

REGIONAL GREEN AIRPORTS SEMINAR

Hosted by the Ministry of Transport of the Republic of
Uzbekistan



ICAO Environmental Priorities: Sustainable Aviation Fuels and Lower Carbon Aviation Fuels



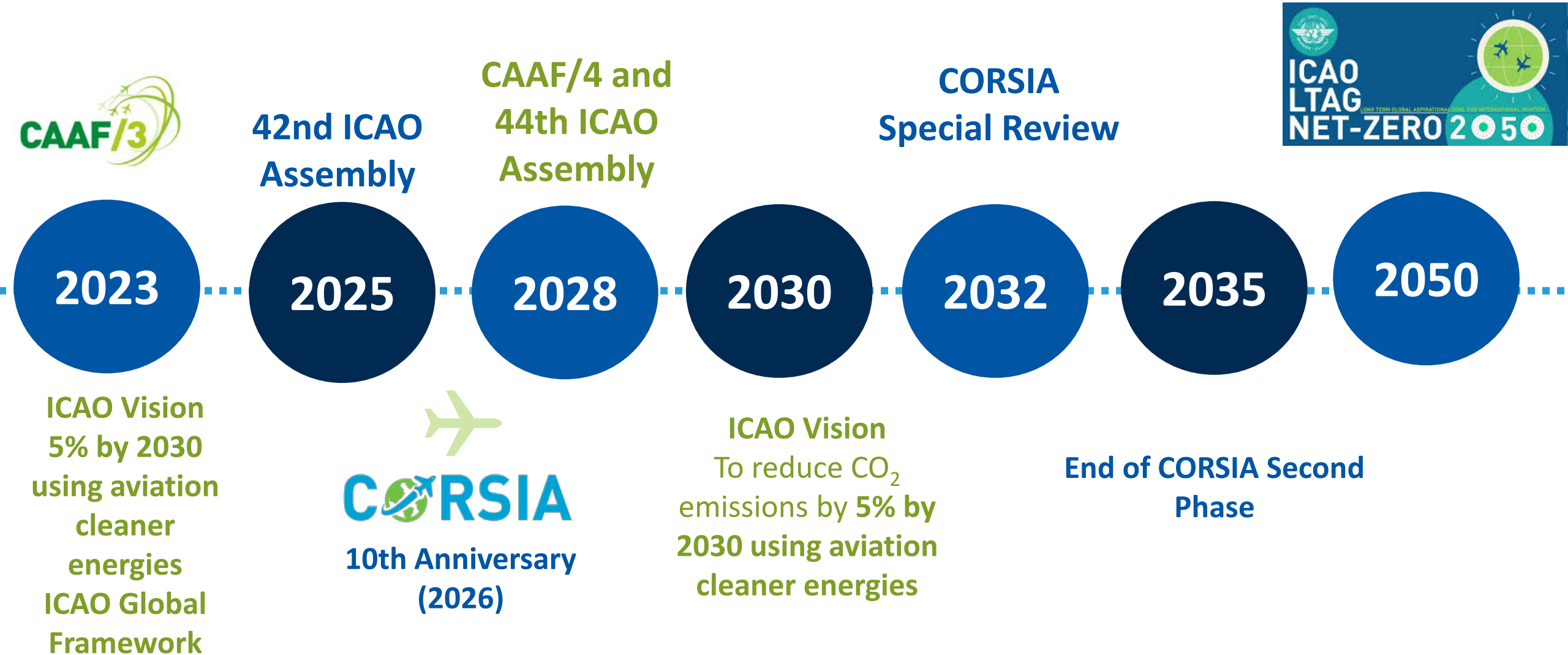


ICAO Environmental Priorities:

Sustainable Aviation Fuels and Lower Carbon Aviation Fuels

Blandine Ferrier
ICAO Environment Officer

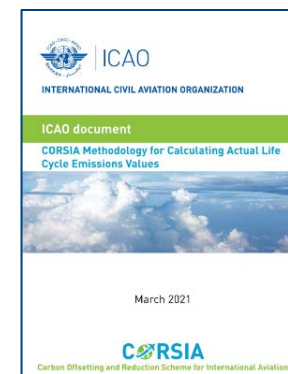
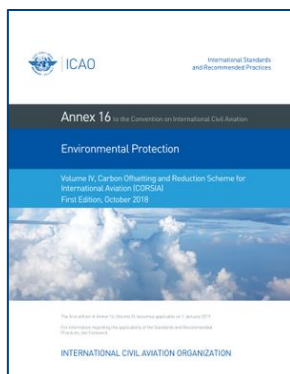
ICAO Major Milestones in Environmental Protection: SAFs and LCAFs



SAF basic definitions

What are Sustainable Aviation Fuels (SAF)?

