Sustainability of CORSIA Eligible Fuels

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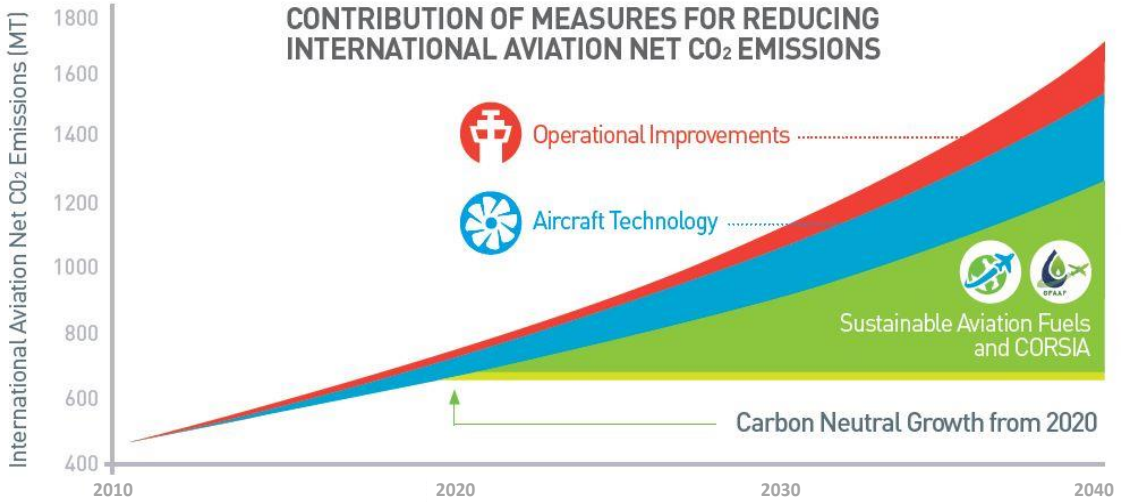
- **ICAO aspirational goal - Carbon neutral growth (CNG) from 2020 onwards.**
- To be achieved with a “basket of measures” for CO2 reduction (A39-2).



Basket of Measures

Range of CO2 reductions from CORSIA and Sustainable Aviation Fuels (SAF)

- **Market-based measures (CORSIA) will complement the reductions needed.**

Reference: Assembly Resolution A39-2.

CORSIA and Sustainable Aviation Fuels

CORSIA
CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION

CORSIA is the **first global MBM scheme** for any industry sector

CORSIA implementation was decided by ICAO Members States by ICAO Assembly Resolution A39-3 (2016).

This same Resolution requested the Council to develop methodologies to ensure that an aircraft operator's offsetting requirements under the CORSIA can be reduced through the use of sustainable alternative fuels.

SAF and sustainability

The sustainability of SAF was acknowledged in ICAO Assembly Resolution A39-2 (2016)

A39-2: Acknowledging the need for such fuels to be developed and deployed in an economically feasible, socially and environmentally acceptable manner and the need for increased harmonization of the approaches to sustainability;

A39-2. Requests States to recognize existing approaches to assess the sustainability of all alternative fuels in general, including those for use in aviation which should achieve net GHG emissions reduction on a life cycle basis; contribute to local social and economic development, competition with food and water should be avoided;

These Assembly requests are addressed in Annex 16 Vol IV (CORSIA)* – Adopted by the Council in 27 June 2018.

