SAF sustainability certification and reporting under CORSIA

Produced and presented with support of the following partners:
ISCC - International Sustainability and Carbon Certification
RSB - Roundtable on Sustainable Biomaterials
Verifavia

1. Opening

Dr. Neil Dickson, Chief, Environmental Standards

Provide participants with a deeper understanding of the sustainability aspects of SAF, and of the reporting of CORSIA Eligible Fuels

Mr. Thomas Bock

Ms. Carolina Grassi

Mr. Himanshu Rai Sharma

1. Opening and recap of ACT-SAF
2. The sustainability framework for CORSIA eligible fuels
3. The CORSIA sustainability certification process and the role of SCS
4. Feedstock certification
5. The CORSIA life cycle emissions methodology
6. Traceability and chain of custody
7. Reporting of the use of CORSIA Eligible Fuels
8. Documents Required for a SAF claim
9. Open discussion
10. Closing remarks

ICAO ENVIRONMENT

ACT SAF

ACT-SAF platform provides the most recent information:

– List of Partners constantly updated

– ACT-SAF series material available online

ICAO ACT-SAF Platform
Here you will find more information on our ACT-SAF Participants*

States
Acceptance to ... ● Pending ● Yes

International Organizations
Acceptance T&C ● Pending ● Yes

ACT-SAF Series

Coordination with ACT-SAF partners identified that many States need conceptual training on SAF.

To address that, ICAO is developing the **ACT-SAF Series of training sessions**, to be held on a monthly basis. This will allow delivering comprehensive training to ACT-SAF Partners on an array of important SAF-related topics, ranging from sustainability, to policy, economics/financing certification and logistics.

The ACT-SAF Series will empower the ACT-SAF Partners with training material designed with the support of Supporting States and Organisations from the air transport, fuels and finance sectors, as well as academics and actors with niche expertise such as SAF reporting under CORSIA.

Want to participate on the ACT-SAF Series? Join ACT-SAF now (click here to access the ACT-SAF Terms and Conditions). Participation is open to all States and Organizations interested in further action on SAF.

ACT-SAF Series	Date	Topics	Contributor(s)	Abstract	Video and Presentation
#1	25 November 2022	An introduction to SAF	ICAO	• Introduction to ACT-SAF • Basics of SAF	ICAO ENVIRONMENT ACT-SAF ACT-SAF Series #1: Introduction to Sustainable Aviation Fuels Download Presentation
#2	25 January 2022	SAF sustainability and reporting under CORSIA	ISCC RSB Verifavia		

Latest news on ACT-SAF

Date	Latest news	Link
11/17/2022	ICAO launches the ACT-SAF Series of training events on SAF	
10/20/2022	Argentina signs the ACT-SAF Terms and Conditions	
10/7/2022	Equatorial Guinea signs the ACT-SAF Terms and Conditions	
10/4/2022	Brazil signs the ACT-SAF Terms and Conditions	
10/4/2022	Singapore signs the ACT-SAF Terms and Conditions	

https://www.icao.int/environmental-protection/Pages/act-saf.aspx

Key request - conceptual training on SAF

ACT-SAF Series (preliminary list of sessions)
#1 Introduction to SAF
#2 SAF sustainability and reporting under CORSIA
#3 SAF technology and certification (23rd February)
#4 SAF market outlook and policies (23rd March)
#5 SAF logistics (April)
#6 SAF economics and financing (May)
#7 Feasibility Assessment (June)

Today's Session

- Future sessions on specific aspects
- Subject to review – **feedback welcome**

https://www.icao.int/environmental-protection/Pages/ACT-SAF-Series.aspx

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2. The sustainability framework for CORSIA eligible fuels

ICAO has published five key documents that contain all relevant requirements and procedures for CORSIA eligible fuels

ICAO CORSIA Implementation Elements	ICAO documents
CORSIA States for Chapter 3 State Pairs	1. CORSIA States for Chapter 3 State Pairs
ICAO CORSIA CO$_2$ Estimation and Reporting Tool (CERT)	2. ICAO CORSIA CO$_2$ Estimation and Reporting Tool
CORSIA Eligible Fuels	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
CORSIA Eligible Emissions Units	8. CORSIA Eligible Emissions Units 9. CORSIA Emissions Unit Eligibility Criteria
CORSIA Central Registry (CCR)	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
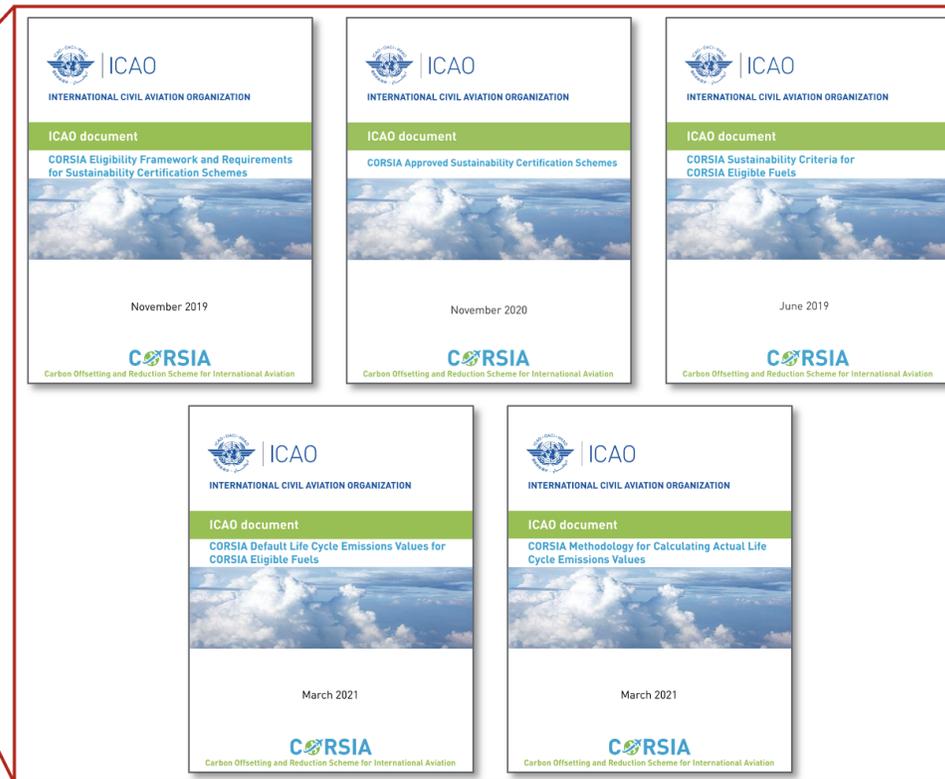
The five ICAO CORSIA Implementation Elements listed below are reflected in 14 ICAO documents approved by the ICAO Council for publication. These ICAO documents are directly referenced in Annex 16, Volume IV and are essential for the implementation of the CORSIA.

CORSIA sustainability criteria for CORSIA eligible fuels
First global approach to sustainability for an industry sector
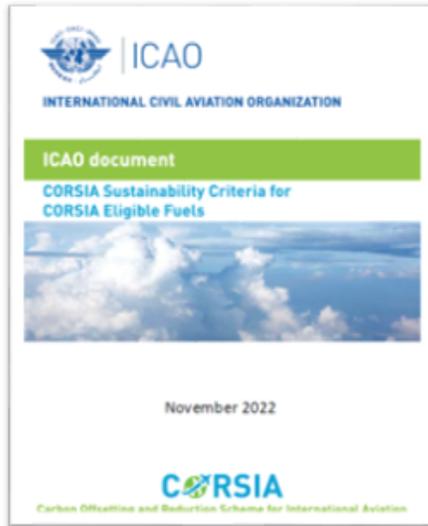
Sustainability Themes
1. Greenhouse Gases (GHG)
2. Carbon stock
3. GHG reduction permanence
4. Water
5. Soil
6. Air
7. Conservation
8. Waste and Chemicals
9. Seismic and Vibrational Impacts (only for LCAF)
10. Human and labour rights
11. Land use rights and land use
12. Water use rights
13. Local and social development
14. Food security

Carbon-reduction themes (CORSIA pilot phase, 2021-2023)

Environmental and socio-economic Themes for CEF (after CORSIA pilot phase, from 2024)

Note: updated following the approval of the new and revised set of Sustainability Criteria for SAF and LCAF by the ICAO Council

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Source: ICAO presentation „Introduction to Sustainable Aviation Fuels", ACT-SAF Series #1
* **NOTE**: By the time of the ACT-SAF series #1 presentation in November 2022, the Sustainability Criteria for LCAF were under consideration by the ICAO Council. They have been approved since then and are available in the ICAO website.

