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March 2026

Navigating aviation decarbonisation

Global SAF policies, carbon markets, fundamentals and pricing



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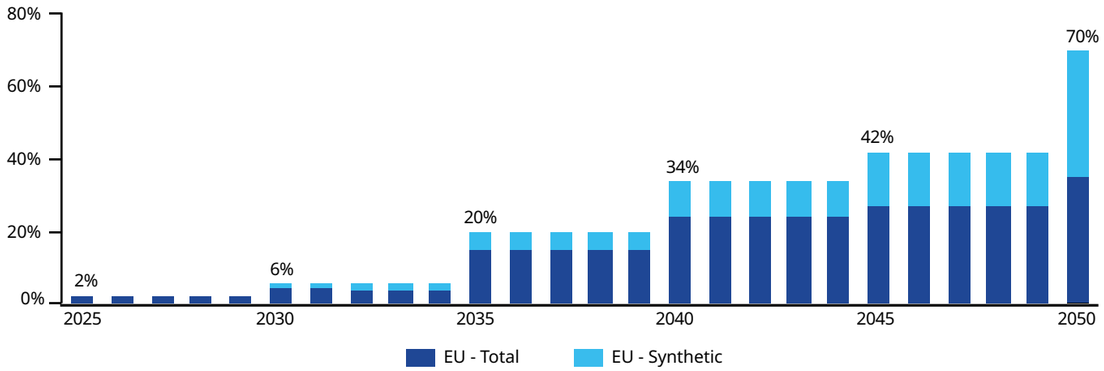
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European SAF mandates

SAF policies are advancing at different speeds across the world: Europe leads with binding mandates, Asia-Pacific is gradually introducing SAF targets, while the U.S. is encouraging production growth through tax credits.

Europe: ReFuelEU SAF mandate obligation



Obligated parties under ReFuelEU Aviation

Aviation fuel suppliers
Must supply minimum shares of SAF according to mandatory quota

Aircraft operators
Aircraft operators are obligated to refuel at least 90% of their yearly required aviation fuel from Union airports. This obligation was set up to prevent tankering, the act of loading more fuel than needed outside of Europe

Union airports
Union airports managing bodies have an obligation to facilitate the access to SAF, when passenger traffic is above 800,000 or freight traffic exceeds 100,000 tons/yr*

**Except for airports in outermost regions*

Penalties for non-compliance under ReFuel EU

Member states shall set and enforce fines on fuel suppliers, union airport managing bodies and aircraft operators in case of non-compliance with the mandates. The penalties must fall within the prescribed minimum threshold for the different obligated parties defined by ReFuelEU.

EU Emissions Trading System (ETS)

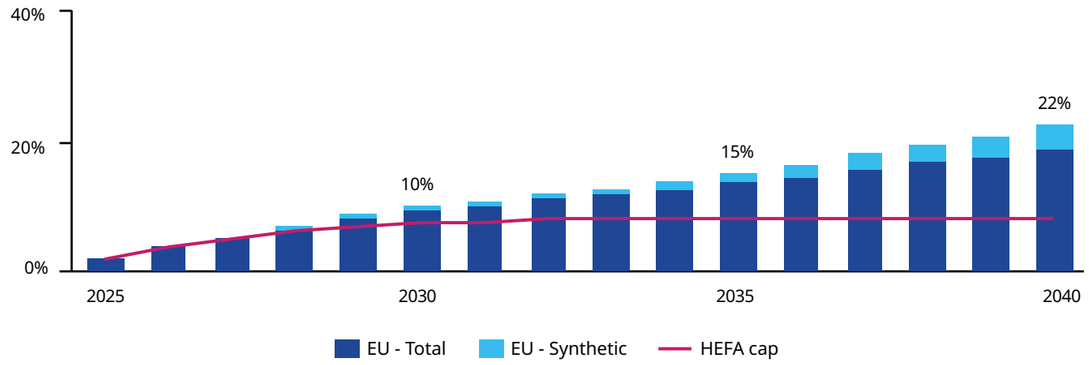
Between 1 January 2024, and 31 December 2030, a reserve of 20 million carbon allowances from the EU Emissions Trading System (ETS) will be dedicated to incentivise the use of SAF. These allowances will cover the price differential — in total or partially — between SAF and conventional jet fuel.