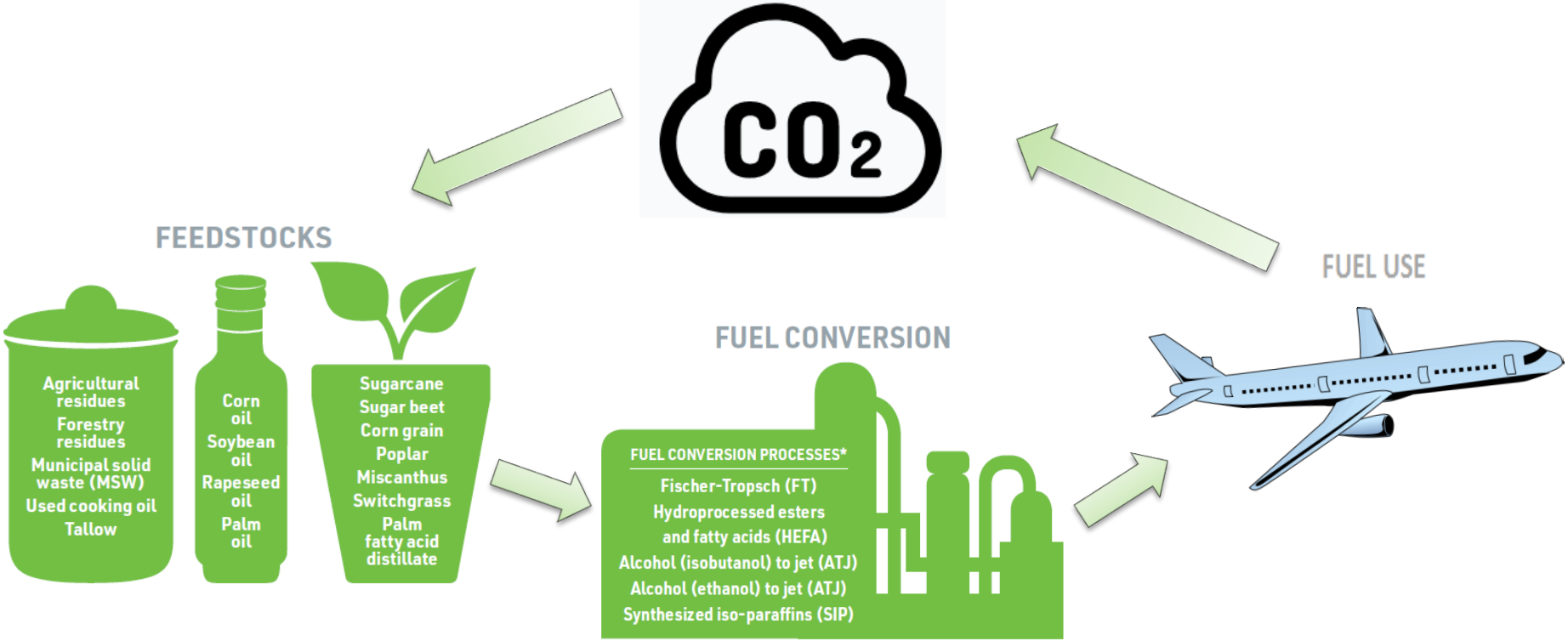
The use of Sustainable Aviation fuels or lower carbon aviation fuels may reduce the airlines offsetting requirements under CORSIA

Annex 16 Vol IV definitions:

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

https://www.icao.int/environmental-protection/CORSIA/Pages/SARPs-Annex-16-Volume-IV.aspx

Where do the benefits of SAF come from?



Using SAF in CORSIA

Main References for Fuel producers, Sustainability Certification Schemes, and Airlines.

Annex 16 Vol. IV References	5 "ICAO Documents" Referenced in Annex 16 Vol. IV
Part II, Section 2.2.4 - Monitoring of CORSIA eligible fuels claims	CORSIA Sustainability Criteria for CORSIA Eligible Fuels CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes CORSIA Approved Sustainability Certification Schemes
Part II, Section 3.3 – Emissions reductions from the use of CORSIA eligible fuels	CORSIA Methodology for Calculating Actual Life Cycle Emissions Values CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels

Annex 16 Vol. IV References

*2.2.4.1 The **aeroplane operator** (…) shall use a CORSIA eligible fuel that meets the CORSIA Sustainability Criteria as defined within **the ICAO document entitled "CORSIA Sustainability Criteria for CORSIA Eligible Fuels"** (…).*