Definition	Which Sustainability Criteria?	What is a waste?
SAF is defined as a <i>renewable or waste-derived aviation fuel</i> that meets sustainability criteria. <i>reference: Annex 16 Vol IV – CORSIA</i>	Sustainability Criteria are defined in the ICAO document “<i>CORSIA Sustainability Criteria for CORSIA Eligible Fuels</i>”	Waste is a feedstock with inelastic supply and no economic value (e.g. municipal solid waste, used cooking oil, waste gases etc.) <i>reference: ICAO document “CORSIA Methodology For Calculating Actual Life Cycle Emissions Values”</i>





ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies

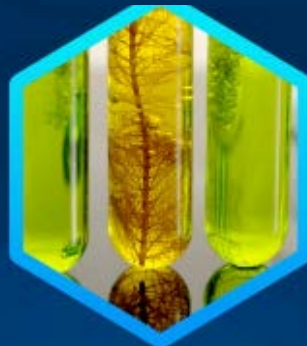
Supports global scale up of aviation cleaner energies – Collective Vision to reduce 5% CO₂ by 2030 using SAF, LCAF and other aviation cleaner energies

4 Building Blocks (BBs) to provide clarity, consistency and predictability to all stakeholders

**Policy and
planning**



**Regulatory
Framework**



**Implementation
Support**



Financing





CAAF/3 Global Framework – 4 Building Blocks

1. Policy and Planning

- Global aspirational **Vision** to reduce international aviation CO₂ emissions by **5% by 2030**
- Each State's **special circumstances and respective capabilities**
- **CAAF/4** no later than 2028, with a view to update Vision
- **Collaborative effort** across different stakeholders, and encourage **State policies, action plans and roadmaps**
- Implementation **monitored** and periodically **reviewed**

2. Regulatory Framework

- **CORSIA eligibility framework as accepted basis** for SAF, LCAF and other aviation cleaner energies
- Increase the **number of SCS**, additional fuel production **pathways / life-cycle values**
- Parameters for **fuel accounting methodologies**, leveraging on CORSIA MRV system
- **Study of fuel accounting systems** to determine any possible ICAO role

3. Implementation Support

- **Robust, targeted and tailored** capacity -building and implementation support
- **Building on ACT-CORSIA and ACT-SAF programmes**
- Facilitate **partnerships**, and exchange of best practices
- Develop **policy toolkit/guidance** and support **State Action Plans**
- Support **feasibility studies, pilot projects**, which may facilitate access to investment
- Support **access to technology**

4. Financing

- **Advocacy and outreach** for greater investment in aviation cleaner energy projects, including UN and international financial community
- **Operationalization of ICAO Finvest Hub** to facilitate better access to public fund / private investment
- Expedite work to **consider the establishment of a climate finance initiative or funding mechanism under ICAO**

ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies

Four Building Blocks to Achieve the Vision & LTAG

SAF and other aviation cleaner energies must meet the **CORSIA sustainability criteria** (ICAO Annex 16, Volume IV and five supporting ICAO documents)

No specific fuel source, pathway, feedstock, or technology is excluded, provided it meets the CORSIA sustainability criteria

Harmonized standards to provide regulatory certainty and support investment decisions

CAAF/4 by 2028 to update the sector's cleaner energy ambition on the basis of market developments in all regions.