The distribution of SAF allowances will vary depending on the type of SAF used and the geographic location of use.

- Small islands, small airports and outermost regions will benefit to cover 100% of the price differential **For all other airports, the coverage of the price differential will depend on the type of fuel used:**
  - 95% for renewable fuels of non-biological origin (RFNBOs)
  - 70% for advanced biofuels
  - 50% for other eligible fuels

Airlines will receive a total of some €100mn-worth of EU ETS allowance revenues to support SAF use relating to their 2024 operations. The support, in the form of around 1.3mn EU ETS permits, is split across 53 operators for 2024.

UK SAF Mandate obligation



- Mandate on jet fuel suppliers
- Buy-out at £4.70/l (£5,875/t) for main obligation, £5/l (£6,250/t) for PtL target
- HEFA capped at 71% in relation to SAF supply in 2030 and 35% in 2040

To help market participants optimise their compliance with the UK obligation, **in December 2025, Argus launched the first assessed price for UK HEFA SAF certificates.**

This enables participants to compare the cost of purchasing SAF certificates, blending physical HEFA SAF, and paying “buy-out” costs in case of non-compliance. These tradeable certificates are generated by supplying eligible SAF in the UK and are then redeemed by obligated parties to comply with the mandate.

The e-SAF conundrum

Bio-based SAF alone will not be sufficient to meet ambitious European decarbonisation targets. Mandates for the use of e-SAF – also called synthetic SAF, produced directly from electrolytic hydrogen and carbon dioxide molecules – in aviation will come into effect in 2028 in the UK and in 2030 in the EU, with hefty penalties in case of non-compliance.

But the industry is far from ready for the upcoming obligations. Of the 70 proposed e-SAF projects tracked by Argus, no commercial-scale plant has yet reached a final investment decision (FID). Plants take three to four years to build, so 2026 is a pivotal year for the industry if upcoming targets are to be met.

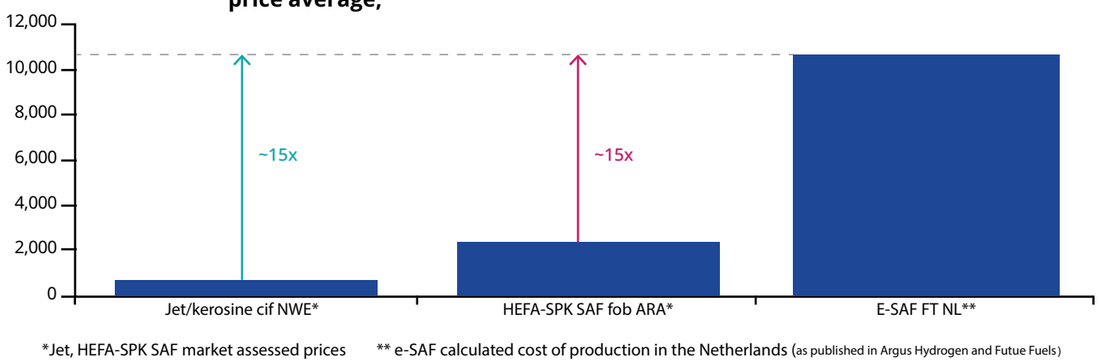
Long-term offtake agreements are key to the financing of the new production plants, but buyers and sellers are struggling to agree on a price point for the fuel. This is creating a disconnect between supply obligations and demand, and stalled investments.

To help bring transparency in this space, Argus launched modelled costs of production for e-SAF in the Netherlands. Argus prices are based on the cost of renewable hydrogen produced with electricity supplied under power purchase agreements (PPAs) and the Fischer-Tropsch synthesis process.

e-SAF is a pioneering technology and more expensive than HEFA-SPK SAF and conventional jet fuel. The Argus calculated cost for e-SAF production in the Netherlands were around 15 times the cost of jet fuel and around 4.5 times the price of HEFA-SPK in May-December 2025.



May-December 2025 price average, USD/t



*Jet, HEFA-SPK SAF market assessed prices ** e-SAF calculated cost of production in the Netherlands (as published in Argus Hydrogen and Futue Fuels)

EU, UK ETS & Corsia overview

The EU and UK SAF mandates do not exist in isolation, but fit into broader air travel decarbonisation initiatives, including Corsia and the EU and UK ETS schemes.

