

ICAO Global Framework for SAF, LCAF and other aviation cleaner energies

By ICAO Secretariat



FIGURE 1: CAAF/3 meeting in Dubai, November 2023.

Introduction

During the Third ICAO Conference on Aviation and Alternative Fuels (CAAF/3), held in Dubai, United Arab Emirates, from 20 to 24 November 2023, the international aviation sector took a significant leap to accelerate its decarbonization efforts.

By adopting the ICAO Global Framework for SAF, Lower Carbon Aviation Fuels (LCAF), and other Aviation Cleaner Energies¹, ICAO and its Member States agreed to strive to achieve a collective global aspirational Vision to reduce CO₂ emissions in international aviation by 5 percent by 2030, compared to zero cleaner energy use. In pursuing the Vision, each State's special circumstances and respective

capabilities will inform their ability to contribute to the Vision within their own national timeframes, without attributing specific obligations or commitments in the form of emissions reduction goals.

Key elements of this Framework has been set out in four interdependent Building Blocks – 1) Policy and Planning; 2) Regulatory Framework; 3) Implementation Support; and 4) Financing. The Framework sends a clear signal that the sector is firmly committed towards decarbonization, in a way that provides clarity, consistency, and predictability to governments, public/private investors, industry, and fuel producers, supporting and unlocking the full potential of the sector's global energy transition efforts.

1 <https://www.icao.int/Meetings/CAAF3/Pages/default.aspx>

Building Block 1 – Policy and Planning

This foundational Building Block establishes the collective Vision to reduce CO₂ emissions in international aviation. ICAO and its Member States will work together to strive to achieve a collective global aspirational Vision to reduce CO₂ emissions in international aviation by 5 per cent by 2030 through the use of SAF, LCAF and other aviation cleaner energies (compared to zero cleaner energy use).

The Vision and global framework will be continually monitored and periodically reviewed on the progress of emissions reductions and means of implementation support, aspiring to have production sites in all regions before the convening of CAAF/4 no later than 2028, with a view to updating the ambition on the basis of market developments.

Achieving the Vision will rely on means of implementation including financing, technology transfer and capacity building, and the Vision should follow other points, e.g., contributing to a level playing field among all States and avoiding market distortion.

This Building Block also addresses the development and implementation of aviation cleaner energy policies and State Action Plans in accordance with their special circumstances and respective capabilities, as well as related actions by aviation and fuel stakeholders, in support of the Vision. More information on aviation cleaner energy policies is available in other articles in this Chapter. More information on ICAO State Action Plans initiative is available in Chapter 7.

Building Block 2 – Regulatory Framework

This Building Block defines the technical and institutional architecture needed to ensure SAF, LCAF, and other aviation cleaner energies meet recognized sustainability standards and can be credibly accounted for in international aviation emissions reductions.

For that, the Framework states that the CORSIA sustainability criteria, sustainability certification, and the

methodology for the assessment of life cycle emissions should be used as the accepted basis for the eligibility of SAF, LCAF and other aviation cleaner energies used in international aviation.

The Framework supports accelerating the development and approval of new Sustainability Certification Schemes (SCS) for aviation cleaner energies, analysis and approval of life cycle values for new fuel sources and pathways, and certification of additional fuel production pathways, without excluding any particular fuel source, pathway, feedstock or technology.

More information on ICAO CORSIA regulatory frameworks related to SAF and LCA is available in other Articles in this Chapter and in Chapter 6.

The Framework also seeks to promote transparency, accuracy, consistency, comparability and completeness of fuel accounting methodologies. In support of that, the Framework requests ICAO to conduct a study of fuel accounting systems, including preliminary exploration of the so-called ‘book and claim’ concept to assess its relevancy and applicability, in order to determine any possible role of ICAO to facilitate access to environmental benefits of cleaner energies for international aviation, with a view to fostering the global production, in particular in developing countries. More information on related to fuel accounting methodologies is covered in other Articles in this Chapter, as well as in Chapter 6 on CORSIA-related accounting and reporting requirements.

Building Block 3 – Implementation Support

On this Building Block, the Framework encourages ICAO and aviation stakeholders to deliver a robust and substantial capacity-building and implementation support, taking into account various stages of readiness in different States and regions, and building upon the success of ICAO ACT-CORSIA and ACT-SAF programmes, with the contributions of resources by States and the industry.

The implementation support should facilitate partnerships, alliances and cooperation between States and all relevant stakeholders, including regional collaborations, as well as

the exchange of information, sharing of best practices under the ICAO's platform. This includes the support for feasibility studies, pilot projects, and proof of concept plans, which may facilitate access to investment, including training on financial aspects of project development, financial planning and investment promotion, as well as support for State Action Plans and roadmaps which may also facilitate access to investment.

Finally, the Framework promotes transfer of technology, in particular to developing countries and States with particular needs, in line with the No Country Left Behind (NCLB) initiative, through comprehensive technical skills, manufacturing, processing and equipment, noting the global benefits that come from increasing the supply of cleaner energy.

More information on capacity-building and implementation support is available in Chapter 8.