Theme 1: Greenhouse gases

- CORSIA eligible fuel should generate lower carbon emissions on a life cycle basis

Theme 2: Carbon stock

- CORSIA eligible fuel should not be made from biomass obtained from land with high carbon stock

For more details, please refer to CORSIA Sustainability Criteria for CORSIA Eligible Fuels (icao.int)

Theme 3: GHG emissions reductions permanence

• Emissions reductions attributed to CORSIA CEF should be permanent.

Theme 4: Water

• Production of CORSIA CEF should maintain or enhance water quality and availability

Theme 5: Soil

• Production of CORSIA CEF should maintain or enhance soil health

Theme 6: Air

• Production of CORSIA CEF should minimize negative effects on air quality

Theme 7: Conservation

• Production of CORSIA CEF should maintain biodiversity, conservation value and ecosystem services

Theme 8: Waste and chemicals

• Production of CORSIA CEF should promote responsible management of waste and use of chemicals

Theme 9: Seismic and Vibrational Impacts (applicable to LCAF only)

• Production of CORSIA LCAF should minimize seismic, acoustic, and vibrational impacts

Note: updated following the approval of the new and revised set of Sustainability Criteria for SAF and LCAF by the ICAO Council

Source: ICAO presentation „Introduction to Sustainable Aviation Fuels", ACT-SAF Series #1

Socio-economic themes

Theme 10: Human and labour rights

- Production of CORSIA CEF should respect human and labour rights

Theme 11: Land use rights and land use

- Production of CORSIA CEF should respect land and land use rights including indigenous and/or customary rights

Theme 12: Water use rights

- Production of CORSIA CEF should respect prior formal or customary water use rights

Theme 13: Local and social development

- Production of CORSIA CEF should contribute to social and economic development in regions of poverty

Theme 14: Food security

- Production of CORSIA CEF should promote food security in food insecure regions

Note: updated following the approval of the new and revised set of Sustainability Criteria for SAF and LCAF by the ICAO Council

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Source: ICAO presentation „Introduction to Sustainable Aviation Fuels", ACT-SAF Series #1

3. The CORSIA sustainability certification process and the role of SCS

Sustainability certification plays a key role in ensuring that SAF lives up to its promise

Sustainability certification ensures

Sustainability in feedstock production

Traceability of sustainable materials through the supply chain

Verified reduction of life cycle emissions

CORSIA prescribes a stringent set of criteria that SCS must fulfil to become recognized and certify CORSIA eligible fuels

General requirements for SCS			Requirements set by SCS for economic operators		
Documentation & Management & Transparency	Annual reports, Monitoring & System Review	Stakeholder Engagement	Mass Balance & Supply Chain Traceability	(Group) Audits & Certificate Issuance	Transparency on other SCS used
GHG Reporting & Accounting	Complaint Procedure	Risk Management Plan	Assurance Level & handling Non-compliances	Accreditation & Auditing Standards	CORSIA Certification Requirements

The ICAO Council approves sustainability certification schemes (SCS) for certifying CORSIA eligible fuels

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	https://www.iscc-system.org/	https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-SCS-evaluation-ISCC.aspx	30/Apr/2020
Roundtable on Sustainable Biomaterials (RSB)	18/Nov/2020	https://rsb.org/	https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-SCS-evaluation-RSB.aspx	30/Apr/2020

Since November 2020, economic operators can **demonstrate compliance with the CORSIA Sustainability Criteria for CORSIA Eligible Fuels** by applying the ICAO-approved sustainability certification schemes (SCS)

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The certification "ecosystem" for CORSIA eligible fuels
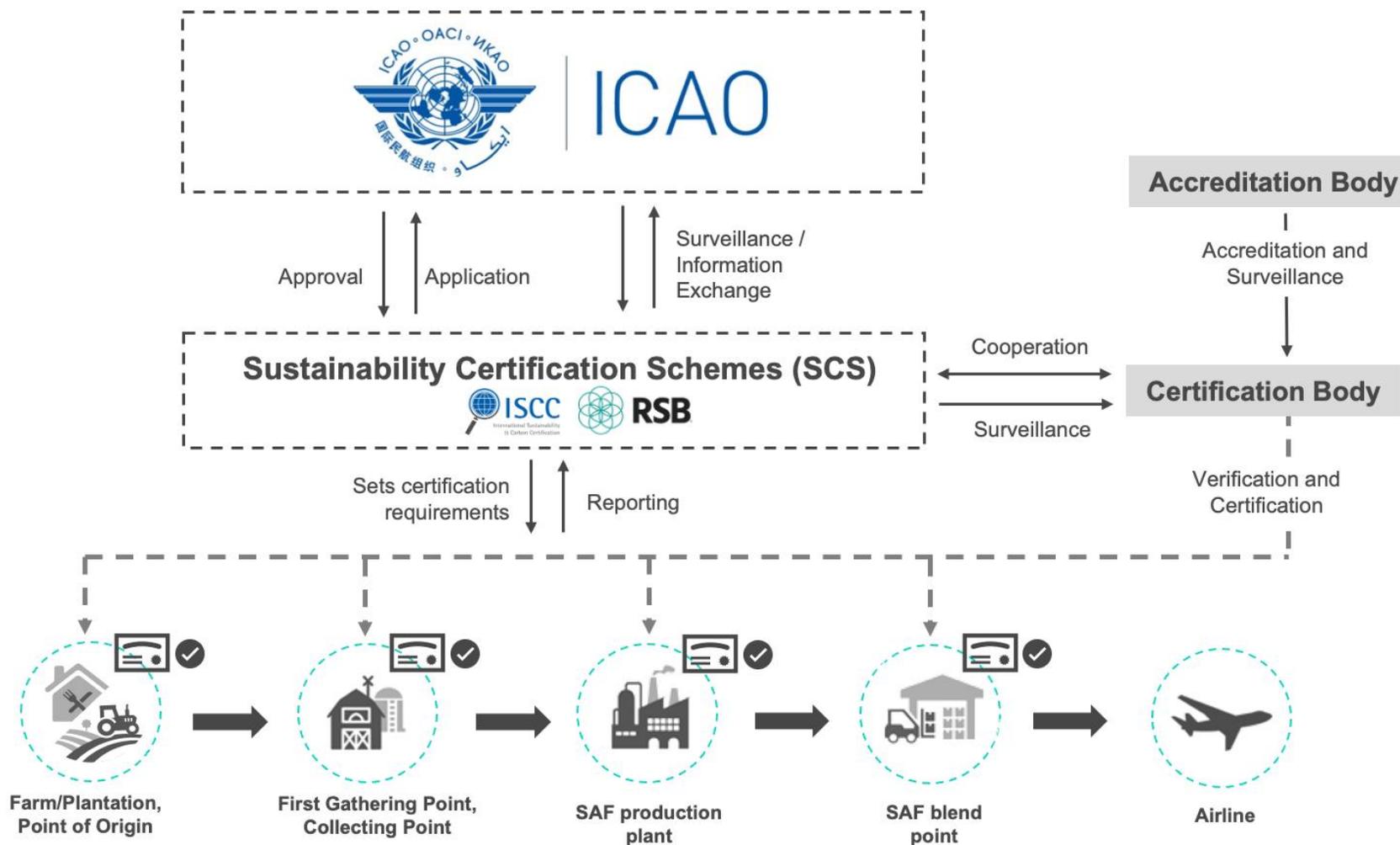
How does certification work? System Documents build the basis of SCS

▪ The System Documents

- **translate the relevant regulatory requirements** into the scheme's requirements and processes "on the ground"
- lay down all relevant **certification requirements and processes** for Certification Bodies and System Users (i.e. certified companies)
- are **publicly available** on the SCS' websites

Example

| CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes First Edition, November 2019 | CORSIA Approved Sustainability Certification Schemes* First Edition, November 2020 | CORSIA Sustainability Criteria for CORSIA Eligible Fuels** Second Edition, November 2021 | CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels*** Third Edition, November 2021 | CORSIA Methodology for Calculating Actual Life Cycle Emissions Values Second Edition, March 2021 |

ISCC CORSIA 102 GOVERNANCE

RSB STANDARD FOR ICAO CORSIA

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Auditors verify compliance with the standard's requirements via audit procedures or checklists. These are based on the System Documents

Examples

Sustainability certification process

SELECTION OF A CERTIFICATION BODY (CB) → REGISTRATION AS SYSTEM USER → AUDIT CONDUCTED BY THE CB → CB ISSUES THE CERTIFICATE → SCS PUBLISHES CERTIFICATE ON ITS WEBSITE

4. Feedstock certification

SCS cover all types of raw materials that are eligible for certification under CORSIA