The EU ETS is a cap-and-trade system designed to incentivise decarbonisation in certain sectors using a market-based mechanism. Participants must purchase carbon allowances equivalent to their emissions for a given year and hand them into the EU ahead of the annual compliance deadline the following September to comply. The system covers electricity, energy-intensive industry, aviation and maritime emissions.

The aviation sector has been included in the system since 2012. The EU ETS applies to intra-European Economic Area (EEA) flights and those departing the EU to the UK and Switzerland. But the European Commission will review by July 2026 whether coverage should be extended to all departing international flights, if Corsia is deemed insufficient to tackle emissions from these journeys.

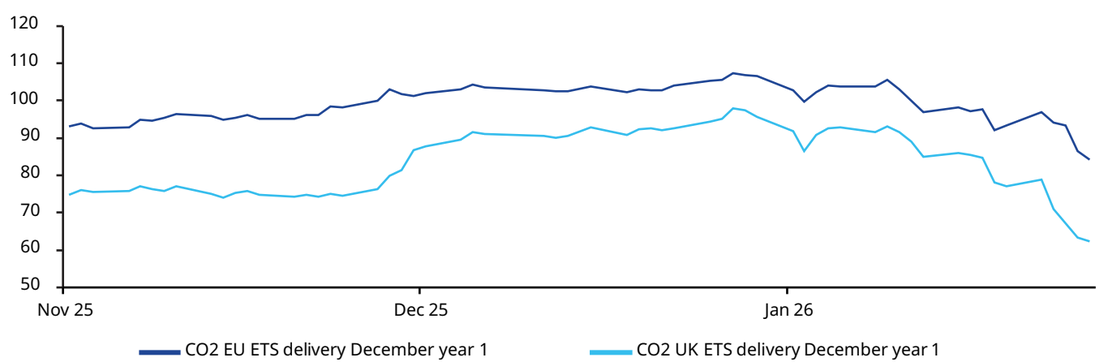
The aviation sector has historically received a large proportion of its EU ETS allowance free — 82pc in the ETS's third trading phase (2013-20) — to guard against so-called carbon leakage, whereby companies relocate to other jurisdictions to avoid carbon costs. But the allocations have been reduced over the past two years, and as of 2026 the sector must pay for 100pc of its allowances.

The UK ETS — which launched in 2021 after the UK left the EU ETS as part of Brexit — largely replicates the structure of the EU ETS. The scheme covers the same sectors as the EU ETS with the exception of maritime emissions, which will be added from 1 July 2026.

The UK ETS applies to domestic flights, and those departing the UK to the EEA and Switzerland. The aviation sector received free UK ETS allowances over 2021-25, but must pay for 100pc of its allowances as of 2026.

Argus provides assessments of the prompt, front March, and front four December delivery contracts for both the EU and UK ETS markets.

EU, UK, ETS, December delivery, USD/t CO2e



Beyond Europe, the Carbon Offsetting and Reduction Scheme for International Aviation (Corsia) is a global initiative approved by the UN's International Civil Aviation Organisation (ICAO) to help airlines meet their CO2 reduction commitments. Corsia has so far attracted 130 countries to voluntarily offset growth in CO2 emissions for international flights beyond 85pc of 2019 levels by 2035, and achieve net zero emissions by 2050.

Implementation of the scheme has been divided into three phases. Corsia offsetting rules for the pilot phase in 2021-23 and the current "first phase" (CP1) during 2024-26 apply only to flights between states that volunteered to participate in the scheme. In the ultimate "second phase" in 2027-35, all international flights will be subject to the offsetting requirements, with a few exceptions.

Offsetting requirements start from the year 2024, and under the current phase, airlines must acquire and retire Corsia eligible emissions units (EEUs), to offset emissions in 2024-26, by 31 January 2028.

