Documents

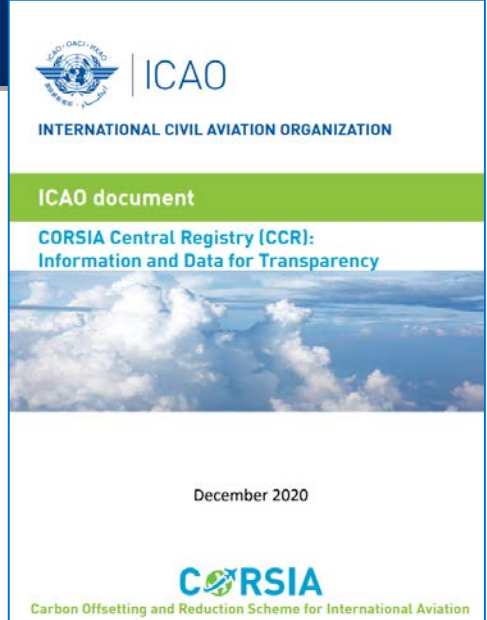
1. CORSIA States for Chapter 3 State Pairs
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# CORSIA Central Registry 5

## CORSIA Central Registry (CCR): Information and Data for Transparency



### CORSIA Central Registry (CCR): Information and Data for Transparency

This ICAO document provides information that is required to be published in order to ensure transparency.

-contains the list of Verification Bodies Accredited in each State (**currently available**);

ICAO document — CORSIA Central Registry: Information and Data for Transparency Dec 2020

**Verification Bodies Accredited in States**

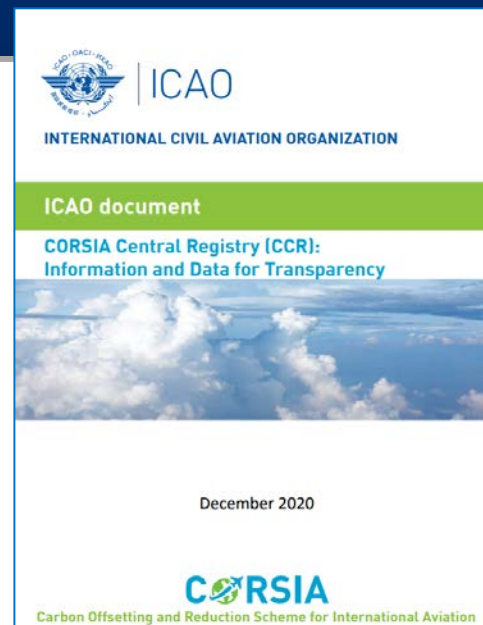
Last updated: 16 Dec 2020

State	Verification Body Name
Afghanistan*	TUV India Pvt. Ltd
Algeria*	VERIFAVIA (Singapore) Pte Ltd
Austria	TÜV SÜD Landesgesellschaft Österreich GmbH
Canada*	Brightspot Climate Inc.
Chile	SGS TECNOS, S.A.U.
Chile	Verifavia (Singapore) Pte Ltd
China	Second Research Institute of Civil Aviation Administration of China
China	China Classification Society Certification Company (CCSC)
China	China Quality Certification Centre
China	Beijing Capital Airport Energy Saving Technology Service Co. Ltd.
China	Tianjin CAUC Zhongtuan Science and Technology Development Co. Ltd.
China	Guangzhou CEPREI Certification Body
China	Shenzhen CTI International Certification Co., Ltd.
Costa Rica	INTECO
Czechia	VERIFKACE CZ
France	E&Y Associés
France	VERIFAVIA SARL
Germany	ETSverification GmbH
Germany	Müller-BBM Cert GmbH
Germany	KPMG Cert GmbH
Greece	TÜV AUSTRIA HELLAS Ltd
Greece	EMICERT CERTIFICATION SERVICES LIMITED
Greece	EUROCERT SA
India	M's Bureau Veritas India Pvt. Ltd.
India	TUV India Pvt. Ltd.
Indonesia	PT. TUV Rheinland Indonesia
Japan	NIPPON KAIHI KYOKAI
Latvia	Bureau Veritas Latvia
Lithuania	VERIFAVIA (UK) Ltd
Mexico*	Asociación de Normalización y Certificación A.C.
Mexico*	ADDERE SOLUTIONS, S.C.