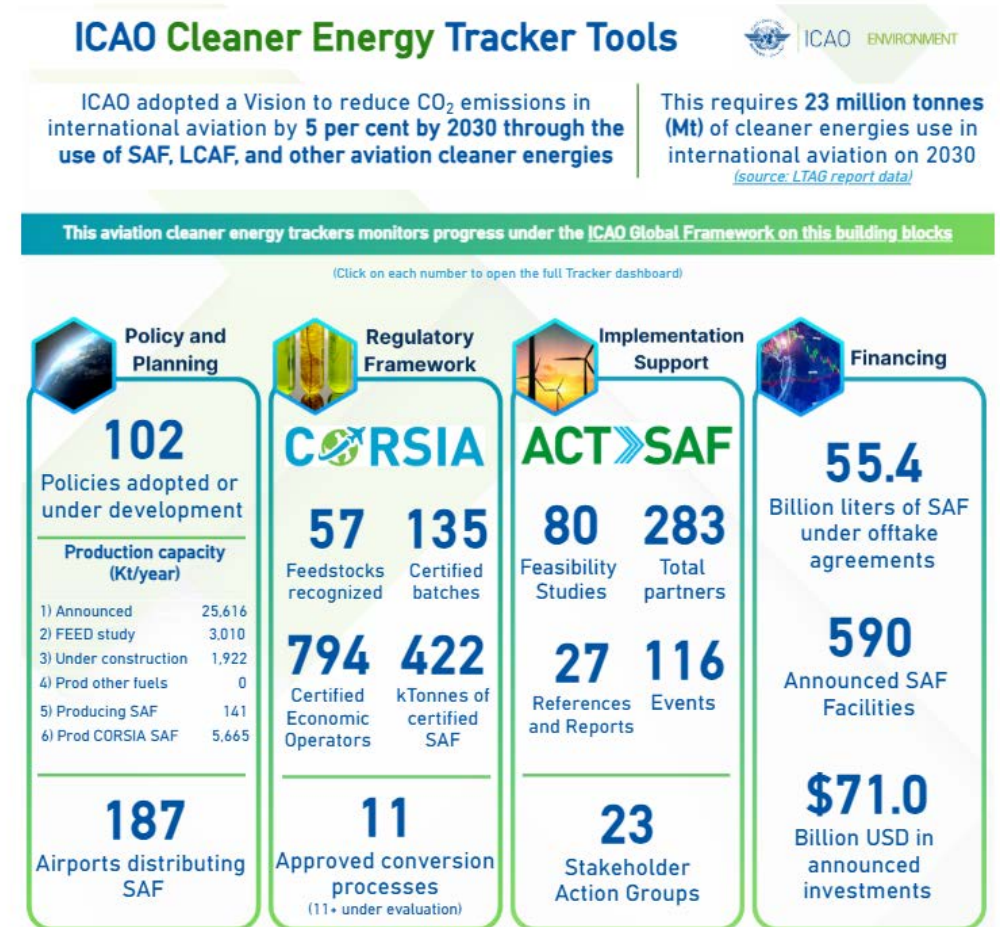
www.icao.int/SAF



ICAO Global Framework

Harmonized ICAO Regulatory Framework for SAF, LCAF and other Aviation Cleaner Energies

- Progress across the four building blocks of the **ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies**.
- **ICAO Cleaner Energy Tracker Tools** show:
 - ✓ More policies and announcements on production.
 - ✓ More airports distributing SAF.
 - ✓ Increasing and ongoing approvals of feedstocks and conversion processes.
 - ✓ Increasing investments announced.



Latest Developments: BB1 – Policy and Planning



Encouraging developments in global policy

2026 93

2025 46

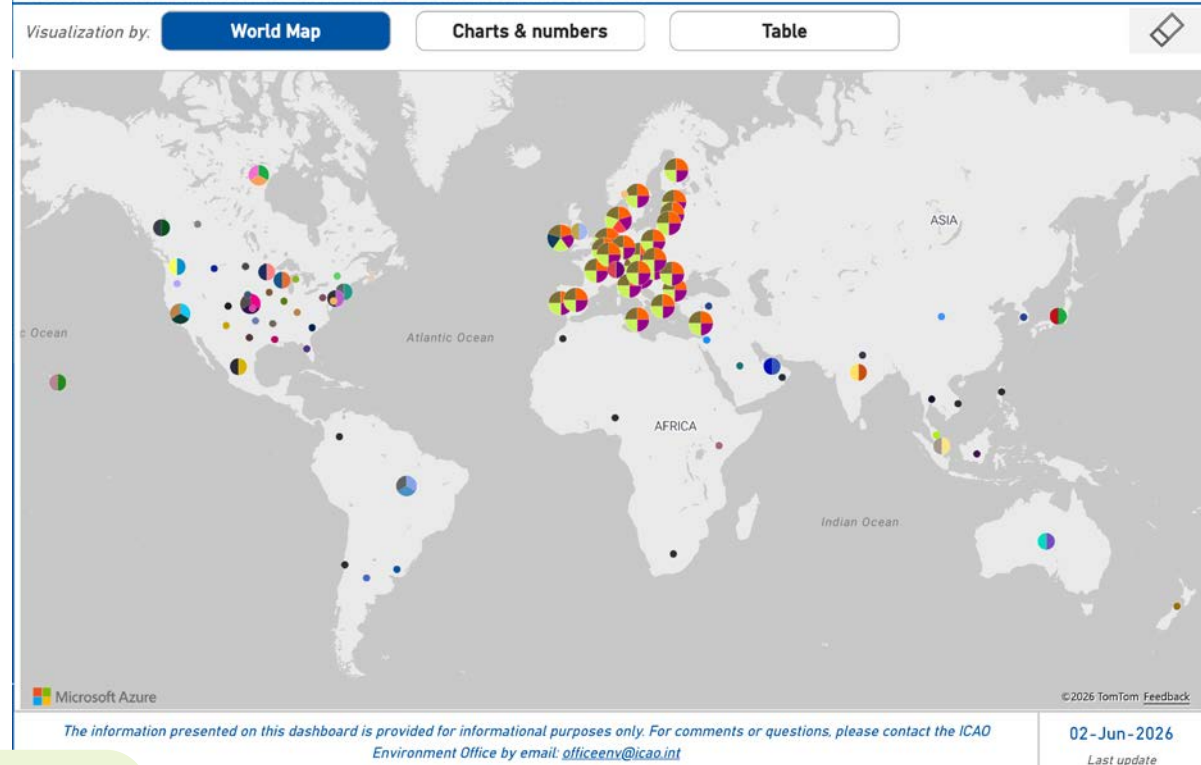
- Mandates and blending targets
- Incentive schemes
- Sub-national policies



ICAO Guidance on Policy Measures for SAF Development and Deployment updated in April 2026.