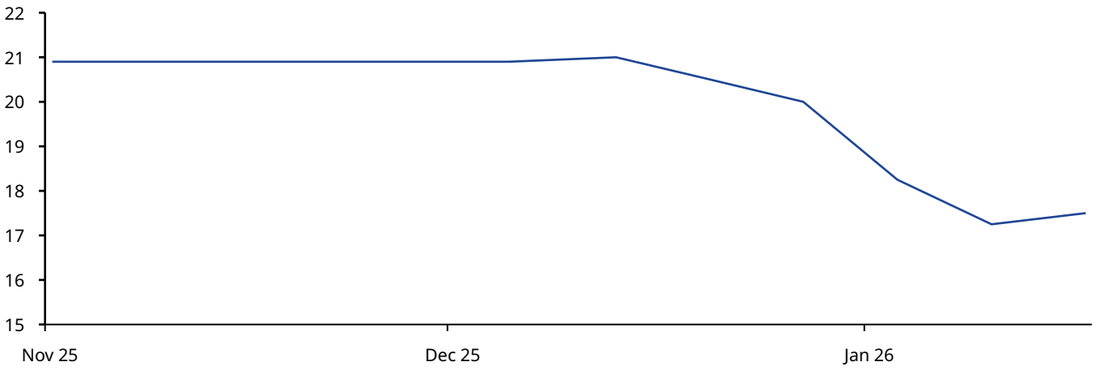
Airlines can meet their offsetting obligations by using Corsia-compliant sustainable aviation fuel (ASF) or by purchasing credits that meet Icao's requirements in the voluntary carbon market (VCM).

Supply of the latter has expanded significantly in the first months of 2026 to almost 32.5mn tagged credits, following years of supply bottleneck.

About 25mn of these were issued by a J-REDD+ (jurisdictional reducing emissions from deforestation and forest degradation) project based in Guyana and registered with the Architecture for REDD+ Transactions (ART) carbon registry. While clean cookstoves projects in Africa and southeast Asia listed on the Verra and Gold Standard registries issued the remaining supply. But the market is still undersupplied ahead of the 2028 compliance deadline, when the International Air Transport Association forecasts airlines will be looking to purchase just over 200mn credits in the average-demand scenario.

To bring much needed transparency to a market that's expected to grow exponentially. Argus launched Corsia Phase 1 (CP1) price assessment for credits approved for the CP1 phase and generated in 2021-2026.

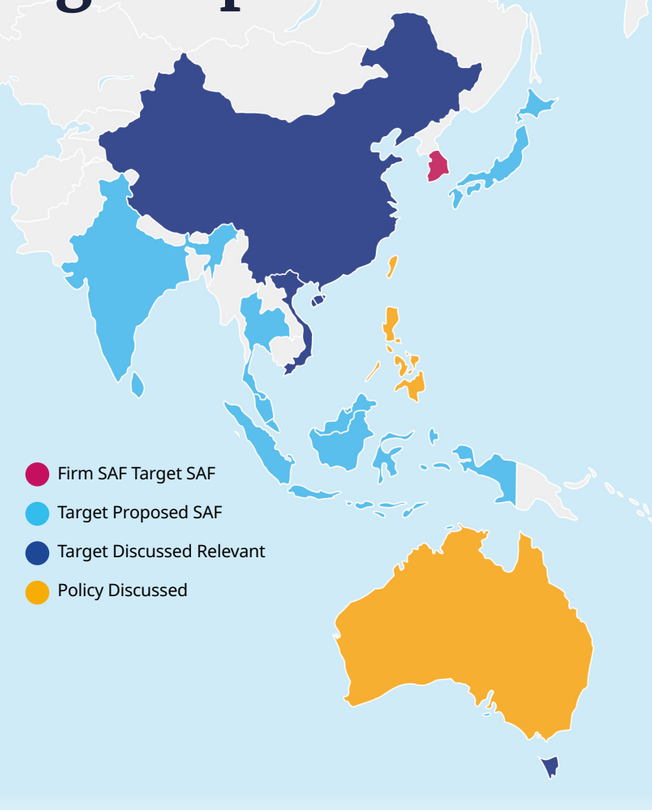
Emissions London Corsia Phase 1 (CP1) Eligible Emission Unit (EEU), USD/t CO2e



Asia-Pacific: National initiatives taking shape

Progress to introduce SAF blending obligations or legislate consumption targets in Asia-Pacific has so far been slower than in Europe, but the potential for SAF uptake in the region is significant considering its estimated 105mn t of jet consumption. This figure is expected to inch higher in the coming years, to around 130mn t in 2030.

Firm designation reflects targets that have been enacted, have a proposed implementation mechanism.



Asia-Pacific – Firm + Proposed and Discussed SAF Targets (% vol.)