## CORSIA Central Registry 5

### CORSIA Central Registry (CCR): Information and Data for Transparency



### CORSIA Central Registry (CCR): Information and Data for Transparency

- **Some of the other information that will be made available:**

- Total average CO<sub>2</sub> emissions for 2019 and 2020 aggregated for all aeroplane operators on each State pair;
- Total annual CO<sub>2</sub> emissions aggregated for all aeroplane operators on each State pair, with identification of State pairs subject to offsetting requirements;

- **For each aeroplane operator:**

- Aeroplane operator name;
- State in which aeroplane operator is attributed;
- Reporting year;
- Total annual CO<sub>2</sub> emissions;
- Total annual CO<sub>2</sub> emissions for State pairs subject to offsetting requirements; and
- Total annual CO<sub>2</sub> emissions for State pairs not subject to offsetting requirements.



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## Important 2021 Timelines



## Some key dates to keep in mind for 2021

Timeline	Responsibility	Action
1 January to 31 December 2021	Operator	Monitor 2021 CO <sub>2</sub> emissions from international flights
1 January to 31 May 2021	Operator and Verification Body	<ul style="list-style-type: none"> <li>- Operator to compile 2020 CO<sub>2</sub> emissions data</li> <li>- Verification body to verify 2020 Emissions Report</li> </ul>
31 May 2021	Operator and Verification Body	Submit Emissions Report and associated Verification Report to the State of attribution
1 June 2021 to 31 August 2021	State	Conduct order of magnitude check of verified Emissions Report
31 August 2021	State	Submit aggregate 2020 CO <sub>2</sub> emissions data to ICAO through the CCR
30 November 2021	State	Submit to ICAO through the CCR: <ul style="list-style-type: none"> <li>- List of operators attributed to the State</li> <li>- List of verification bodies accredited in the State</li> </ul>
30 November 2021	ICAO	Publish 2019/2020 CO <sub>2</sub> emissions data per State pair
31 December 2021	ICAO	Publish list of aeroplane operators and list of verification bodies



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ACT-CORSIA



- CORSIA-related SARPs were adopted by the ICAO Council on 27 June 2018 – it is now time to ensure that all States will be ready to implement CORSIA as of 1 January 2019
- ICAO Assistance, Capacity-building and Training on **CORSIA (ACT-CORSIA)** programme – Launched on 2 July 2018!





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# 3rd phase of ACT CORSIA

## 16 States supporting 118 States

### ACT >>> CORSIA <sup>Phase III</sup> Assistance, Capacity-building and Training on CORSIA

<b>AUSTRALIA</b> 1. BRUNEI DARUSSALAM 2. INDONESIA 3. NAURU 4. PAPUA NEW GUINEA 5. SRI LANKA 6. THAILAND		<b>KENYA</b> 1. RWANDA 2. SEYCHELLES 3. SOUTH SUDAN 4. UGANDA	
<b>BRAZIL</b> 1. ANGOLA 2. CABO VERDE 3. MOZAMBIQUE 4. SAO TOME AND PRINCIPE		<b>NEW ZEALAND</b> 1. FIJI 2. SAMOA 3. SOLOMON ISLANDS 4. VANUATU	
<b>CANADA</b> (Facilitated by CASSOS) 1. ANTIGUA AND BARBUDA 2. BARBADOS 3. GUYANA 4. HAITI 5. JAMAICA 6. SURINAME 7. TRINIDAD AND TOBAGO		<b>NIGERIA</b> 1. GAMBIA 2. GHANA 3. LIBERIA 4. SIERRA LEONE 5. SUDAN	
<b>CANADA / FRANCE</b> 1. BENIN 2. BURKINA FASO 3. BURUNDI 4. CAMEROON 5. CENTRAL AFRICAAN REPUBLIC 6. CHAD 7. COMOROS 8. CONGO 9. DJIBOUTI 10. D. R. OF CONGO 11. GABON 12. GUINEA 13. MADAGASCAR 14. MALI 15. MAURITANIA 16. MAURITIUS 17. NIGER 18. SENEGAL 19. TOGO		<b>REPUBLIC OF KOREA</b> 1. LAO PEOPLE'S D. R. 2. MONGOLIA 3. PAKISTAN 4. PHILIPPINES 5. VIETNAM	
<b>FRANCE</b> (* Facilitated by ACAO) 1. ALGERIA * 2. COTE D'IVOIRE 3. MOROCCO * 4. SAUDI ARABIA * 5. TUNISIA *		<b>QATAR</b> 1. SAUDI ARABIA 2. IRAQ 3. KUWAIT 4. LIBYA 5. OMAN	
<b>GERMANY</b> 1. ALBANIA 2. ARMENIA 3. AZERBAIJAN 4. BELARUS 5. GEORGIA 6. KAZAKHSTAN 7. NORTH MACEDONIA 8. REPUBLIC OF MOLDOVA 9. SERBIA 10. TAJIKISTAN 11. TURKMENISTAN		<b>SINGAPORE</b> 1. COOK ISLANDS 2. KIRIBATI 3. MARSHALL ISLANDS 4. PALAU 5. TONGA 6. TUVALU	
<b>ITALY</b> 1. BAHAMAS 2. COLOMBIA 3. ERITREA 4. ETHIOPIA 5. PARAGUAY 6. SOMALIA 7. UNITED REPUBLIC OF TANZANIA		<b>SOUTH AFRICA</b> 1. BOTSWANA 2. ESWATINI 3. LESOTHO 4. MALAWI 5. NAMIBIA 6. ZAMBIA 7. ZIMBABWE	
<b>JAPAN</b> 1. AFGHANISTAN 2. BANGLADESH 3. BHUTAN 4. CAMBODIA 5. MALAYSIA 6. MYANMAR		<b>SPAIN</b> (* Facilitated by COCESNA) 1. BELIZE * 2. BOLIVIA 3. COSTA RICA * 4. CUBA 5. EL SALVADOR * 6. EQUATORIAL GUINEA 7. GUATEMALA * 8. HONDURAS * 9. MEXICO 10. NICARAGUA * 11. PERU 12. URUGUAY	
		<b>USA</b> 1. ARGENTINA 2. DOMINICAN REPUBLIC 3. ECUADOR 4. PANAMA	



