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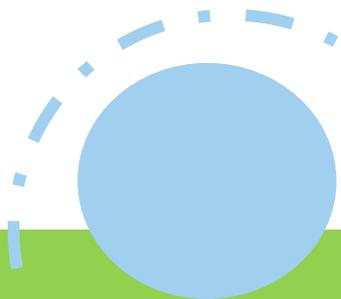


CORSIA Offsetting requirements: calculations

ICAO-CASSOA-RCAA ENV Workshop

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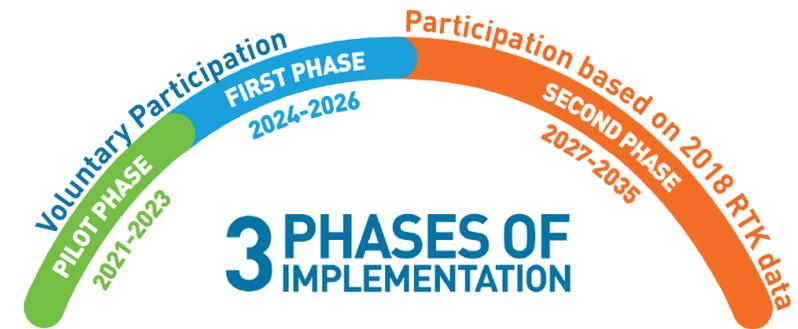


Offsetting requirements shall be applicable:

- 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, "CORSIA 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.





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



Sector-wide offsetting requirements

- Route-based;
- For each given year

- 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





Recap: 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 2021-2029

- Remained 100% sectoral growth

– 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*



CORSIA Offsetting requirements

The State will calculate the AO's amount of CO₂ 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 CO₂ 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:

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



The Baseline



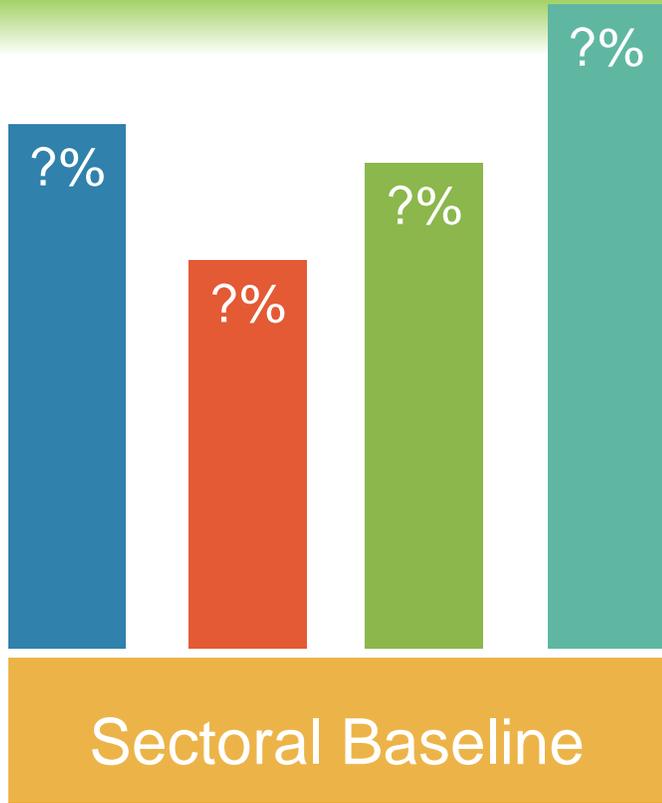
What are CORSIA's
baseline
emissions?