Country	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Thailand	-	1.0-2.0	1.0-2.0	1.0-2.0	1.0-2.0	3.0-5.0	3.0-5.0	3.0-5.0	5.0-8.0	5.0-8.0	5.0-8.0
Japan	-	-	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0
Singapore	-	1.0	1.0	1.0	1.0	3.0-5.0	3.0-5.0	3.0-5.0	3.0-5.0	3.0-5.0	3.0-5.0
Indonesia#	-	-	1.0	1.0	1.0	2.5	2.5	2.5	2.5	2.5	5.0
Malaysia	-	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
China	Targets beyond 2025 under discussion										
South Korea^	-	-	1.0	1.0	1.0	3.0-5.0	3.0-5.0	3.0-5.0	3.0-5.0	3.0-5.0	7.0-10.0
Australia	-	-	-	-	-	-	-	-	-	-	-
India^	-	-	1.0	2.0	2.0	5.0	5.0	5.0	5.0	5.0	5.0

 # Indonesia's recent roadmap would replace previously enacted policies relating to biogenic jet fuel
^ international aviation fuel only

Americas: Focus on incentives

The US has previously set a voluntary target to supply 3bn USG of SAF in the domestic market by 2030, but the growth of the US SAF market has so far been driven by federal and state incentives rather than mandates.

While jet fuel suppliers have no obligation to bring to market lower-carbon alternatives, SAF blended in the US generates tradable credits that oil refiners can use to meet annual biofuel mandates.

The US also offers US SAF producers a sliding scale of subsidy based on their fuel's greenhouse gas emissions, rewarding refiners that source lower-carbon waste feedstocks like used cooking oil. The incentive was recently extended through 2029 but with changes – like lower SAF subsidies and requirements to use North American feedstocks – that could slow SAF growth. Subnational jurisdictions in the US and Canada have their own SAF incentives, including low-carbon fuel standard markets and tax credits.

Canada
SAF generates tradable credits under a federal low-carbon fuel standard program and a similar provincial system in British Columbia that includes the Americas' first ever SAF volume mandate kicking off in 2028. Additionally, British Columbia has a program commencing 2026 to require CI reductions in jet fuel use of 2% in 2026, reaching 10% by 2030.

Minnesota $1.50/USG tax credit for SAF produced or blended in Minnesota. Expires 1 July 2030.

Iowa $0.25/USG tax credit for in-state SAF producers for fuel that produces half as many greenhouse gas emissions as petroleum jet and is made from in-state feedstocks.

Illinois
$1.50/USG tax credit for airlines purchasing fuel used at airports within the state. Applies from 1 July 2023 to 31 December 2032.

Washington
Fuel that produces at least 50pc fewer CO2e emissions than conventional jet fuel and sold in the state is eligible for an initial $1/USG credit, up to $2/USG depending on carbon intensity.

Arkansas Up to 30pc of the cost of SAF production and processing equipment, provided the producer is located in-state, the SAF is derived from wood biomass, and construction of the plant begins on or before 31 December 2027.

Hawaii Production tax credit of $0.20/USG per 76,000 LHV BTU of renewable fuels sold in-state and with lifecycle emissions below that of fossil fuels on carbon intensity.

Brazil Brazil is the first country in the region to announce a SAF mandate. The Fuels of the Future law was signed in October 2024 stipulates the aviation sector will be required to reduce greenhouse gas emissions by 1pc in 2027, increasing to 10pc by 2037. This is equivalent to a 1.5pc volumetric blend in 2027, growing to 15pc in 2037 assuming soybean oil-based SAF usage.

Nebraska $0.75/USG tax credit for producers of SAF that reduce GHG emissions by at least 50pc compared to conventional jet fuel. Credits can be received for five taxable years between 1 January 2027 and 1 January 2035.