Examples
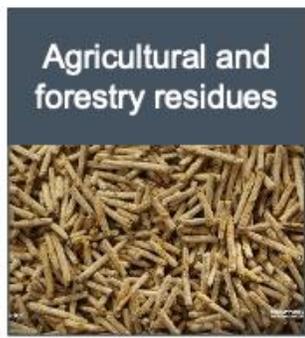
Food and feed crops	Energy and short-rotation woody crops	Agricultural and forestry residues	Wastes	By-products	Processing residues
Rapeseed	Miscanthus	Cobs	Used cooking oil	Palm fatty acid distillate	Empty palm fruit bunches
Soybean	Switchgrass	Bark	Municipal solid waste	Tallow	Tall oil
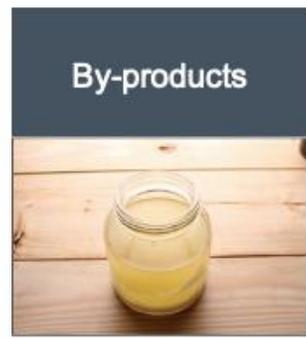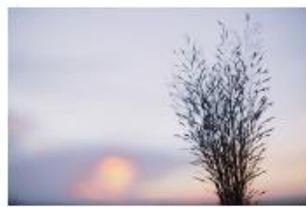
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Sustainable crops must comply with the CORSIA sustainability criteria

Sustainable waste/residues must be *genuine* waste/residues

Auditor verifies through e.g.
- Remote sensing tools
- Databases (e.g., biodiversity databases)
- On-site inspection
- Interviews with personnel

Auditor verifies through e.g.
- Plausibility checks (e.g., amount of input of virgin oil vs amount of used cooking oil)
- On-site inspection
- Checks whether products were intentionally contaminated/modified
- Interviews with personnel

Feedstocks with low risk for land use change can contribute to the overall feedstock basis for SAF production, and are considered by CORSIA

Yield Increase Approach

Where feedstock producers can increase the amount of available feedstock out of a fixed area of land

Unused Land Approach

Where previously unused land is used to cultivate sustainable feedstocks for SAF production

Wastes, residues, and by-products
(ICAO positive list)

Feedstocks that were produced by utilizing land use change-risk mitigation practices (**land management practices**)

Feedstocks that **do not result in expansion of global agricultural land** use for their production

Feedstocks that **have yields per surface unit significantly higher than terrestrial crops** (i.e., one order of magnitude higher), such as some algal feedstocks.

Examples for yield increase measures

Improvement in agricultural practices

Practices that increase yields through means such as increased organic matter content, reduced soil compaction/erosion, decreased pests, post-harvest loss reduction etc.

Intercropping

The combination of two or more crops that grow simultaneously, for example as hedges or through and agroforestry system.

Improvements in post-harvest losses

Losses that occur at cultivation and transport up to but not including first conversion unit in supply chain.

Sequential cropping

The combination of two or more crops that grow at different periods of the year.

Questions?

Topics to be covered:

2. The sustainability framework for CORSIA eligible fuels

3. The CORSIA sustainability certification process and the role of SCS

4. Feedstock certification

1. Opening and recap of ACT-SAF
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5. The CORSIA life cycle emissions methodology

- Life cycle emissions reductions of at least 10% (ILUC + Core LCA)

- CORSIA Baseline: 89 g CO2e/MJ (jet fuel) and 95 g CO2e/MJ (AvGas)

ILUC = *Induced* Land Use Change, includes both Direct & Indirect Land Use Change
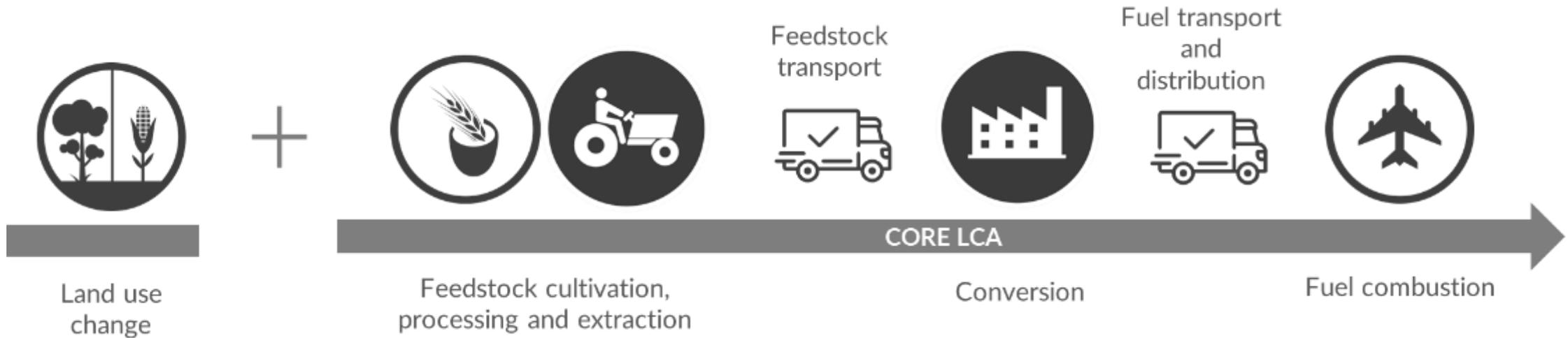
- Core LCA value can be determined either on the basis of default values or calculated actual LCA values.

- ILUC value must be determined on the basis of default values, unless ILUC is considered as zero.

- DLUC value must be determined on the basis of context specifics, in line with the CORSIA methodology for land use changes.

ILUC = *Induced* Land Use Change, includes both Direct & Indirect Land Use Change

Life cycle emissions calculation: Example

	Option 1	Option 2
Core LCA	25	45
CORSIA ILUC value	39.1	39.1
Total life cycle emissions (Core LCA+ILUC value)	**64.1**	**84.1**
CORSIA baseline	**89**	**89**
Total saving **Core LCA only (baseline - Core LCA)**	64	44
Total saving **Core LCA + ILUC (baseline - total life cycle emissions)**	24.9	4,9
% emissions reductions **Core LCA only**	**72%**	**49.4%**
% emissions reductions **Core LCA + ILUC**	**28%**	**5.5%**
CORSIA eligible? >10%		
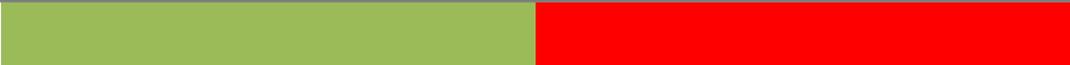
Values in g CO2 eq / MJ

- SAF producer can use the default values published in the ICAO document entitled "CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels" (available on the ICAO CORSIA website);

Table 4. CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels produced with the Alcohol (ethanol) to jet (ETJ) Fuel Conversion Process

Region	Fuel Feedstock	Pathway Specifications	Core LCA Value	ILUC LCA Value	LS$_f$ (gCO$_2$e/MJ)
Brazil	Sugarcane	Integrated conversion design	24.1	8.7	32.8
Global	Sugarcane	Integrated conversion design	24.1	8.5	32.6
USA	Corn grain	Standalone or integrated conversion design	65.7	25.1	90.8
Global	Corn grain	Standalone or integrated conversion design			
Global	Agricultural residues	Standalone conversion design. Residue removal does not necessitate additional nutrient replacement on the primary crop.			
Global	Agricultural residues	Integrated conversion design. Residue removal does not necessitate additional nutrient replacement on the primary crop.			
Global	Forestry residues	Standalone conversion design			
Global	Forestry residues	Integrated conversion design			
USA	Miscanthus (herbaceous energy crops)	Standalone conversion design			
EU	Miscanthus (herbaceous energy crops)	Standalone conversion design			
Global	Miscanthus (herbaceous energy crops)	Standalone conversion design			
USA	Miscanthus (herbaceous energy crops)	Integrated conversion design			
EU	Miscanthus (herbaceous energy crops)	Integrated conversion design			
Global	Miscanthus (herbaceous energy crops)	Integrated conversion design			
USA	Switchgrass (herbaceous energy crops)	Standalone conversion design			
Global	Switchgrass (herbaceous energy crops)	Standalone conversion design			
USA	Switchgrass (herbaceous energy crops)	Integrated conversion design			
Global	Switchgrass (herbaceous energy crops)	Integrated conversion design			
Global	Waste gases	Ethanol produced via microbiologic conversion route Standalone conversion design	42.4	0	42.4
Global	Waste gases	Ethanol produced via microbiologic conversion route	29.4	0	29.4

Table 1. CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels produced with the Fischer-Tropsch Fuel Conversion Process