ENVIRONMENTAL POLICIES ON AVIATION FUELS

The following map provides a summary of the policies (adopted and under development) to foster the use of Sustainable Aviation Fuels and Lower Carbon Aviation Fuels.



SAF Production Facilities



CORSIA SAF refineries are entering into service

2026

41

2025

8

5.7 MT/year

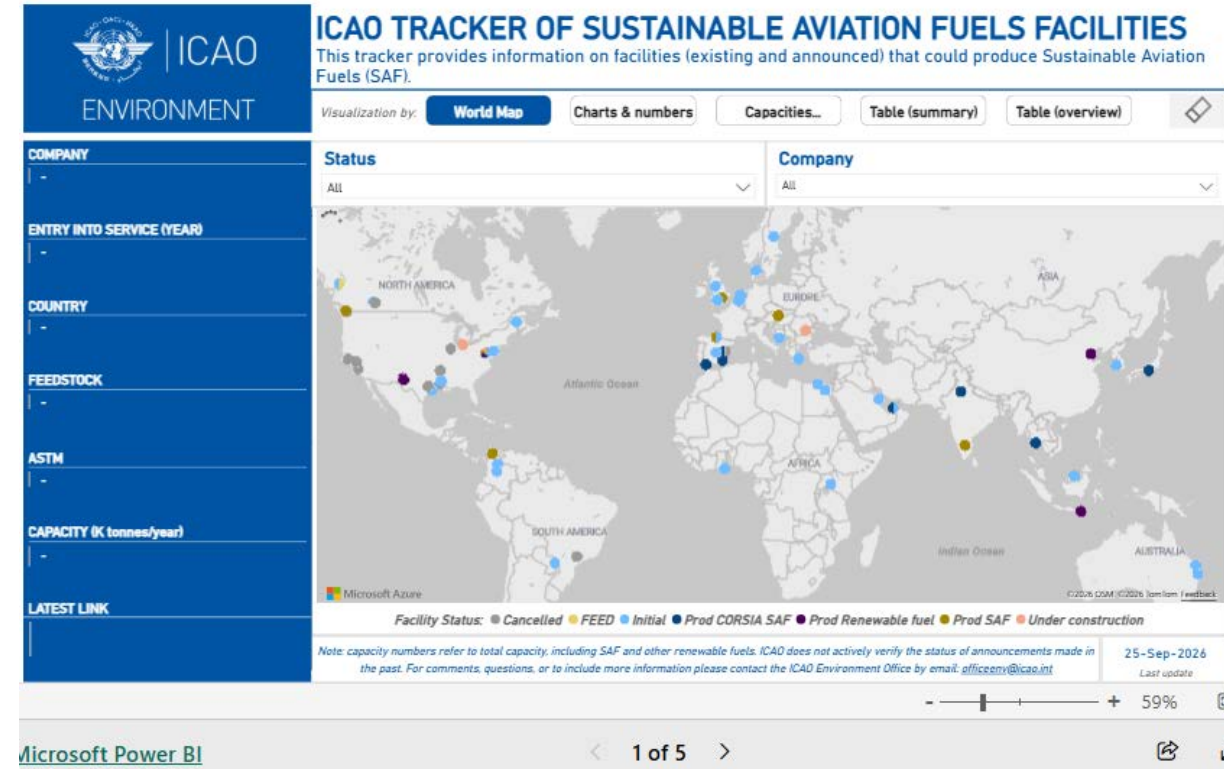
Current production capacity - CORSIA-certified SAF

~23 MT/year

cleaner energy needed to achieve 5% reduction by 2030

0.42 MT

**of CORSIA eligible fuels produced in 2025
(doubling every year since 2022)**





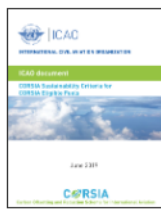
Latest Developments: BB2 – Regulatory Framework

CORSIA environmental standards for fuels

Recognized as the accepted basis for fuels used in international aviation

- **Agnostic methodologies**
- **57 types of feedstocks** currently recognized
- Open process for consideration of **new feedstocks**
- **New feedstocks** - beef tallow, poultry fat, lard fat, mixed animals fat, non-standard coconut, wheat starch slurry and cobs
- Monitoring, Reporting, and Verification system (MRV) in place, including **CORSIA Central Registry**

ICAO continues to update standards to include the most recent technologies on fuel production