SAF market outlook

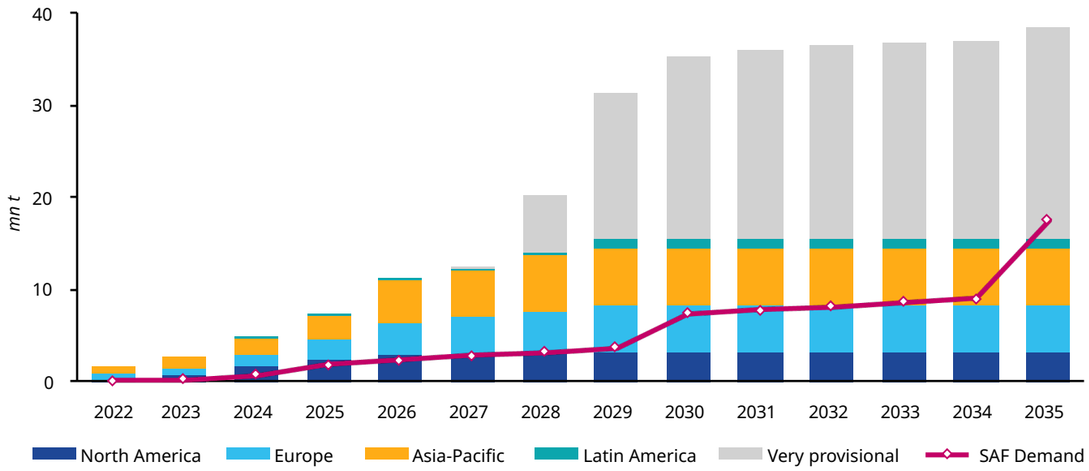
Global SAF demand was around 2mn t in 2025, and set to rise to 7.4mn t by 2030, and more than double again to 17.5mn t by 2035.

European SAF mandates are the primary drivers behind rising demand, accounting for around 60pc of SAF demand in 2025 and rising to 75pc by 2035. Mandates in Asia-Pacific will drive up demand in the region to 1.6mn t in 2030, but excess capacity in the region is expected to continue turning to exports. Reduced domestic production incentives in the US as well as the lack of binding blend mandates is slowing US SAF demand but excess production is poised for export to European markets.

SAF capacity outlook

Global SAF capacity is estimated at over 7mn t in 2025 and is set to double by 2028, rising to 14mn t, excluding very provisional projects. Considering all announced plans, including those that have not taken FID, capacity could increase to over 35mn t by 2030.

Global SAF capacity by region

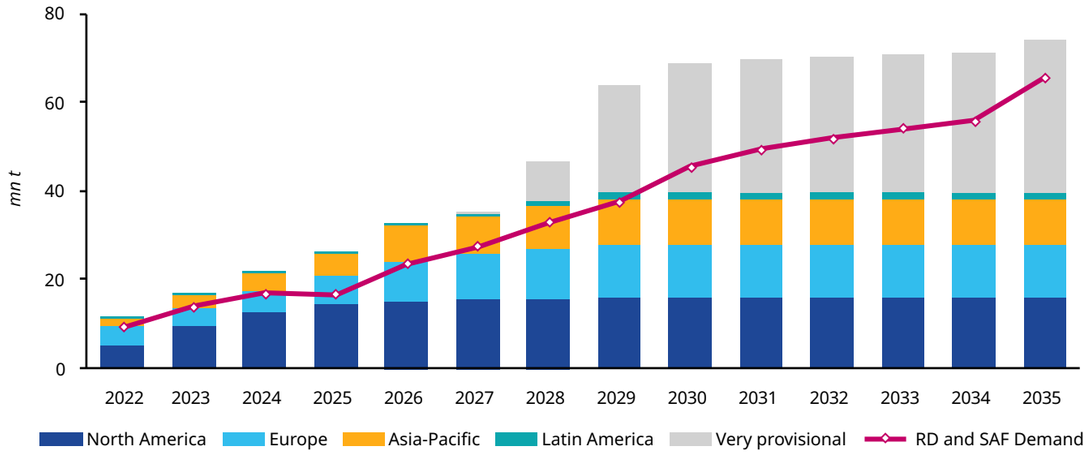


Pricing and demand forecasts for SAF, environmental credits and key biofuels, including biodiesel, renewable diesel and HVO, ethanol, and renewable feedstocks, can be found in **Argus Biofuels Outlook**.

Balancing renewable diesel and SAF capacity with demand

SAF capacity is set to outstrip demand well into the 2030s. However, when considering RD demand next to SAF demand and adding the capacities, the picture is much more balanced until 2030.