*2.2.4.2 The **aeroplane operator** (…) shall only use CORSIA eligible fuels from **fuel producers** that are certified by an **approved Sustainability Certification Scheme** included in **the ICAO document entitled "CORSIA Approved Sustainability Certification Schemes"**, (…). Such **certification schemes** meet the requirements included in **the ICAO document entitled "CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes"**, (…)*

*3.3.1 The **aeroplane operator** (…) shall compute emissions reductions as follows:*

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

*3.3.3 (…) an **approved Sustainability Certification Scheme** shall ensure that the methodology, as defined in **the ICAO document entitled "CORSIA Methodology for Calculating Actual Life Cycle Emissions Values"** (…), has been applied correctly.*

*3.3.2 (…) the **aeroplane operator** shall use **the ICAO document entitled "CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels"** (…) for the calculation in 3.3.1.*

"ICAO Documents" Referenced in Annex 16 Vol. IV

- CORSIA Sustainability Criteria for CORSIA Eligible Fuels
- CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes
- CORSIA Approved Sustainability Certification Schemes
- CORSIA Methodology for Calculating Actual Life Cycle Emissions Values
- CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels

ICAO Document "CORSIA sustainability criteria for CORSIA eligible fuels" first global approach to Sustainability for any industry sector

- **Theme 1: Greenhouse Gases**
  - Criteria: 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.
- **Theme 2: Carbon stock**
  - 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.
  - 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.

- Work on other Themes is ongoing under CAEP and will be subject to approval by the Council by the end of the CORSIA pilot phase (2023).

How are the "net greenhouse gas emissions reductions" obtained?

There are two options for that:

ICAO Document "CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels"

→ Provides "default life-cycle emission values" associated with CORSIA eligible fuels, as a function of the feedstocks and conversion processes used in its production.

ICAO Document "CORSIA Methodology for Calculating Actual Life Cycle Emissions Values"

→ Provides methodologies for calculating "actual life-cycle emissions values" for CORSIA eligible fuels.

First global approach to life cycle assessment for any industry sector

These two documents were recently recommended by CAEP, and will be soon considered by the ICAO Council.

Who will certify the compliance with the Sustainability Criteria?

ICAO will approve "Sustainability Certification Schemes (SCS) " that will:

- Ensure compliance with the Sustainability Criteria
- Ensure that the Life Cycle Emission value of the fuel has been obtained correctly.

SCSs will need to meet specific requirements before being approved by ICAO.

ICAO Document "CORSIA Eligibility Framework and Requirements for SCSs" → Provides the requirements that an SCS needs to meet in order to be recognized under CORSIA

ICAO Document "CORSIA Approved SCSs" → Provides the list of approved SCSs under CORSIA.

The ICAO Document "Eligibility Framework" was recently recommended by CAEP, and will be soon considered by the ICAO Council.

SAF and CORSIA - Main stakeholders involved

- Fuel Producers
- Sustainability Certification Schemes
- Airlines
- ICAO Member States
- ICAO

Flow of actions from Stakeholders

SAF producer chooses an **SCS** from the list of "CORSIA Approved SCS".

SCS work with **SAF producer** to:
- Ensure that sustainability criteria are observed
- Obtain core LCA value (gCO2e/MJ)
- Obtain ILUC value (gCO2e/MJ), and
- Obtain total Life Cycle Emission Value of the SAF (LSf) = LCA + ILUC

SAF producer provides required information to the **Aeroplane operator.**

Aeroplane Operator provides documentation and SAF related information in its emission report to the **State** to which it has been attributed.

State reports aggregated emission reductions and SAF related information to **ICAO.**

ICAO makes information available in the CORSIA Central Registry (CCR).

Conclusions

- SAF are key to meeting the aviation industry's environmental goals
- CORSIA includes methodologies that allow offsetting requirements to be reduced through the use of SAF and lower carbon aviation fuels.
- The Sustainability of SAF in CORSIA will be ensured by the application of the CORSIA Sustainability Criteria.
- Work to finalize requirements for CORSIA Eligible Fuels is on track