				
CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes Third Edition, March 2024	CORSIA Approved Sustainability Certification Schemes* Second Edition, June 2023	CORSIA Sustainability Criteria for CORSIA Eligible Fuels** Third Edition, November 2022	CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels*** Fifth Edition, March 2024	CORSIA Methodology for Calculating Actual Life Cycle Emissions Values Fourth Edition, March 2024

<https://www.icao.int/CORSIA/corsia-eligible-fuels>



Sustainability Certification

ICAO-approved “Sustainability Certification Schemes (SCS)”
are verifying compliance with CORSIA standards

4 approved SCSs as of 2026



- SCSs currently only approved to certify CORSIA SAF.
- Update September 2026 – ISCC submitted request for approval of LCAF certification scheme – CAEP evaluation is ongoing

Open invitation for SCSs to apply:
<https://www.icao.int/CORSIA/corsia-scs-evaluation>



Life Cycle Emission Values of CORSIA Eligible Fuels

14 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



Life Cycle Emission Values of CEF *with CORSIA as the Globally Harmonized Framework*

Default Life Cycle Emissions Value

ICAO document 'CORSIA Default Life Cycle Emissions Values for CORSIA Eligible Fuels' provides default life cycle emissions values for CEFs, as a function of the feedstock, conversion process, and production region of the SAF.



Actual Life Cycle Emissions Value

ICAO document 'CORSIA Methodology for Calculating Actual Life Cycle Emissions Values' provides guidance for fuel producers to determine the actual life cycle emissions values for CEFs and, when supported by robust data, to claim values lower than the default ones.



Building Block 3: Implementation Support

ICAO Assistance, Capacity-Building, and Training for SAF (ACT-SAF)

<https://www.icao.int/ACT-SAF>

- The ICAO ACT-SAF programme was launched in 2022 :
- Provide tailored support for States
- **Facilitate partnerships and cooperation** under ICAO coordination
- Facilitate knowledge sharing – 22 training events, ACT-SAF **knowledge hub**, templates for studies
- 21 studies delivered, 17 under development
- 32 supported States



ICAO ACT-SAF Knowledge Hub

Coordination with ACT-SAF Partners identified that many States need conceptual knowledge on SAF. To help address that, the ACT-SAF Knowledge Hub aims to consolidate all relevant materials and useful references on SAF.

ACT-SAF Series of Training Sessions		SAF Feasibility Studies																																				
Comprehensive training on an array of SAF-related topics. All the sessions and their materials are available for viewing and downloading.		Studies developed by ICAO and other organisations that aim to evaluate the potential for SAF production at a given State, including feedstock production.	Number of Studies 76																																			
<table border="1"> <thead> <tr> <th>#</th> <th>Topic</th> <th>link video</th> <th>link presentation</th> </tr> </thead> <tbody> <tr><td>20</td><td>2025 Updates on the CORSIA regulatory framework for SAF Part 1 - new CORSIA default LCA values</td><td>link</td><td>link</td></tr> <tr><td>19</td><td>Building bankable SAF projects</td><td>link</td><td>link</td></tr> <tr><td>18</td><td>Understanding SAF Clearing Houses</td><td>link</td><td>link</td></tr> <tr><td>17</td><td>From Vision to Reality - Sweden</td><td>link</td><td>link</td></tr> <tr><td>16</td><td>Aviation and Green Taxonomy</td><td>link</td><td>link</td></tr> <tr><td>15</td><td>Coprocessing and reworking how to use existing refineries to produce SAF</td><td>link</td><td>link</td></tr> <tr><td>14</td><td>Update on 100% SAF testing and recent achievements</td><td>link</td><td>link</td></tr> <tr><td>13</td><td>SAF Business Implementation studies and TEA models</td><td>link</td><td>link</td></tr> </tbody> </table>	#	Topic	link video	link presentation	20	2025 Updates on the CORSIA regulatory framework for SAF Part 1 - new CORSIA default LCA values	link	link	19	Building bankable SAF projects	link	link	18	Understanding SAF Clearing Houses	link	link	17	From Vision to Reality - Sweden	link	link	16	Aviation and Green Taxonomy	link	link	15	Coprocessing and reworking how to use existing refineries to produce SAF	link	link	14	Update on 100% SAF testing and recent achievements	link	link	13	SAF Business Implementation studies and TEA models	link	link	SAF events Compilation of events hosted to discuss global challenges and solutions for further developing SAF. Upcoming events 36 Past events 59 Technical References and Reports Useful materials to facilitate technical understanding on various SAF aspects. Available references 27	
#	Topic	link video	link presentation																																			
20	2025 Updates on the CORSIA regulatory framework for SAF Part 1 - new CORSIA default LCA values	link	link																																			
19	Building bankable SAF projects	link	link																																			
18	Understanding SAF Clearing Houses	link	link																																			
17	From Vision to Reality - Sweden	link	link																																			
16	Aviation and Green Taxonomy	link	link																																			
15	Coprocessing and reworking how to use existing refineries to produce SAF	link	link																																			
14	Update on 100% SAF testing and recent achievements	link	link																																			
13	SAF Business Implementation studies and TEA models	link	link																																			



ICAO ENVIRONMENT | **ACT-SAF** | 25-Sep-2024

Feasibility Studies

This dashboard provides details of feasibility studies that aim to evaluate the potential for SAF production, including feedstock production.