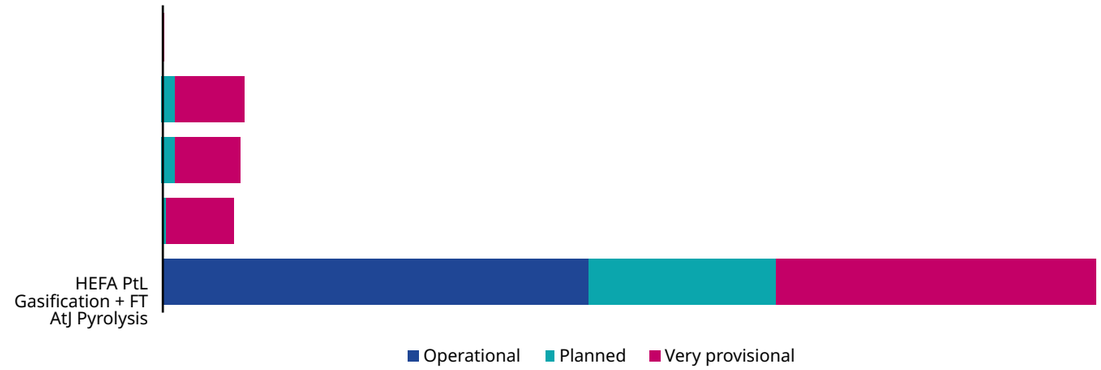
Global RD and SAF capacity by region



What comes after HEFA?

HEFA technology remains the dominant pathway for SAF production, as other technologies are not yet operating on a commercial scale. Legislative limits and feedstock restrictions will increase the emphasis on alternative technologies going forward. European mandates have included e-SAF targets from 2028 in the UK and 2030 in the EU, while the UK SAF mandate caps the contribution of HEFA from 2027. Therefore, other technologies will be required but progress towards final investment decisions (FIDs) for these projects is slow.

RD and SAF capacity by technology and project status, 2030



How is global feedstock availability affecting the SAF market?

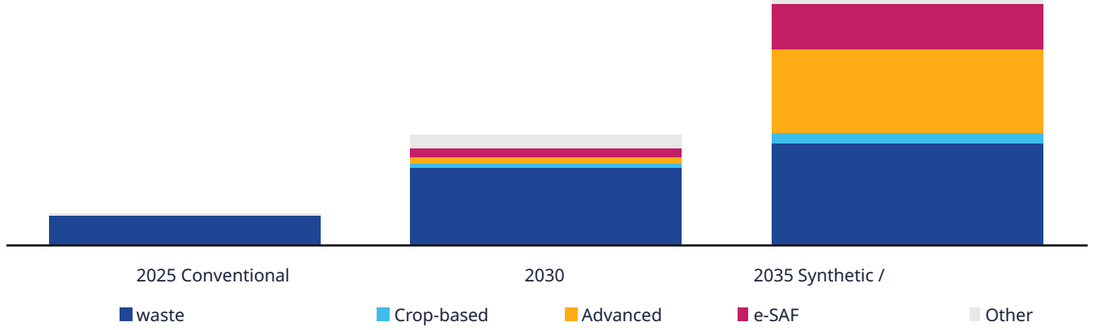
An evolving SAF feedstock mix

Today's SAF feedstock mix is dominated by conventional waste feedstocks, with Used Cooking Oil (UCO) at the forefront. This is largely driven by European SAF legislation, which excludes crop-based SAF.

By 2030, SAF demand in Asia-Pacific and Latin America will add crops to the feedstock mix, while European e-SAF sub-targets will require the contribution synthetic SAF made from green hydrogen and CO2. Further, the UK's HEFA cap from 2027 will require alternative technologies that process a wider pool of advanced feedstocks.

Looking ahead to 2035, SAF demand will exceed the availability of conventional wastes such as UCO. This will put further emphasis on advanced feedstocks, beyond just the UK HEFA cap. For example, intermediate crops and crops grown on degraded land can be counted as advanced feedstocks in Europe when used in aviation and are expected to start playing a larger role.

