

The RLCF Alliance: enabling SAF development in the EU and beyond

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The role of SAF and ReFuelEU Aviation

The aviation sector is at a critical juncture in its decarbonization journey. As air traffic continues to grow, the industry must urgently accelerate its transition towards more sustainable energy sources to meet the global objective of net-zero carbon emissions for international civil aviation by 2050. Sustainable aviation fuels (SAF) represent the most promising and viable solution for reducing aviation emissions, as they can be seamlessly integrated into existing aircraft and infrastructure while delivering significant lifecycle emissions reductions compared to conventional fossil-based jet fuels.

Recognizing the essential role of SAF and in line with the comprehensive global framework adopted at CAAF/3, the European Union has introduced a robust regulatory framework to scale up their deployment. At the heart of this effort lies the ReFuelEU Aviation Regulation¹, adopted in 2023 as part of the EU Fit for 55 Package². This landmark regulation mandates a progressive increase in SAF supply at EU airports, requiring aviation fuel suppliers to blend a minimum share of SAF into jet fuel. The obligation starts at 2% in 2025 and scales up to 70% by 2050, providing long-term regulatory certainty for investors and industry stakeholders. Additionally, the regulation establishes a dedicated sub-mandate for SAF produced from renewable

hydrogen (eSAF), ensuring the development of innovative and scalable fuels.

By creating a predictable demand for SAF, ReFuelEU Aviation aims to de-risk investments in SAF production, stimulate large scale SAF production and enhance Europe's energy resilience. However, effective implementation requires the collaboration of all actors in the fuel value chain, from feedstock suppliers and refiners to airlines and financiers. This is where the Renewable and Low-Carbon Fuels Value Chain Industrial Alliance (RLCF Alliance) plays a pivotal role.

Supporting regulatory measures and driving SAF deployment

The RLCF Alliance³ was established by the European Commission in 2022 as a multi-stakeholder platform designed to facilitate the large-scale production and deployment of renewable and low-carbon fuels for the aviation and waterborne sectors. It brings together more than 300 members covering a diverse set of industry players, research organizations, and policymakers, working collaboratively to address barriers to market uptake and accelerate the transition toward sustainable transport.

In the past years, the Alliance Roundtables (focused on feedstock, aviation, maritime and access to finance) have

1 Regulation (EU) 2023/2405: <https://eur-lex.europa.eu/eli/reg/2023/2405/oj/eng>

2 https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal/fit-55-delivering-proposals_en

3 https://transport.ec.europa.eu/transport-themes/clean-transport/alternative-fuels-sustainable-mobility-europe/renewable-and-low-carbon-fuels-value-chain-industrial-alliance_en#resources

been producing valuable deliverables supporting both sectors to ramp-up the adoption of sustainable transport fuels. The aviation roundtable has played a key role in advancing the understanding of the SAF market by conducting a comprehensive stocktaking exercise. It has modelled scenarios for SAF adoption and production capacity needs, monitored the progress of SAF projects contributing to the EU objectives, explored and evaluated emerging SAF production pathways, and provided support on qualification processes and regulatory assessments, notably in the context of the EU SAF Clearing House. In parallel, the finance-focused roundtable has played a crucial role in addressing the industry's financial challenges. It has developed a funding compass, mapping available funding opportunities for RLCF projects, designed a financial model notably for eSAF produced via the Fischer-Tropsch pathway, provided a bankability guide for SAF projects and explored risk mitigation instruments, including grants, guarantees, and contracts for difference, to support investment in SAF production.

While the RLCF Alliance is primarily focused on supporting the EU's objectives for sustainable transport fuels, it also plays a crucial role on the global stage. The RLCF Alliance brings together members from close to 30 countries, fostering international collaboration and knowledge exchange. This international dimension is further strengthened through outreach activities, such as its presentation to the ICAO Council and contribution to the 2023 ICAO Stocktaking Seminar, where the RLCF Alliance shared insights and best practices with the broader aviation industry. By engaging with global stakeholders, the RLCF Alliance helps drive the development and deployment of SAF beyond Europe, contributing to worldwide decarbonization efforts in aviation.

The RLCF alliance has made remarkable strides in fostering community development and addressing the barriers to progress in developing low-carbon and renewable fuels, all while identifying potential solutions. Having successfully navigated these foundational challenges, the alliance is now poised to embark on phase two of its strategic plan. A pivotal shift in governance, meticulously adapted to concentrate on refining and expanding the pipeline of projects not only to sustain momentum but to accelerate the transition of these projects from conceptual stages to

reaching Final Investment Decisions. This approach aims to ensure impactful delivery and tangible benefits for the community, reflecting RLCF Alliance's commitment to innovation and sustainability objectives.

The RLCF Alliance pipeline of projects

A key deliverable of the RLCF Alliance is its pipeline of projects⁴, a dedicated repository of initiatives that contribute to the RLCF Alliance's objectives and, more broadly, to the EU regulatory framework on sustainable transport fuels in aviation and waterborne sectors. This pipeline serves as a strategic tool to showcase, support and monitor projects that are essential for scaling up SAF and other renewable fuels in Europe. It also helps identify structural difficulties to resolve them swiftly.

