Decarbonization Initiatives at ICAO



Global Reduction Targets(LTAG)

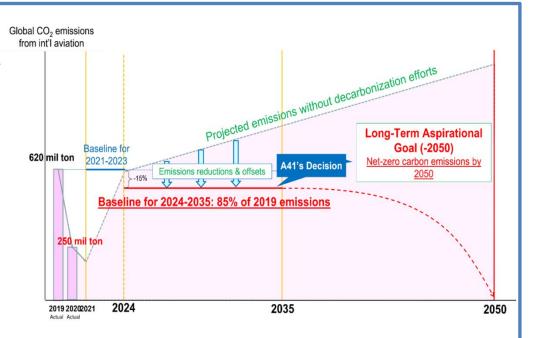
- O Carbon Neutral Growth after 2020 (CNG2020)
- O Improve fuel efficiency by 2% annually
- Carbon neutrality by 2050 (LTAG)

CORSIA

CORSIA's basket of measures is as follows:

- (1) Introduction of new technology
- (2) <u>Improvement of operation methods</u>
- (3) SAF
- (4) Carbon credits

At the 41st ICAO Assembly, it was adopted to revise the baseline for CORSIA after the first phase to 85% of global emissions in 2019.



ICAO Global Framework for Aviation Cleaner Energy

In November 2023, ICAO Third Conference on Aviation and Alternative Fuel (CAAF/3) agreed on a Global Framework including the quantitative target in 2030.

Main Agreements				
① Policy and Planning	✓ The Vision to reduce CO2 emissions by 5% by 2030 through the use of aviation cleaner energies compared to zero cleaner energy use			
② Regulatory Framework	 Increasing the number of Sustainability Certification Schemes (SCS) Requirements for the SAF Accounting System 			
③ Implementation Support	Policy Toolkit Effective technology transfer to developing countries			
④ Financing	✓ <u>ICAO Finvest-Hub</u>			

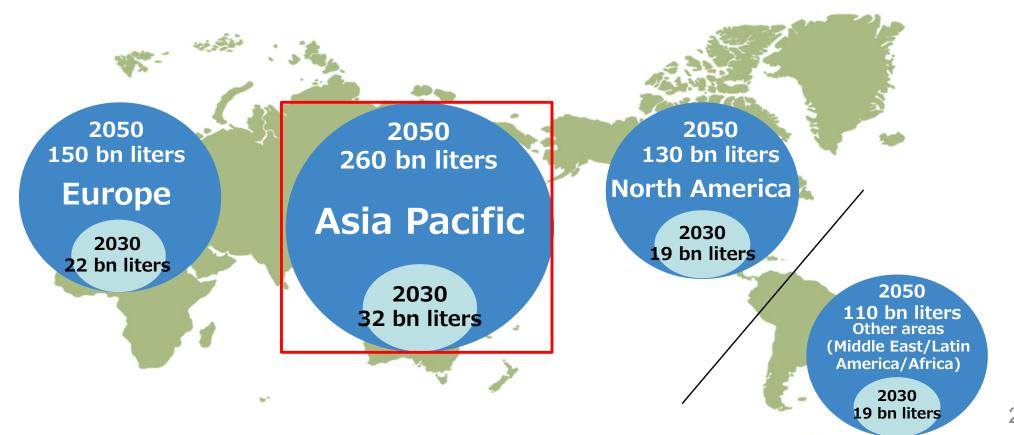


Mr. Onuma, Senior Deputy-Director-General of the Civil Aviation Bureau

SAF demand forecast for 2030 and 2050 (ICAO report)



- According to the ICAO report, global SAF demand is expected to be
 - about 88 billion liters in 2030, and
 - about 650 billion liters in 2050^{*1}
- It is assumed that SAF will reduce CO2 emissions by 55% when achieving aviation decarbonization in 2050. *1
- Asia-Pacific region is expected to have the largest demand (approximately 40% of world demand by 2050). *2
 - *1) Estimated from ICAO LTAG Report data (2022).
 - Reduction methods other than SAF are new aircraft technology (21%), improved flight operations (11%), and economic methods (13%).
 - *2) ICAO data (ICAO annual report 2019, ICAO Revenue Passenger-Kilometres Scenarios by route group (2018-2050)) are used for demand in each region.