Region	Fuel Feedstock	Pathway Specifications	Core LCA Value	ILUC LCA Value	LS$_f$ (gCO$_2$e/MJ)
Global	Agricultural residues	Residue removal does not necessitate additional nutrient replacement on the primary crop	7.7		7.7
Global	Forestry residues		8.3		8.3
Global	Municipal solid waste (MSW), 0% non-biogenic carbon (NBC)		5.2	0.0	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
Global	Poplar (short-rotation woody crops)		12.2	8.6	20.8
USA	Miscanthus (herbaceous energy crops)		10.4	-32.9	-22.5
EU	Miscanthus (herbaceous energy crops)		10.4	-22.0	-11.6
Global	Miscanthus (herbaceous energy crops)		10.4	-12.6	-2.2

Table 2. CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels produced with the Hydroprocessed Esters and Fatty Acids (HEFA) Fuel Conversion Process

Region	Fuel Feedstock	Pathway Specifications	Core LCA Value	ILUC LCA Value	LS$_f$ (gCO$_2$e/MJ)
Global	Tallow		22.5		22.5
Global	Used cooking oil		13.9		13.9
Global	Palm fatty acid distillate		20.7	0.0	20.7
		Oil from dry mill ethanol plant	17.2		17.2
			40.4	24.5	64.9
			40.4	27.0	67.4
			40.4	25.8	66.2
			47.4	24.1	71.5
			47.4	26.0	73.4
		At the oil extraction step, at least 85% of the biogas released from the Palm Oil Mill Effluent (POME) treated in anaerobic ponds is captured and oxidized.	37.4	39.1	76.5
		At the oil extraction step, less than 85% of the biogas released from the Palm Oil Mill Effluent (POME) treated in anaerobic ponds is captured and oxidized.	60.0	39.1	99.1
		Feedstock is grown as a secondary crop that avoids other crops displacement	34.4	-20.4	14.0
		Feedstock is grown as a secondary crop that avoids other crops displacement	34.4	-21.4	13.0
		Feedstock is grown as a secondary crop that avoids other crops displacement	34.4	-12.7	21.7
Global	Camelina oil	Feedstock is grown as a secondary crop that avoids other crops displacement	42.0	-13.4	28.6
India	Jatropha oil	Meal used as fertilizer or electricity input	46.9	-24.8	22.1
India	Jatropha oil	Meal used as animal feed after detoxification	46.8	-48.1	-1.3

- SAF producer can use the default values published in the ICAO document entitled "CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels" (available on the ICAO CORSIA website);

- SAF producer can only use the default life cycle emission values if the fuel supply chain matches with the information given in the table for the fuel conversion process;

REGION	TYPE OF FEEDSTOCK	PATHWAY SPECIFICATION

- The economic operator (feedstock producer, fuel producer, fuel trader) shall ensure that the system used to calculate emissions for actual LCA values follows the CORSIA LCA methodology.

- The calculation shall include emissions from:

  – ongoing operational activities

  – material and utility inputs

  *Emissions generated during one-time construction or manufacturing activities (e.g. fuel production facility construction, equipment manufacturing) shall not be included.

- *Carbon emissions:*

Land use change | Feedstock cultivation, processing and extraction | Feedstock transport | Conversion | Fuel transport and distribution | Fuel combustion

CORE LCA

CO_2e emissions of CO_2, CH_4 and N_2O from well-to-pump

CO_2 emissions from well-to-wake
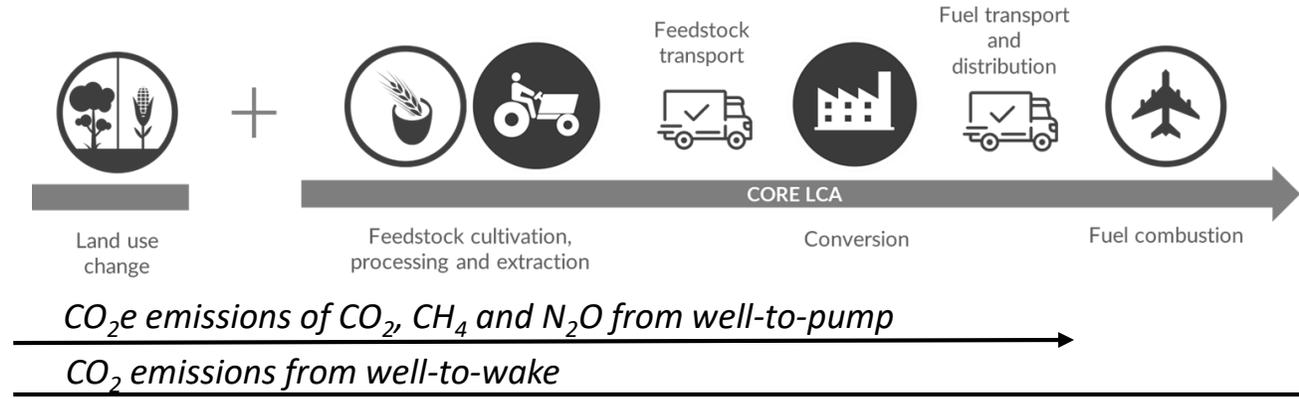
- SAF production chain can result in the co-production of multiple commodities (e.g. SAF, renewable diesel, renewable nafta).

- Energy-based allocation - emissions burdens are allocated to co-products in proportion to their contribution to the total energy content of all the outputs.

$$allocation \ \ factor = \frac{energy \ yield_{main \ product}[MJ]}{energy \ yield_{main \ product}[MJ] + energy \ yield_{co-products}[MJ]}$$

- Different approaches are taken for calculating the core LCA emissions according to the type of feedstock.

Primary and co-products: main products of a production process. These products have significant economic value and elastic supply.

By-products: secondary products with inelastic supply and economic value (e.g. tallow).

Residues: are secondary materials with inelastic supply and little economic value (e.g. bagasse).

Waste: materials with inelastic supply and no economic value. A substance that will be discarded or required to be discarded (e.g. UCO).

- Different approaches are taken for calculating the **core LCA emissions** according to the type of feedstock.

Primary and co-products (non-waste, non-residue and non-by product feedstocks)

Waste, residue and by product feedstocks

Land use change   +   Feedstock cultivation, processing and extraction   Feedstock transport   Conversion   Fuel transport and distribution   Fuel combustion

CORE LCA
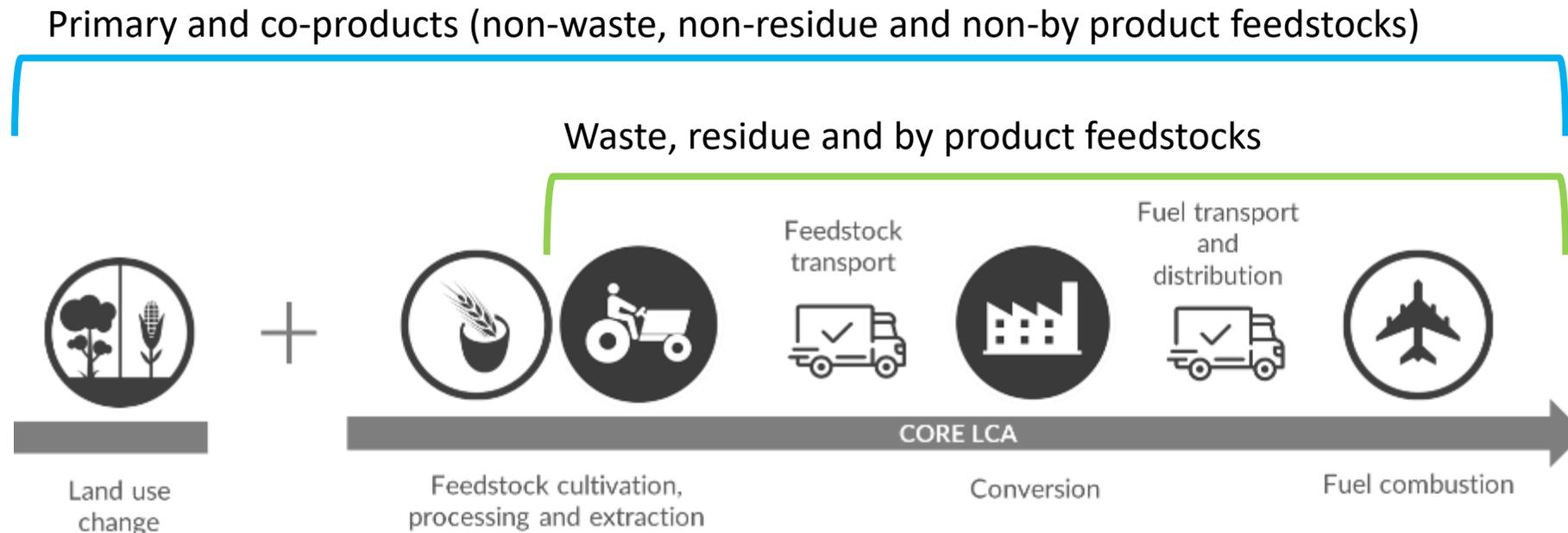
- No emissions from feedstock cultivation shall be allocated to wastes, residues and by-products.