World Map | Charts & numbers | Table

Supporting Organizations/States

Name	Number of studies
Inter-American Development Bank (IDB)	1
Air New Zealand, New Zealand	1
Airbus	3
Airbus, Airbus, Safran	1
Airbus, Volare	1
ARENA	1
Total	80

Select by status: All

Select by study type: All

Feasibility studies location, titles, and information

World Map

ICAO ACT-SAF disclaimer: ICAO, ACT-SAF, For comments or questions please contact the ICAO Environment Office by email: environment@icao.int

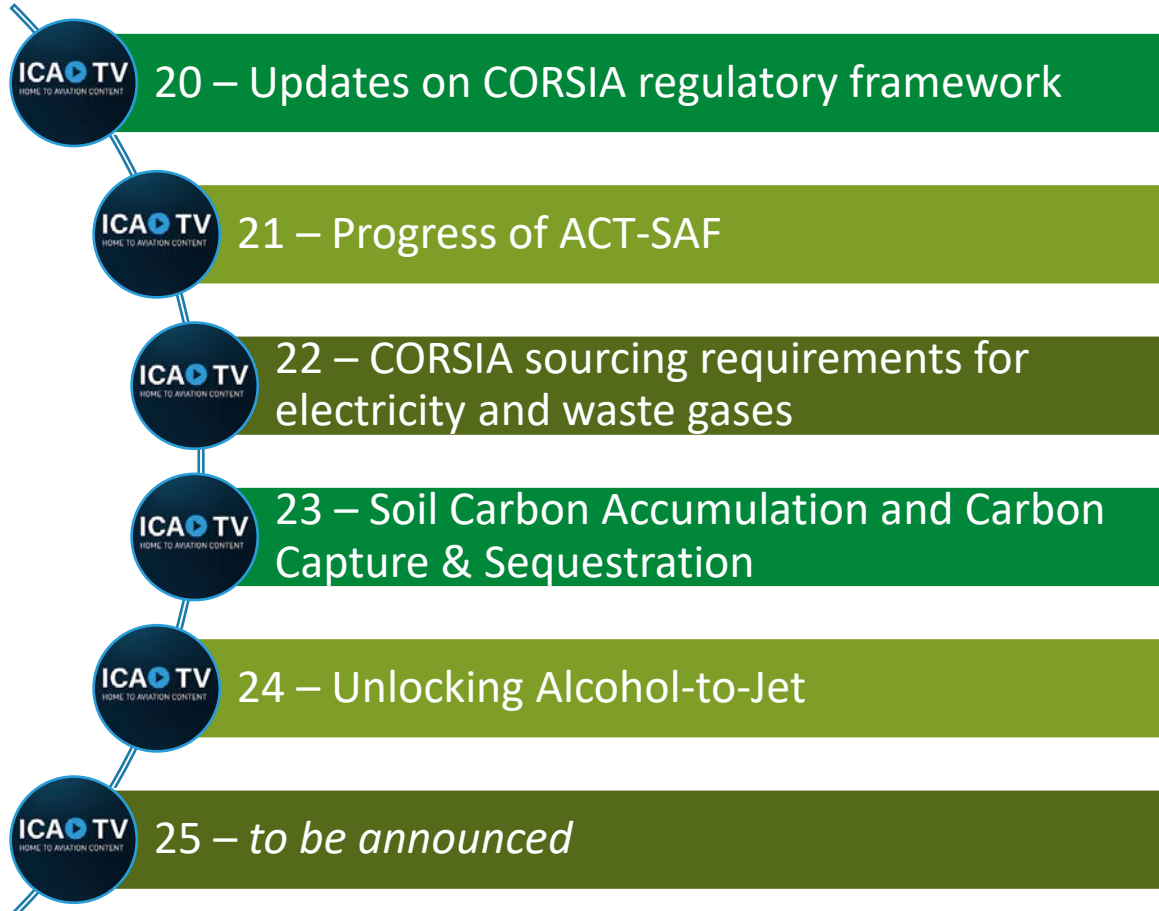
 Burkina Faso	 Cote d'Ivoire	 Dominican Republic	 India (2025)	 Jordan (2025)
 Kenya	 Rwanda	 Trinidad and Tobago	 Zimbabwe	