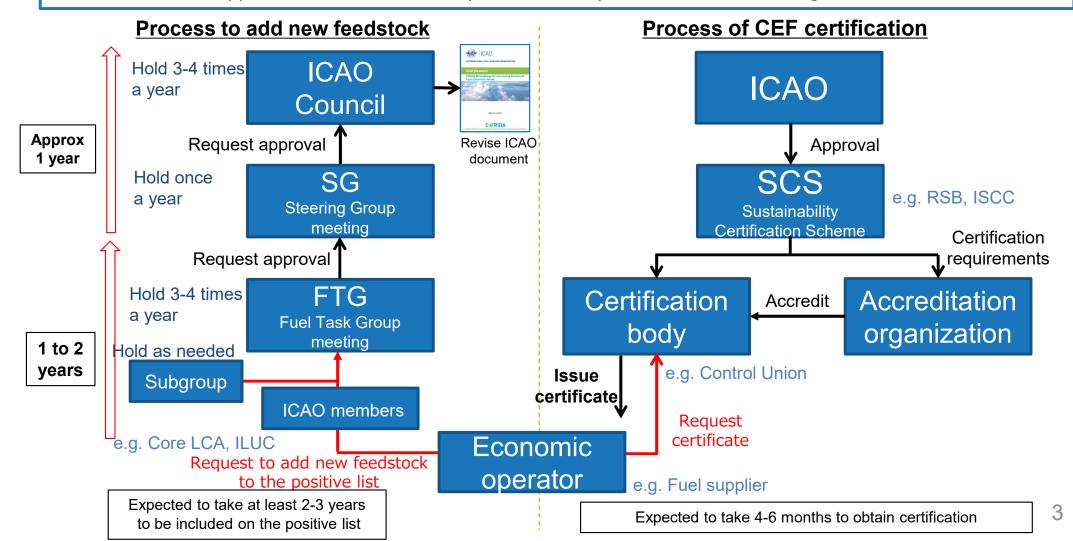


Outline of CEF Registration/Certification Procedures at ICAO



- For feedstock not listed on the positive list*1 (left)
 Economic operator requests to add new feedstock to the positive list and CEF*2 certification process starts after ICAO document has been revised.
- For feedstock listed on the positive list*¹ (right)

 Economic operator requests a certification body for certification, then the certification body reviews the economic operator and SCS issues CEF *² certificate.



New SAF feedstock was approved by ICAO based on Japan's proposal

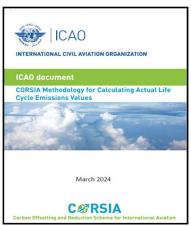
 The proposal from Japan Civil Aviation Bureau (JCAB) to include "Non-standard Coconuts" in Positive List was approved by ICAO as new SAF feedstock.

Proposed at ICAO FTG in March and July 2023





ICAO Document revised in March 2024



Residues	Wastes	By-products	Co-products
Agricultural residues:	Municipal solid waste*	Palm Fatty Acid Distillate	Molasses
Bagasse	Used cooking oil	Beef Tallow	
Cobs	Waste gases	Technical com oil	
Stover		Non-standard coconuts**	
Husks		Poultry fat	
Manure		Lard fat	
Nut shells		Mixed Animals Fat	
Stalks			
Straw			
Forestry residues:			
Bark			
Branches			
Cutter shavings			
Leaves			
Needles			
Pre- commercial thinnings			
Slash	1		7
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			

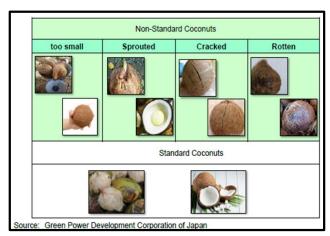
CORSIA METHODOLOGY FOR CALCULATING ACTUAL LIFE CYCLE EMISSIONS VALUES

Positive list

Press release issued by JCAB in April 2024



https://www.mlit.go.jp/en/report/press/kouku08_hh_000003.html

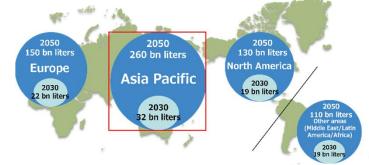


Classification of Non-standard Coconuts

Development of ASEAN-Japan CEF Certification Guidebook TILIT -SAF feedstock diversification and certification -

Back Ground

- ➤ SAF is essential to aviation decarbonization and the Asia-Pacific region is expected to have the greatest demand for SAF.
- Based on a proposal by the Japan Civil Aviation Bureau (JCAB),ICAO has approved "Non-standard Coconuts" as a SAF feedstock and included in an ICAO document.