16 SUPPORTING STATES  
118 REQUESTING STATES



### What are “Chapter 3 State Pairs”?

- All routes between States participating in CORSIA offsetting in a given year (starting in 2021) are termed “**Chapter 3 State Pairs**”;
- these routes will be subject to offsetting requirements as per the provisions in Annex 16, Volume IV, Part II, Chapter 3.

### Will the third-party verification of an Emissions Report be cheaper when an aeroplane operator has used the ICAO CORSIA CERT for monitoring?

- Details of the verification (including the price of the verification service) will be agreed and included in the contract between an aeroplane operator and a verification body.
- However, external third-party verification is still required, also when an aeroplane operator has used ICAO CORSIA CERT for estimating its CO<sub>2</sub> emissions.





### Who certifies CORSIA Eligible Fuel in order to be used in CORSIA?

- An aeroplane operator that intends to claim for emissions reductions from the use of CORSIA Eligible Fuels shall only use CORSIA Eligible Fuels from fuel producers that are certified **by an approved Sustainability Certification Scheme.**

### Where can one find a list of approved Sustainability Certification Schemes?

- in the ICAO document entitled “CORSIA Approved Sustainability Certification Schemes”, which is available on the ICAO CORSIA website.

### Can an aeroplane operator implement a project that generates CORSIA Eligible Emissions Units?

- Yes – an aeroplane operator can implement emissions reduction project that generates emissions units. Equally to any other emissions unit, the emissions units generated from such a project need to meet the CORSIA Emissions Unit Eligibility Criteria, if the operator wishes to use the units to fulfil its offsetting requirements under CORSIA.



## If an aeroplane operator is in a parent-subsidary relationship, does the State need to list the subsidiary operator on the CCR?

- For the purposes of reporting aeroplane operators to ICAO, a State should include both the subsidiary and the parent aeroplane operator into the list, and report information (attribution method, identifier, contact information) separately for each operator.
- **For other purposes of CORSIA** (e.g., for reporting of CO<sub>2</sub> emissions and emissions unit cancellations), and assuming that the State has approved it, the two operators can be treated as a single consolidated aeroplane operator



## How are an aeroplane operator's offsetting requirements calculated?

Offsetting requirements will be calculated as follows:

**From 2021 through 2029 a 100 per cent sectoral approach** (and 0 per cent individual approach) will be applied. This applies to the pilot phase, the first phase, and the first compliance period of the second phase.

b) **During the second compliance period of the second phase (2030 through 2032)** at least 20 per cent of offsetting requirements would be calculated according to the “individual approach”.

From 2033 to 2035, at least 70 per cent of offsetting requirements would be calculated according to the “individual approach”.

In 2028, the Council will recommend to the Assembly whether and to what extent to adjust the individual percentage.

Once the sector's growth factor for a given year is being made available by ICAO, the State will calculate an operator's CO<sub>2</sub> offsetting requirements by multiplying the operator's annual emissions covered by CORSIA offsetting in the given year by the growth factor. Result of this calculation is the operator's offsetting requirements for a given year.

**Operator's annual emissions X Growth Factor = CO<sub>2</sub> offset requirements**



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Open Session

# QUESTIONS & ANSWERS



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# Thank you