- Feedstocks that are "low risk" for LUC shall be assigned an ILUC value of zero.

- Feedstocks classified as a waste, residue, or by-product shall be assigned an ILUC value of zero.

- Positive list (not exhaustive) of feedstocks that are classified as by-product, waste or residues.

- A default ILUC value for primary and co-products feedstocks must be added to the ICAO document titled "*CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels*" before the fuel is eligible under CORSIA.
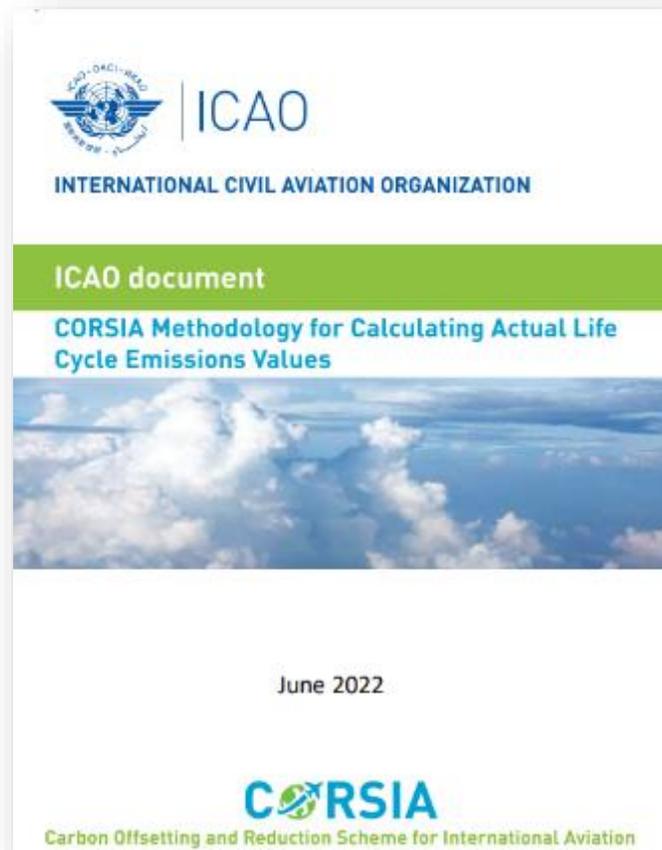
Table 1. Positive list of materials classified as co-products, residues, wastes or by-products

Residues	Wastes	By-products	Co-products
Agricultural residues:	Municipal solid waste	Palm Fatty Acid Distillate	Molasses
Bagasse	Used cooking oil	Tallow	-
Cobs	Waste gases	Technical corn oil	
Stover			
Husks			
Manure			
Nut shells			
Stalks			
Straw			
Forestry residues:			
Bark			
Branches			
Cutter shavings			
Leaves			
Needles			
Pre- commercial thinnings			
Slash			
Tree tops			
Processing residues:			
Crude glycerine			
Forestry processing residues			
Empty palm fruit bunches			
Palm oil mill effluent			
Sewage sludge			
Crude Tall Oil			
Tall oil pitch			

INTERNATIONAL CIVIL AVIATION ORGANIZATION

ICAO document

CORSIA Methodology for Calculating Actual Life Cycle Emissions Values

June 2022

CORSIA
Carbon Offsetting and Reduction Scheme for International Aviation

Source: CORSIA Methodology For Calculating Actual Life Cycle Emissions Values - June 2022

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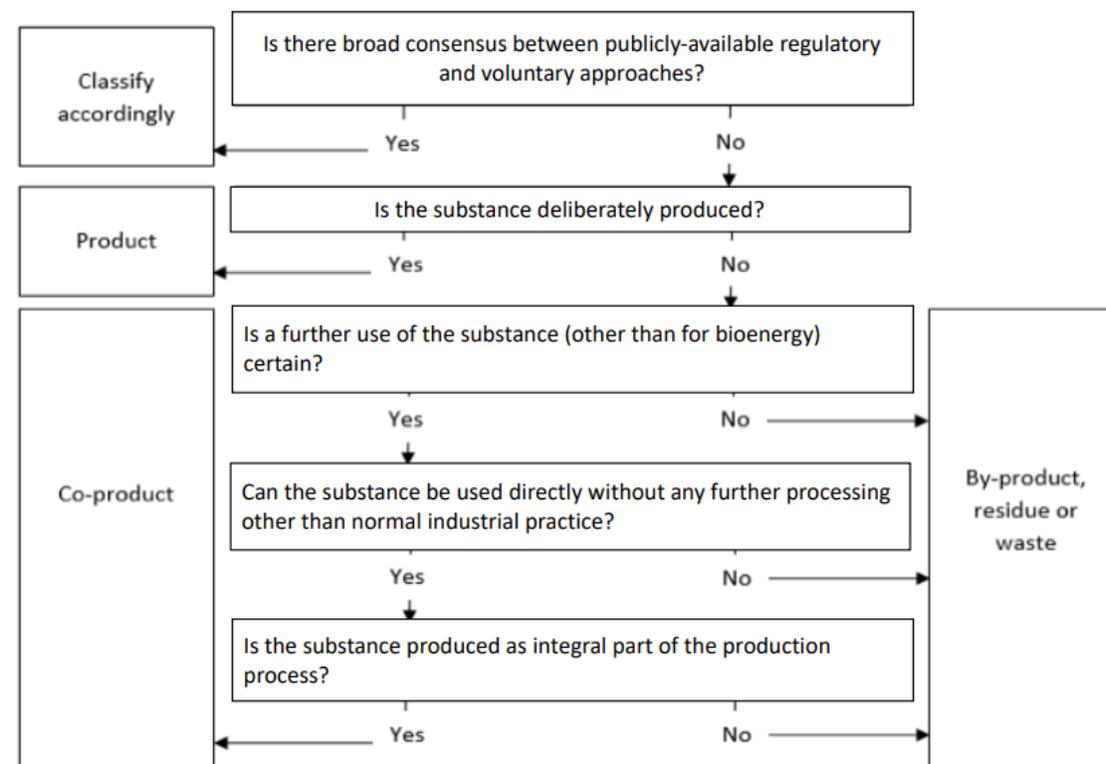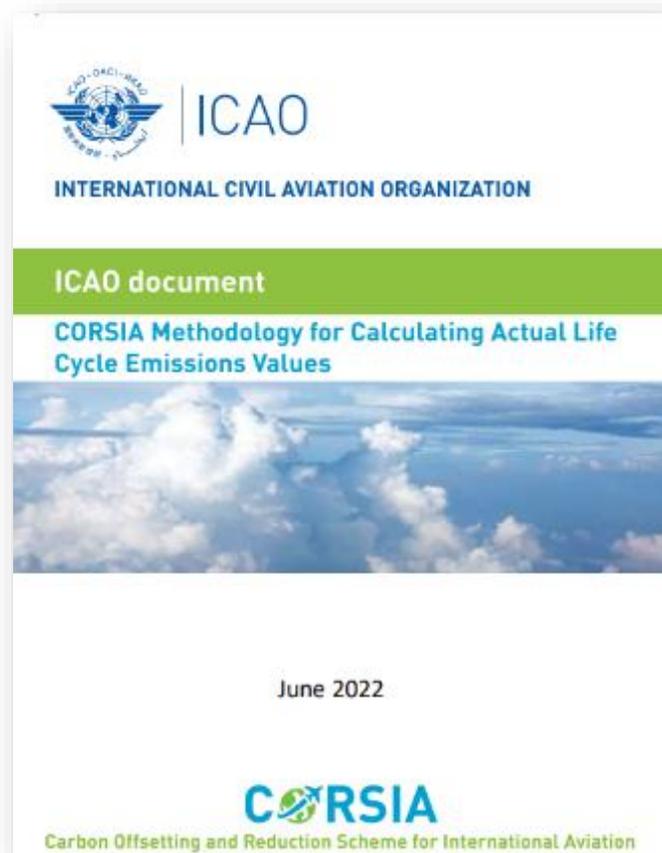
Figure 1. Guidance for inclusion of additional materials in positive list

Source: CORSIA Methodology For Calculating Actual Life Cycle Emissions Values - June 2022

6. Traceability and chain of custody

- Chain of Custody definition:

Process by which inputs and outputs and associated information are transferred, monitored and controlled as they move through each step in the relevant supply chain (Source: ISO/DIS 22095).