The pipeline is being progressively built and includes 15 projects as of April 2025, with ten focusing on aviation, particularly on eSAF and advanced biofuel production pathways. These technologies are critical for ensuring the long-term sustainability of aviation, as they diversify the feedstock base, increase the production volume to meet market demand, and provide lower-carbon alternatives with strong environmental potential.

Beyond acting as a repository, the RLCF Alliance actively enhances the visibility of these projects through showcasing events (e.g. Paris Air Show, ILA Berlin Air Show) as well as matchmaking sessions that facilitate partnerships across the value chain, including with potential finance providers. The European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD) are associated to the building of the pipeline. These initiatives help projects in securing investments, strengthening collaboration, and achieving greater market integration. To further support high-impact projects, the RLCF Alliance has established a dedicated task force to develop a set of criteria for an official RLCF Alliance label. This seal of excellence will recognize projects that best contribute to the objectives of ReFuelEU Aviation and FuelEU Maritime, offering them additional credibility and support in accessing funding and market opportunities.

4 https://rlcf-alliance-platform.converve.io/pipeline_front.html.

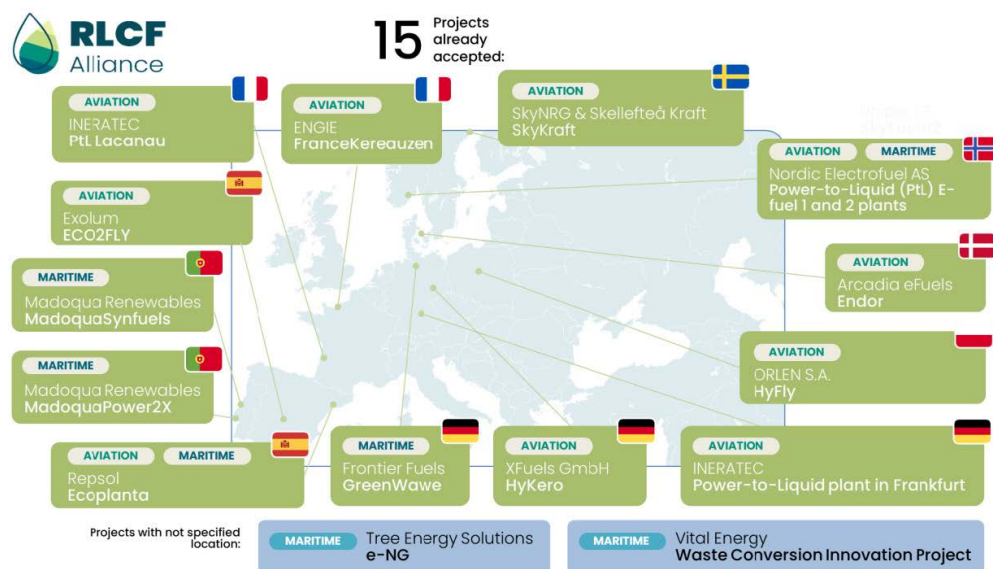


FIGURE 1: RLCF Alliance Project Pipeline.

Financing challenges

Most of the projects in the pipeline are highly advanced, having resolved key technical challenges such as securing CO₂ sources, electricity supply, and production components. Some have already completed the Front-End Engineering Design (FEED) phase and are poised to begin construction after securing a Final Investment Decision (FID). However, despite their technical readiness, these projects, particularly those focused on less commercially mature SAF production pathways, like eSAF, face significant financial hurdles. The high capital intensity of projects combined with risks associated with early-movers, whereby initial projects bear higher production costs than later entrants, continue to hinder large-scale investments and delay FID. In this context, the RLCF Alliance plays a critical role in addressing these challenges, offering a platform to facilitate investment, de-risk projects, and support policy alignment.

Way forward

The pipeline of projects, which showcases some of the best-in-class initiatives, serves as the foundation for an upcoming European Investment Bank (EIB) assessment on how to better financially support SAF projects, including with technical assistance support and potential implementation of risk mitigation instruments as needed. Moreover, the Sustainable Transport Investment Plan (STIP), recently announced by the

European Commission and expected to be unveiled in the autumn, will be instrumental in tackling the financing challenges associated with sustainable transport fuels for the aviation and waterborne sectors. By providing a strategic framework to better align and use existing EU financial instruments, STIP aims to enhance investor confidence and facilitate capital flows into scaling up production of SAF and other renewable fuel projects. The RLCF Alliance's work over the last two years is intended to feed the Commission's reflection on STIP.

At the global level, initiatives such as the ICAO Finvest Hub are essential in fostering a worldwide SAF market. Recognizing its importance, the EU has committed to contributing climate finance expertise to support the establishment and operationalization of the Finvest Hub, as announced at the ICAO Global Implementation Support Symposium conference in Abu Dhabi in February 2025. This collaboration will bring the EU knowledge and expertise from the development and implementation of ReFuelEU Aviation and the RLCF Alliance to strengthen ICAO's Finvest Hub initiative in facilitating and attracting investments for SAF projects across all the regions in line with ICAO "No Country Left Behind" Strategic objective. This will help with progressing with the implementation of the ICAO Global Framework for Sustainable Aviation Fuels as adopted at CAAF/3, Lower Carbon Aviation Fuels and other Aviation Cleaner Energies and its collective global aspirational Vision to reduce CO₂ emissions in international aviation by 5 per cent by 2030, compared to zero cleaner energy use.