The sectoral baseline is defined as the **average of total CO₂ emissions for the year 2019 on the routes covered by CORSIA offsetting in a given year from 2021 onwards.**

- **Assembly Resolution A41-22 notes that the sectoral baseline will be re-calculated when the routes included in the CORSIA change.**
- For example, when new States volunteer to participate or States decide to withdraw their participation.
- **Calculation of the baseline will be done by ICAO**



CO₂ Offsetting Requirements: Baseline



The 2019 emissions from routes covered by CORSIA in a given year (from 2021)

$$SE_B = 2019 \text{ emissions}$$

Will need to be recalculated when the routes included in CORSIA change e.g. when new States volunteer to participate



Offsetting Requirements for AOs

The State will calculate the AO's amount of CO₂ emissions required to be offset in a given year from 01 Jan 2021-31 Dec 2023 prior to consideration of CORSIA eligible fuels, as follows:

$$OR_y = OE \times SGF_y$$

Where:

OR_y

AO's offsetting requirements in the given year y;

OE

AO's CO₂ emissions covered in the given year y or AO's CO₂ emissions covered by a State in 2020, depending upon the option selected by the State which will be applied to all AOs that have been attributed to it; and

SGF_y

Sector's Growth Factor.

The SGF_y will be provided by ICAO in the ICAO document entitled, "CORSIA Annual Sector's Growth Factor (SGF)"



$$OR_y = OE \times SGF_y$$



01

The State will use the SGF applicable for any given year (SGF_y) and this will be provided in the ICAO Doc entitled, "CORSIA Annual Sector's Growth Factor (SGF)"

02

Sectoral emissions in a given year (SE_y) do not include the CO₂ emissions from new entrants during their exception period

- Sector's Growth Factor (SGF):

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

SE_B = 2019 emissions

Where:

SE_y = total sectoral CO₂ emissions covered in the given year y

SE_{B,y} = total annual sectoral CO₂ emissions during 2019 covered in the given year y



Offsetting Calculations

EXAMPLE



Offsetting requirements



Operator Offsetting Requirements (2021-2032): \longrightarrow 100% sectoral growth/0% individual

- $OR_y = OE_y \times SGF$

	Baseline	Year Y	Growth factor Year Y	Offsetting requirements in year Y (0% individual; 100% sectoral) (2021-32)
Airline X1	100	125	20%	16
Airline Y1	100	105	4.8%	14
International Aviation Sector	200	230	13%	30

$$125 \times \left(\frac{230 - 200}{200} \right)$$

$$\left(\frac{230 - 200}{230} \right)$$



- **Dynamic approach**-the quantity of an operator's offsetting requirements in a given year y (OR_y) from 2030 will be calculated based on the sectoral growth and individual growth
- For 2033-2035
 - 85% sectoral growth/ 15% individual growth
 - *No longer 30% sectoral and 70% Individual*

The State will calculate the AO's amount of CO₂ 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:

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



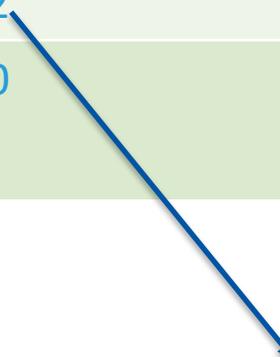
Offsetting requirements



Operator Offsetting Requirements 2033-35 for Airline Y1:

$$OR_y = 85\% * [OE_y * (\frac{SE_y - SE_B}{SE_y})] + 15\% * [OE_y * (\frac{OE_y - OE_B}{OE_y})]$$

	Baseline	Year Y	Growth factor Year Y	Offsetting requirements in year Y (15% individual; 85% sectoral) (2033-35)
Airline X1	100	125	20%	??? (calculate for Airline X1)
Airline Y1	100	105	4.8%	12
International Aviation Sector	200	230	13%	30



$$85\% * \left[105 * \frac{(230 - 200)}{230} \right] + 15\% * \left[105 * \frac{(105 - 100)}{105} \right]$$



Costs for Offsetting requirements

Cost related to the emissions (*for illustrative purposes*)

	Baseline	Year Y	Growth factor Year Y	Offsetting requirements in year Y (0% individual; 100% sectoral) (2021-29)	If one EU cost \$5
Airline X1	100	125	20%	16	16 X 5= \$80
Airline Y1	100	105	4.8%	14	14 X 5= \$70



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Questions?



Thank You