- Chain of Custody system:

Set of measures designed to implement a Chain of Custody, including documentation of these measures (Source: ISO/DIS 22095).

- Three steps for tracking materials:

STEP **01** — Acquiring

STEP **02** — Handling

STEP **03** — Forwading
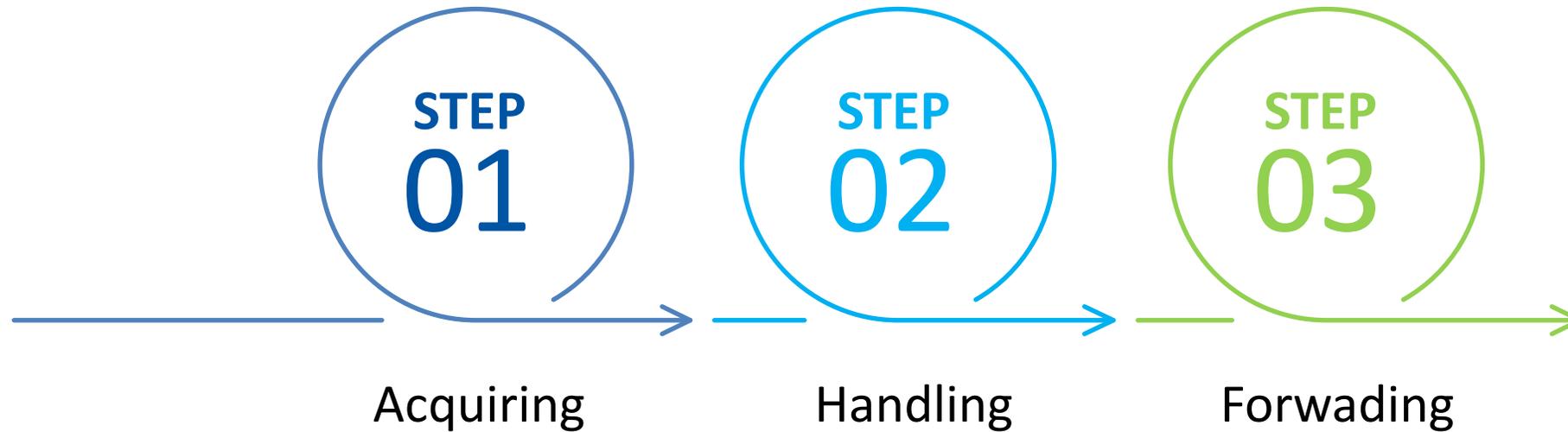
Sustainability information (e.g., on life cycle emissions) is forwarded through the supply chain step-by-step.
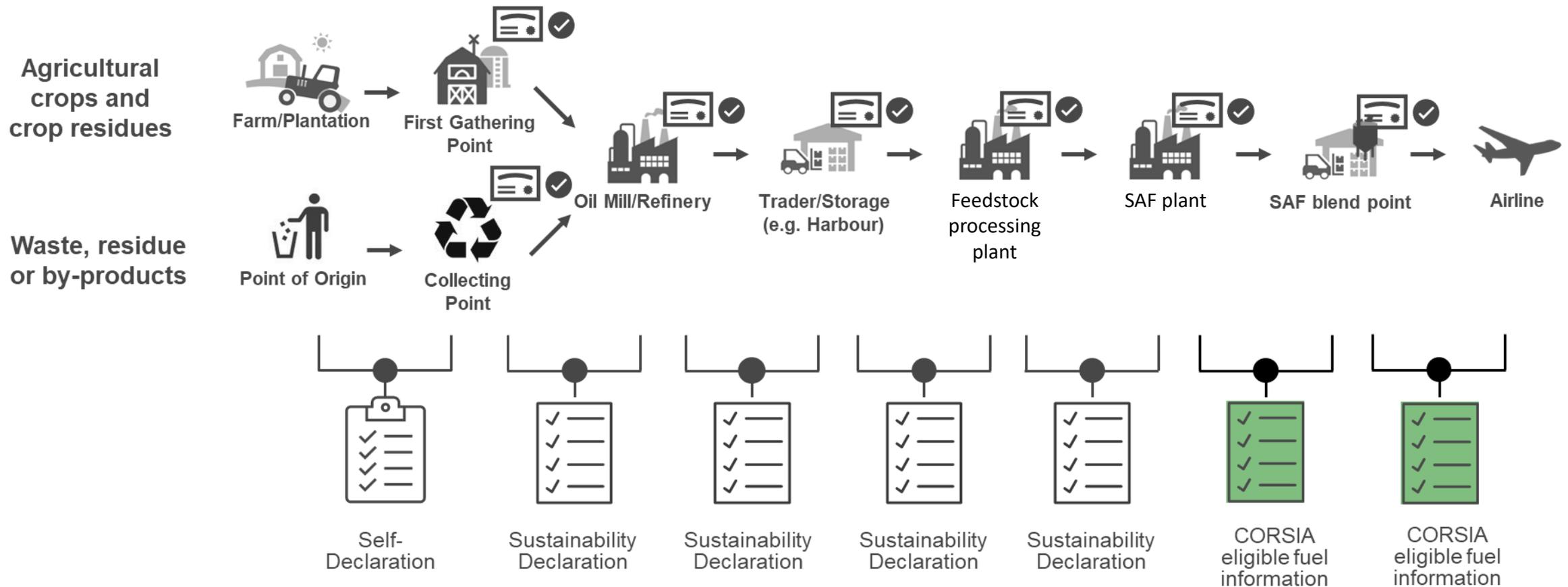
Questions?

Topics to be covered:

5. Life cycle emissions methodology

6. Traceability and chain of custody

1. Opening and recap of ACT-SAF
2. The sustainability framework for CORSIA eligible fuels
3. The CORSIA sustainability certification process and the role of SCS
4. Feedstock certification
5. Life cycle emissions methodology
6. Traceability and chain of custody
7. **Reporting of the use of CORSIA Eligible Fuels**
8. **Documents Required for a SAF claim**
9. Open discussion
10. Closing remarks

7. Reporting of the use of CORSIA Eligible Fuels

- Reporting of SAF in CORSIA

- Updates to the Emissions Monitoring Plan

- CORSIA Eligible Fuels Supplementary Information Template

- Documents required for a SAF claim

- References from SARPs

- Reporting of use of SAF and claiming reductions is governed by CORSIA SARPs and the Environmental Technical Manual (ETM)

- All pertinent documents to be retained for at least 10 years

- Proof of sustainability must come from sustainability certification schemes recognized by ICAO to claim Emissions Reductions (currently only **ISCC & RSB**)

- CORSIA Eligible Fuels Supplementary Information template must be completed and submitted to the verifier

- The aeroplane operator should make CORSIA eligible fuel claims on an annual basis in order to ensure all documentation is dealt with in a timely manner. However, the aeroplane operator has the option to decide when to make a CORSIA eligible fuel claim within a given compliance period for all CORSIA eligible fuel received by a blender within that compliance period.

- For blending that occurs in the second half of the final year of a compliance period, the aeroplane operator and the State to which it is attributed should determine what, if any, flexibility is needed in terms of submitting reports