Building Block 4 – Financing

This Building Block recognizes that the primary objective for ICAO and its Member States on financing is to support developing countries and States with particular needs, to improve access to low-cost financing and funding, and further de-risking of projects to develop and deploy SAF, LCAF and other aviation cleaner energies. ICAO, States and the industry should advocate and outreach for greater investment in SAF, LCAF and other aviation cleaner energy projects, by increasing understanding amongst the international finance community, regarding the collective commitment of States and the industry, environmental and other benefits of aviation cleaner energies, and opportunities for potential investment.

The Framework also welcomes the ICAO Finvest Hub initiative to facilitate enhanced access to public and private investment capacities and funding from financial institutions, as well as encourage new and additional funding for this purpose. It also set out how ICAO should urgently put in place the necessary structure and capability, toward its operationalization, while identifying how it complements

broader aviation decarbonization capacity building and implementation efforts, including the ACT-SAF programme.

More information on climate financing is available in Chapter 9.

Integration into ICAO Implementation Roadmap

In June 2024, the ICAO Council during its 232nd Session approved the ICAO Roadmap for the implementation of the ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies, including the planned actions, roles and responsibilities, timeframe, required resources, and the relationship with related ICAO work, such as the Long-term Aspirational Goal (LTAG) implementation, leading to the 42nd Session of the Assembly in 2025, and until the convening of CAAF/4 by no later than 2028.

The ICAO Roadmap is a living document, to be regularly updated to reflect the progress of implementation and elaborate on further actions. It also outlines the additional resources required to implement the Global Framework and the LTAG, informing resource mobilization efforts. The ICAO Roadmap will progress in a balanced manner across the four interdependent Building Blocks, giving immediate focus on the need to accelerate the level of capacity-building and implementation support, financing, and other critical enabling and monitoring elements, so that it may foster swift production and deployment of aviation cleaner energies in all regions.

ICAO Cleaner Energy Tracker Tools

The ICAO Cleaner Energy Trackers² monitor progress under the ICAO Global Framework, comprising various indicators, such as airports distributing SAF, policies adopted or under development, SAF volumes under offtake agreements, latest news on SAF developments, etc, outlined under the four Building Blocks, as illustrated in Figure 2.

2 <https://www.icao.int/environmental-protection/pages/SAF.aspx>.

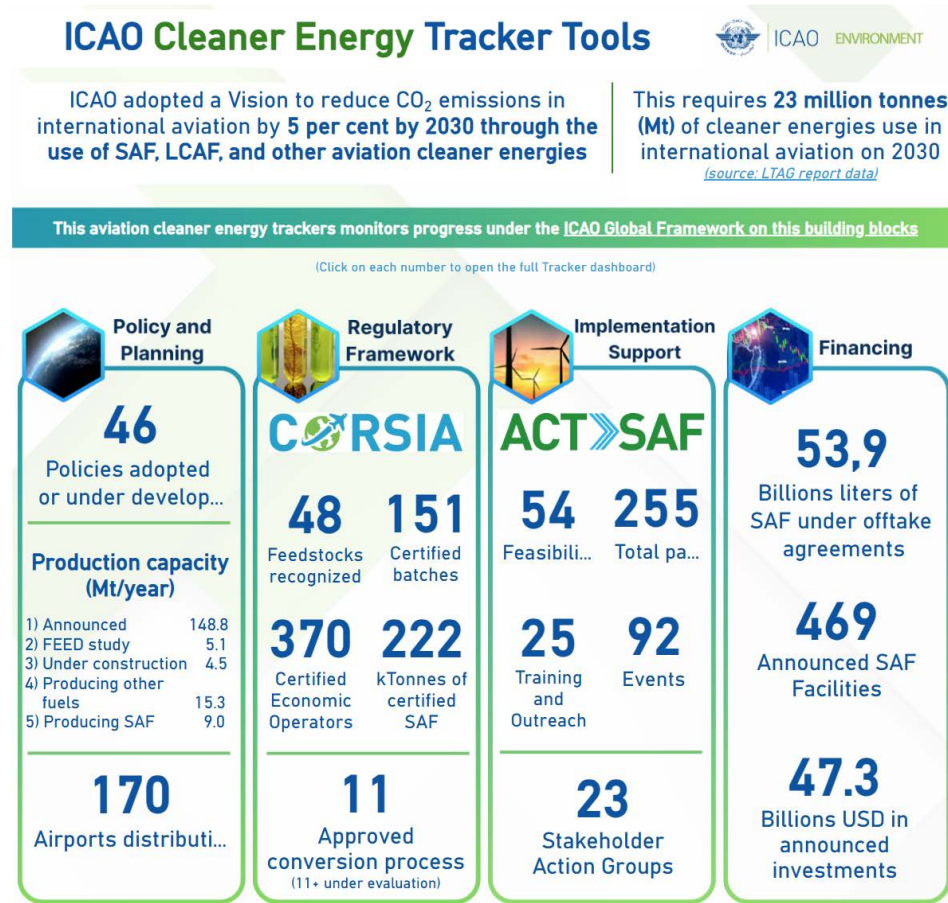


FIGURE 2: ICAO Cleaner Energy Tracker Tools (as of May 2025).