Building Block 3: Implementation Support

ACT SAF Training series – 5 new episodes

ICAO TV

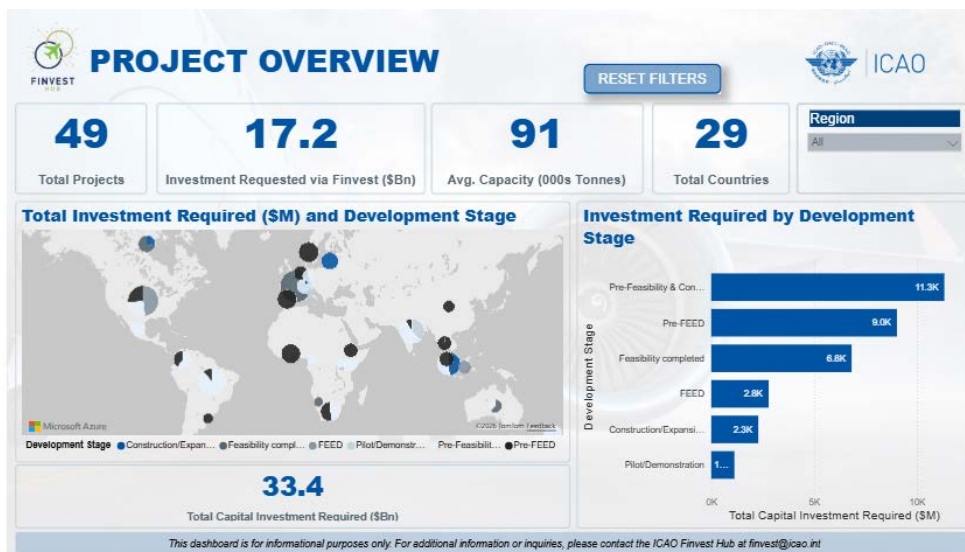


<https://www.icao.int/ACT-SAF/Series>

Building Block 4: Financing

Investments are being announced in SAF development

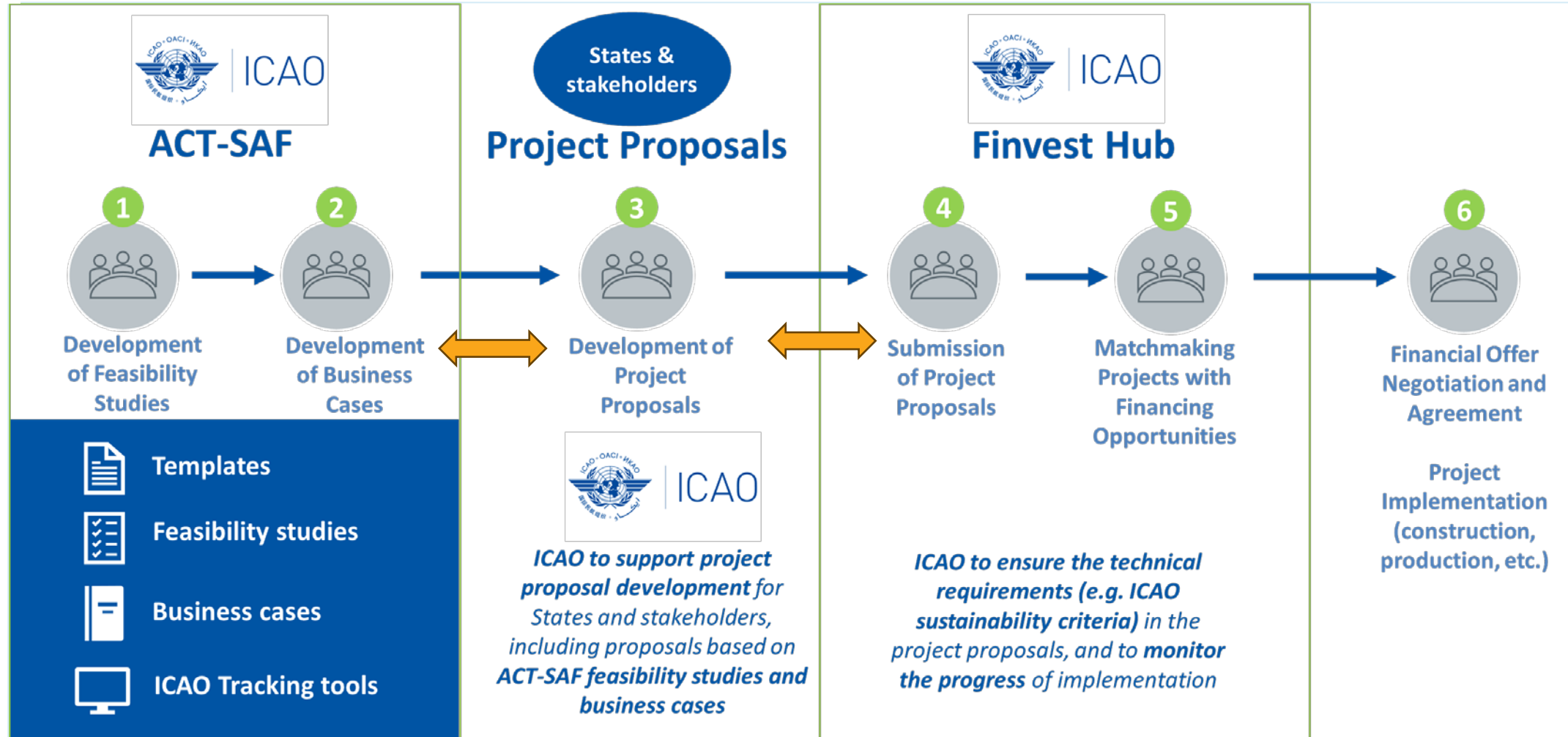
- 71 Billion dollars announced on SAF facilities
- 54 billion liters of SAF under offtake agreements (+260% since A41)
- ICAO LTAG will require up to 3.2 trillion USD in investments - financing needs to accelerate to enable planned SAF facilities
- ICAO FINVEST HUB – Facilitate funding for projects contributing to the decarbonization of international aviation