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┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐
│                 │     │  Update of the  │     │                 │     │    Collecting   │
│ Intention to    │ ──> │  Emissions      │ ──> │  Procurement    │ ──> │  documentation  │
│ use SAF         │     │  Monitoring     │     │  of SAF         │     │  from the fuel  │
│                 │     │  Plan (EMP)     │     │                 │     │  supplier       │
│                 │     │  with SAF-      │     │                 │     │                 │
│                 │     │  related        │     │                 │     │                 │
│                 │     │  procedures     │     │                 │     │                 │
└─────────────────┘     └─────────────────┘     └─────────────────┘     └─────────────────┘
```

- Intention to use SAF
- Update of the Emissions Monitoring Plan (EMP) with SAF-related procedures
- Procurement of SAF
- Collecting documentation from the fuel supplier
- Furnishing of the CORSIA Eligible Fuel (CEF) Supplementary Information (SI) template
- Preparation of the Emissions Report (ER)
- Third-party verification
- Submission of the ER, Verification Report, and CEF SI template to the State
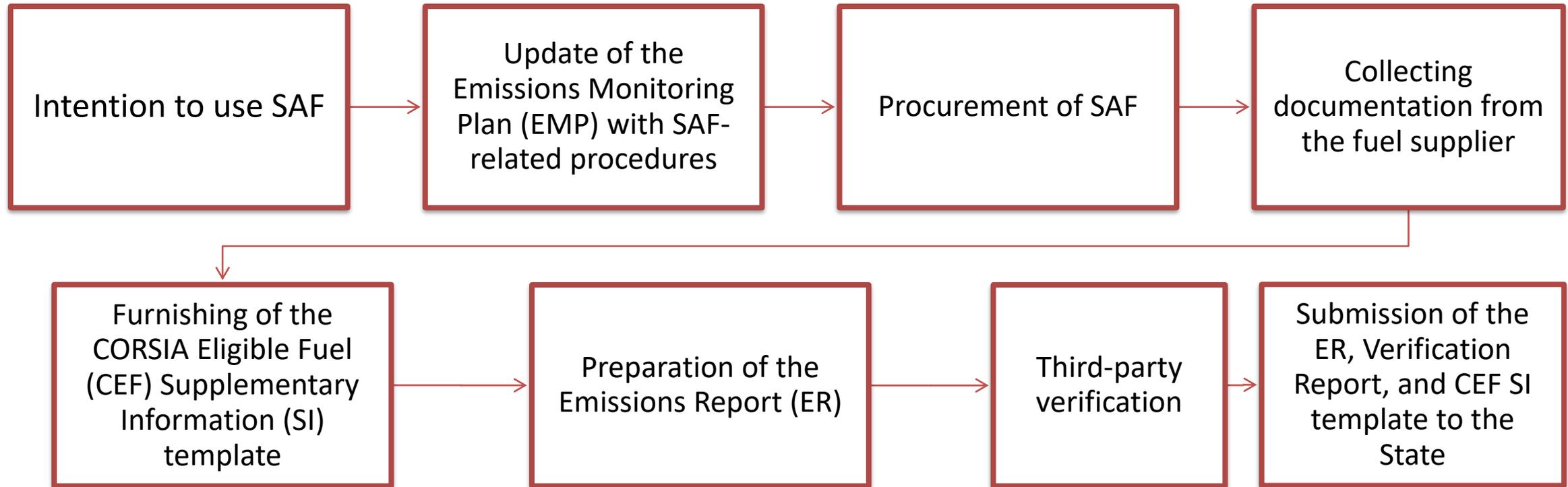
- The EMP shall be updated with relevant procedures of handling and monitoring CORSIA Eligible Fuels.

5. DATA MANAGEMENT, DATA FLOW, CONTROL SYSTEM, RISK ANALYSIS AND DATA GAPS

(Annex 16, Volume IV, Appendix 4, 2.4)

a) Description of data management

Please provide a description of each step in the data flow and data processing, including controls to assure data quality, beginning with the source data up to the Emissions Report. Please reference the responsible departments. Please attach a data flow chart to the Emissions Monitoring Plan summarizing the systems used to record, store and control the quality of data associated with the monitoring and reporting of emissions.
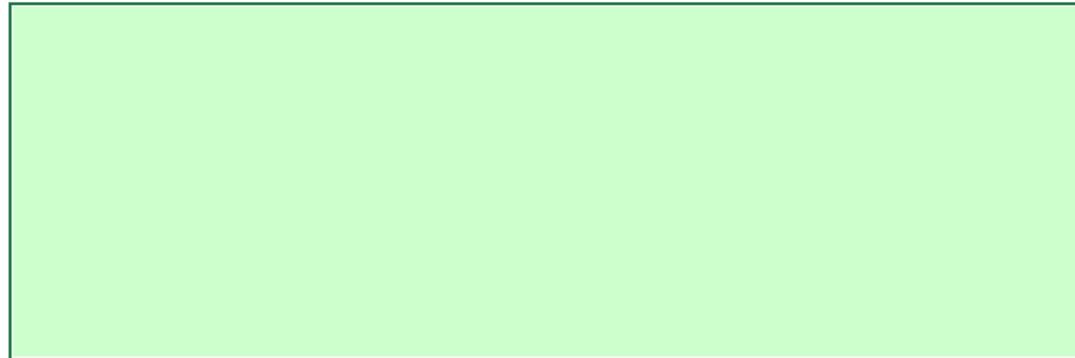
AEROPLANE OPERATOR IDENTIFICATION AND REPORTING INFORMATION

a) Name of aeroplane operator

Please enter the name of the aeroplane operator. This name should be the legal entity carrying out the aviation activities.

a1) Address of the aeroplane operator

Please enter the address of the aeroplane operator.

Address:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

b) Reporting year

CORSIA ELIGIBLE FUEL CLAIM FORM

Note: for each claim of emissions reductions from the use of CORSIA eligible fuels, please replicate this form and fill separately.

Fuel Claim #:

a) Purchase date

Please enter the date when the neat CORSIA eligible fuel was purchased. Use the format yyyy-mm-dd.

b) Identification of the producer of the CORSIA eligible fuel

b1) Name of producer of the neat CORSIA eligible fuel

Please enter the name of the fuel producer.

b2) Address of the producer of the neat CORSIA eligible fuel

Please enter the address of the producer of the neat CORSIA eligible fuel.

Address:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

c) Fuel production

c1) Date of production of the neat CORSIA eligible fuel

Please enter the date of production of the neat CORSIA eligible fuel. Use the format yyyy-mm-dd.

c2) Location of the production of the neat CORSIA eligible fuel

Please enter the address of the production of the neat CORSIA eligible fuel.

Address:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

c3) Batch identification number:

c4) Mass of each batch of neat CORSIA eligible fuel produced

Please enter the total mass of each batch of neat CORSIA eligible fuel produced (in tonnes).

d) Fuel type

d1) Type of fuel

Please enter the type of fuel (i.e., Jet-A, Jet-A1, Jet-B, AvGas) for the purpose of computation of Life Cycle Emissions factors.

d2) Feedstock type

Please enter the information on the feedstock used to create the neat CORSIA eligible fuel.

d3) Conversion process

Please enter the conversion process (i.e., a type of technology used to convert a feedstock into neat CORSIA eligible fuel).

e) Portion of batch purchased (if needed)

e1) Percentage

If less than an entire batch of neat CORSIA eligible fuel is purchased, please enter the proportion of neat CORSIA eligible fuel batch purchased (in percentage terms).

e2) Mass of batch purchased

Please enter the mass of CORSIA eligible fuel batch purchased (in tonnes).

f) Mass of neat CORSIA eligible fuel

Please enter the total mass of all batches of neat CORSIA eligible fuel included in the claim (in tonnes).

g) Sustainability documentation

Please provide evidence that the fuel satisfies the CORSIA Sustainability Criteria i.e., reference of attached valid certification document.

h) Life Cycle Emissions Values of the CORSIA eligible fuel

h1) Default or Actual Life Cycle Emissions value (LS_f)

Please enter the Life Cycle Emissions value (in gCO_2e/MJ).

h2) Default or Actual Core Life Cycle Assessment (LCA) value

Please enter the Core Life Cycle Assessment (LCA) value (in gCO_2e/MJ).

h3) Default Induced Land Use Change (ILUC) value

Please enter the Induced Land Use Change (ILUC) value (in gCO_2e/MJ).

i) Intermediate purchaser 1 (if needed)

If the aeroplane operator claiming emissions reductions from the use of CORSIA eligible fuels is not the original purchaser of the fuel from the producer (e.g., the aeroplane operator purchased fuel from a broker or a distributor), include the identity and contact information of these purchaser(s).

i1) Name of the intermediate purchaser 1.

Please enter the name of the intermediate purchaser 1.

i2) Address of the intermediate purchaser 1.

Please enter the address of the intermediate purchaser 1.

Address:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

k) CORSIA eligible fuel shipper

k1) Name of the CORSIA eligible fuel shipper.

Please enter the name of the party responsible for shipping of the neat CORSIA eligible fuel to the fuel blender.

k2) Address of the CORSIA eligible fuel shipper.

Please enter the address of the party responsible for shipping of the neat CORSIA eligible fuel to the fuel blender.

Address:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

l) Fuel blender

l1) Name of the fuel blender

Please enter the name of the party responsible for blending neat CORSIA eligible fuel with aviation fuel.

l2) Address of the fuel blender

Please enter the address of the party responsible for blending neat CORSIA eligible fuel with aviation fuel.

Address:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

m) Location of blending

Please enter the location where the neat CORSIA eligible fuel is blended with aviation fuel.

Address:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

n) Neat CORSIA eligible fuel received

n1) Date the neat CORSIA eligible fuel was received

Please enter the date the neat CORSIA eligible fuel was received by blender. Use the format yyyy-mm-dd.

n2) Mass of neat CORSIA eligible fuel received

Please enter the mass of neat CORSIA eligible fuel received (in tonnes).

o) Blend ratio of neat CORSIA eligible fuel and aviation fuel

Please enter the blend ratio of neat CORSIA eligible fuel and aviation fuel.

p) Documentation demonstrating blending

Please provide documentation demonstrating that the batch or batches of CORSIA eligible fuel were blended into aviation fuel (e.g., the subsequent Certificate of Analysis of the blended fuel).

q) Mass of neat CORSIA eligible fuel claimed

Please enter the mass of neat CORSIA eligible fuel claimed (in tonnes).

SUMMARY OF CORSIA ELIGIBLE FUELS INFORMATION

a) Summary of CORSIA eligible fuels (by fuel claim #)

Please provide a summary of the CORSIA eligible fuels claimed for the reporting year.

Fuel claim #	Fuel type			Total mass of neat CORSIA eligible fuel claimed (in tonnes)	Life cycle emissions values of the CORSIA eligible fuel	Emissions reduction from CORSIA eligible fuels claimed (in tonnes)
	Type of fuel	Feedstock type	Conversion process			