SAF demand forecast





Non-standard Coconuts

Objective

➤ To diversify SAF feedstock and enhanced knowledge of SAF certification process among authorities and economic operators in ASEAN.

Framework for Cooperation

Formulating "ASEAN-Japan CEF" Certification Guidebook", which describes how to register new feedstock/pathway with ICAO and obtain CEF certification.

(* CEF : CORSIA Eligible Fuels)

Approx 1 year Approx 1 year Approx 1 year Approx 2 years Approx 3 year Approx 1 year Approx 1 year Approx 1 year Approx 2 years Approx 3 year Approx 3 year Approx 4 year Approx 4 year Approx 6 year Approx 6 year Approx 6 year Approx 7 year Approx 1 year Approx 1 year Approx 1 year Certification Accredit Accreditation organization Expected to take at least 2-3 years to be included on the positive list Expected to take 4-6 months to obtain certification

Outline of CEF Registration/Certification Procedures at ICAO

Timeline

- FY2025: ①Start of formulating draft guidebook which contains the findings gained through JCAB activities and customizes for ASEAN.
 - ②Submission of the draft guidebook to ATWG in autumn and get feedback.
- > FY2026: ①Submission of the final guidebook to ATWG in spring.

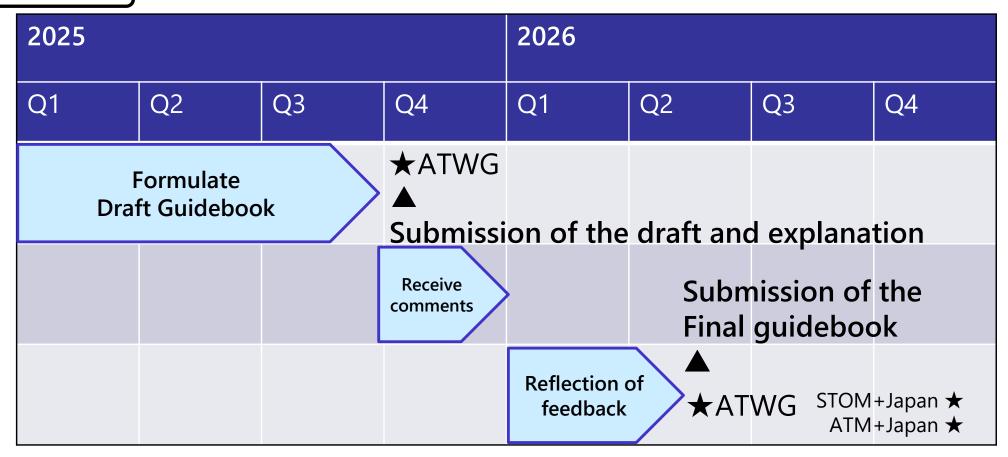
Timeline



Plan for Endorsement



Timeline



(Draft image) ASEAN-Japan CEF Certification Guidebook



 The Guidebook summarizes the findings gained through the proposal of new feedstock to ICAO and the activities of the Certification Task Group established under the Public Private Council in Japan.

(Draft) Table of Contents

1 Procedure of registration of new feedstock/pathways

- 1-1 Determining the need to register new feedstock/pathway
- 1-2 Request to add new feedstock to the positive list
- 1-3 Request to add new default values
- 1-4 Request to add new credit pathway

2 Obtain CEF certification

- 2-1 Procedures to obtain CEF certification
- 2-2 Calculation and confirmation by economic operator
 - ➤ Life Cycle GHG calculation、Sustainability criteria
- 2-3 Application for CEF certification and implementation of audit
 - ➤ Select SCS、Calculation and confirmation by economic operator · · · etc.,

3 Knowledge for SAF Certification

- > Procedure of Life cycle GHG calculation
- > Calculation of Actual Life Cycle Emissions values, DLUC values, and ILUC values
- > Land use confirmation tool
- > ASTM Certification

4 Feedstock option in ASEAN

Feedstock option and possibility in ASEAN · · · etc.,