<https://www.icao.int/SAF/saf-offtake-agreements>

<https://www.icao.int/finvest>

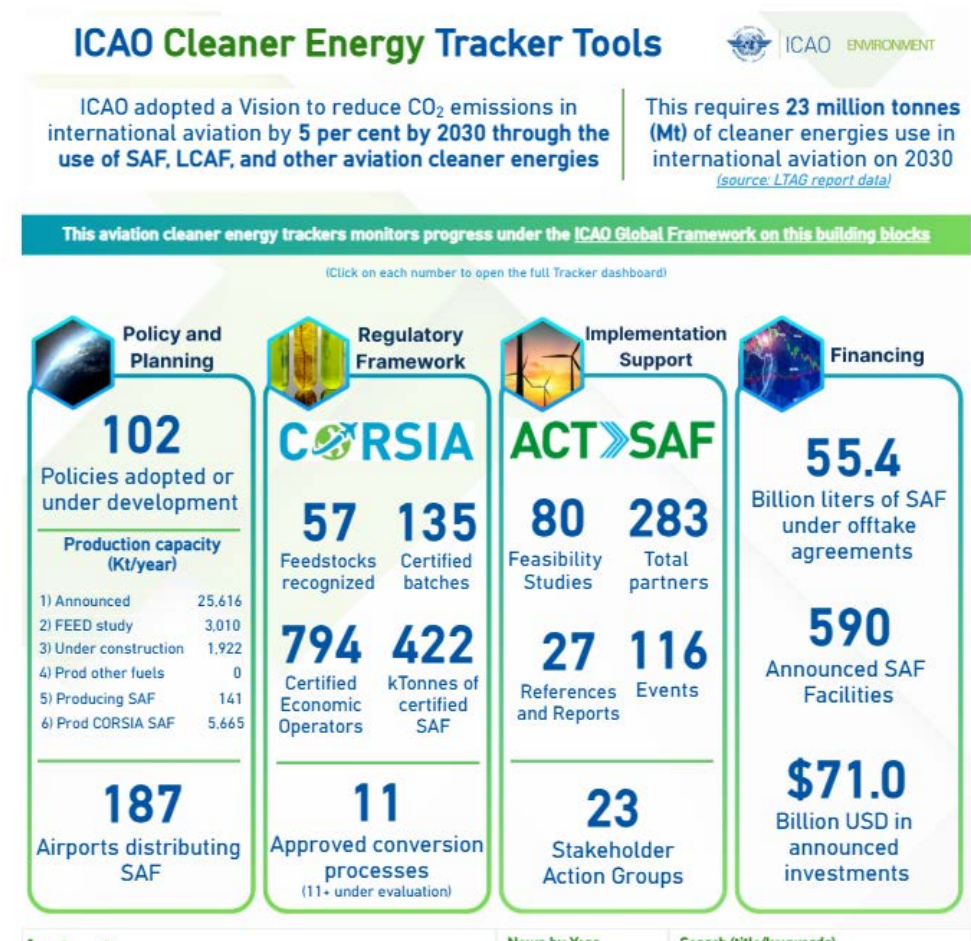
ICAO SAF development support framework



In Summary

- **Aviation clean energy use is taking off**
- **Sector readiness – ICAO's robust regulatory framework is in place, and kept up to date**
- **Projects and initiatives on clean energy are ramping up exponentially**
- **ICAO ACT-SAF and Fininvest Hub will support development and financing of projects**

www.icao.int/SAF



Thank You



ICAO
Headquarters
Montréal

European and
North Atlantic
(EUR/NAT) Office
Paris

Asia and Pacific
(APAC) Sub-office
Beijing

Middle East
(MID) Office
Cairo

Western and
Central African
(WACAF) Office
Dakar

North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Office
Bangkok