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

b) Summary of information of CORSIA eligible fuels claimed

b1) Total of emissions reduction from CORSIA eligible fuels claimed (in tonnes)

Please enter the sum of the values included in column "Emissions reduction from CORSIA eligible fuels claimed (in tonnes)" of the table above.

8. Documents Required for a SAF claim

All these documents need to be provided by the aeroplane operator using SAF:

- Processes and procedures related to the use of SAF shall be included in the approved (Annual) Emissions Monitoring Plan

- A declaration of all other GHG schemes it participates in where the emissions reductions from the use of CORSIA eligible fuels may be claimed, and a declaration that it has not made claims for the same batches of CORSIA eligible fuel under these other schemes.

- Purchase records/invoices for the full amount of SAF claimed

- Sale records/invoices for any SAF sold to third parties

- Sustainability Credentials/Proof of Sustainability

- Fuel uplift records/fuel slips *Recommended*

2.3.3   Reporting of CORSIA eligible fuels

2.3.3.1   The aeroplane operator shall subtract CORSIA eligible fuels traded or sold to a third party from its total reported quantity of CORSIA eligible fuels.

2.3.3.2   The aeroplane operator shall provide a declaration of all other GHG schemes it participates in where the emissions reductions from the use of CORSIA eligible fuels may be claimed, and a declaration that it has not made claims for the same batches of CORSIA eligible fuel under these other schemes.

2.3.3.3   To claim emissions reductions from the use of CORSIA eligible fuels in the Emissions Report, the aeroplane operator shall provide the information as described in Appendix 5 Table A5-2 within a given compliance period for all CORSIA eligible fuel received by a blender by the end of that compliance period. The information provided is through to the blend point, and includes information received from both the neat (unblended) fuel producer and the fuel blender.

2.3.3.4   **Recommendation.**— *The aeroplane operator should make CORSIA eligible fuel claims on an annual basis in order to ensure all documentation is dealt with in a timely manner. However, the aeroplane operator has the option to decide when to make a CORSIA eligible fuel claim within a given compliance period for all CORSIA eligible fuel received by a blender within that compliance period. For blending that occurs in the second half of the final year of a compliance period, the aeroplane operator and the State to which it is attributed should determine what, if any, flexibility is needed in terms of submitting reports.*

2.3.3.5   If the aeroplane operator purchases fuel from a supplier downstream from the fuel blender (e.g., from a distributor, another aeroplane operator, or an aerodrome-based fuel distributor), this fuel supplier shall provide all of the requisite documentation in order for the emissions reductions from the use of CORSIA eligible fuels to be claimed by the aeroplane operator in accordance with Chapter 3.

Annex 16, Volume IV, Appendix A-5

Field #	Data Field	Details
Field 1	Purchase date of the neat CORSIA eligible fuel	
Field 2	Identification of the producer of the neat CORSIA eligible fuel	2.a Name of producer of the neat CORSIA eligible fuel 2.b Contact information of the producer of the neat CORSIA eligible fuel
Field 3	Fuel Production	3.a Production date of the neat CORSIA eligible fuel 3.b Production location of the neat CORSIA eligible fuel 3.c Batch number of each batch of neat CORSIA eligible fuel 3.d Mass of each batch of neat CORSIA eligible fuel produced
Field 4	Fuel type	4.a Type of fuel (i.e., Jet-A, Jet-A1, Jet-B, AvGas) 4.b Feedstock used to create the neat CORSIA eligible fuel 4.c Conversion process used to create the neat CORSIA eligible fuel
Field 5	Fuel Purchased	5.a Proportion of neat CORSIA eligible fuel batch purchased (rounded to the nearest %) *Note. - If less than an entire batch of CORSIA eligible fuel is purchased.* 5.b Total mass of each batch of neat CORSIA eligible fuel purchased (in tonnes) 5.c Mass of neat CORSIA eligible fuel purchased (in tonnes) *Note. — Field 5.c is equal to the total for all batches of CORSIA eligible fuels reported in Field 5.b.*

Field 6	Evidence that fuel satisfies the CORSIA Sustainability Criteria	i.e., valid sustainability certification document
Field 7	Life cycle emissions values of the CORSIA eligible fuel	7.a Default or Actual Life Cycle Emissions Value (LS_f) for given CORSIA eligible fuel f, which is equal to the sum of 7.b and 7.c (in gCO_2e/MJ rounded to the nearest whole number) 7.b Default or Actual Core Life Cycle Assessment (LCA) value for given CORSIA eligible fuel f (in gCO_2e/MJ rounded to the nearest whole number) 7.c Default Induced Land Use Change (ILUC) value for given CORSIA eligible fuel f (in gCO_2e/MJ rounded to the nearest whole number)
Field 8	Intermediate purchaser	8.a Name of the intermediate purchaser 8.b Contact information of the intermediate purchaser *Note. — This information would be included in the event that the aeroplane operator claiming emissions reductions from the use of CORSIA eligible fuels was not the original purchaser of the fuel from the producer (e.g., the aeroplane operator purchased fuel from a broker or a distributor). In those cases, this information is needed to demonstrate the complete chain of custody from production to blend point.*
Field 9	Party responsible for shipping of the neat CORSIA eligible fuel to the fuel blender	9.a Name of party responsible for shipping of the neat CORSIA eligible fuel to the fuel blender 9.b Contact information of party responsible for shipping of the neat CORSIA eligible fuel to the fuel blender
Field 10	Fuel Blender	10.a Name of the party responsible for blending neat CORSIA eligible fuel with aviation fuel 10.b Contact information of the party responsible for blending neat CORSIA eligible fuel with aviation fuel

Field 11	Location where neat CORSIA eligible fuel is blended with aviation fuel	
Field 12	Date the neat CORSIA eligible fuel was received by blender	
Field 13	Mass of neat CORSIA eligible fuel received (in tonnes)	*Note. - This number may differ from the number in Field 5.c in cases where only a portion of a batch or batches are received by the blender (i.e. due to sale to intermediate purchaser).*
Field 14	Blend ratio of neat CORSIA eligible fuel and aviation fuel (rounded to the nearest %)	
Field 15	Documentation demonstrating that the batch or batches of neat CORSIA eligible fuel were blended into aviation fuel (e.g., the subsequent Certificate of Analysis of the blended fuel)	
Field 16	Mass of neat CORSIA eligible fuel claimed (in tonnes)	*Note. - This number may differ from the number in Field 5.c in cases where only a portion of a batch or batches are claimed by the aeroplane operator.*

Questions?

Topics to be covered:

7. Reporting of the use of CORSIA Eligible Fuels

8. Documents Required for a SAF claim

1. Opening and recap of ACT-SAF
2. The sustainability framework for CORSIA eligible fuels
3. The CORSIA sustainability certification process and the role of SCS
4. Feedstock certification
5. Life cycle emissions methodology
6. Traceability and chain of custody
7. Reporting of the use of CORSIA Eligible Fuels
8. Documents Required for a SAF claim
9. Open discussion
10. Closing remarks

9. Open discussion

Open discussion

10. Closing Remarks

ACT-SAF updates

Key request - conceptual training on SAF

ACT-SAF Series (preliminary list of sessions)
✓ #1 Introduction to SAF
✓ #2 SAF sustainability and reporting under CORSIA
#3 SAF technology and certification
#4 SAF market outlook and policies (23rd March)
#5 SAF logistics (April)
#6 SAF economics and financing (May)
#7 Feasibility Assessment (June)

← NEXT: 23rd February 8-10 AM EST

- Future sessions on specific aspects
- Subject to review – **feedback welcome**

https://www.icao.int/environmental-protection/Pages/ACT-SAF-Series.aspx