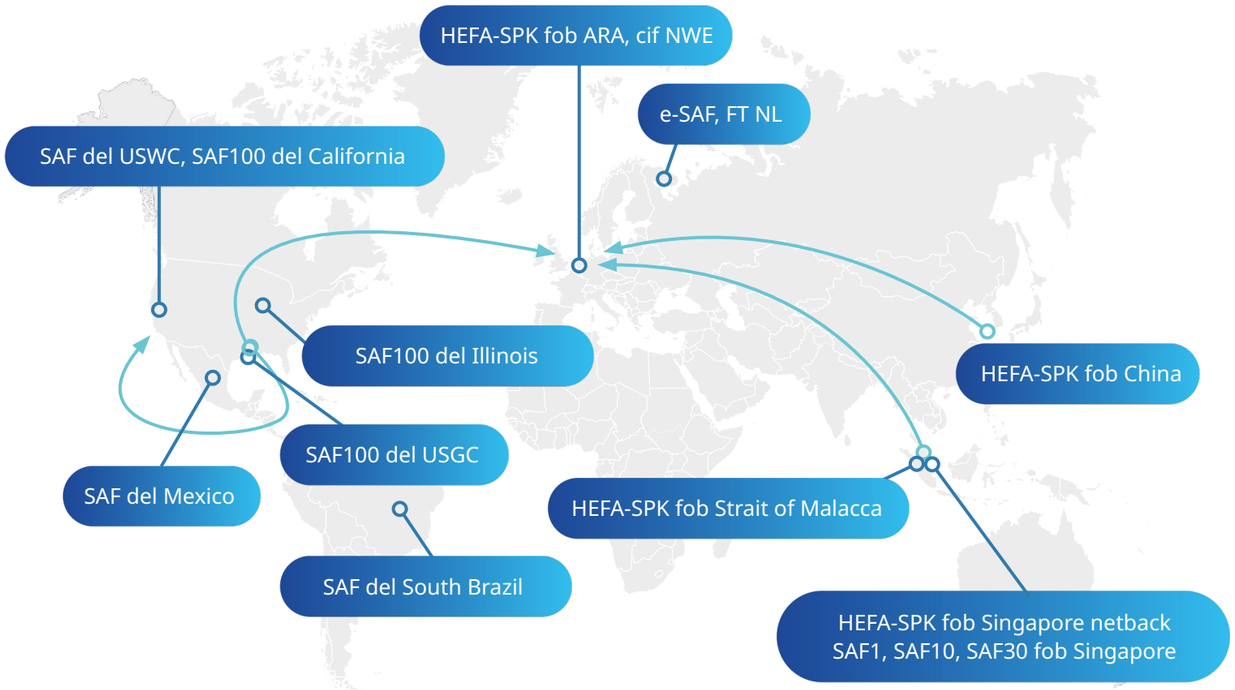
Global SAF feedstock mix





Argus delivers SAF pricing and risk management

Global suite of Argus SAF prices tracking evolving market flows

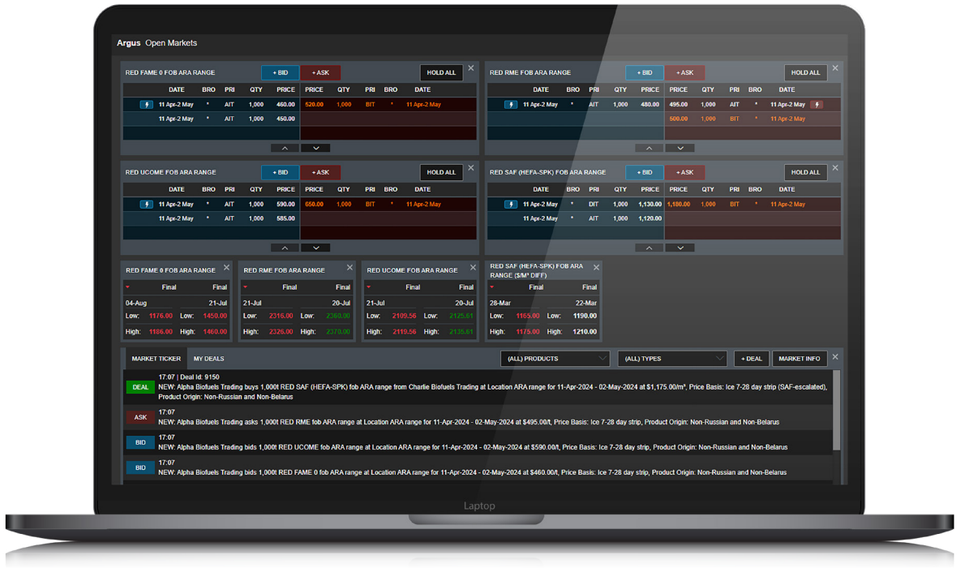


Trusted SAF price assessments are published as part of **Argus Biofuels** and **Argus Americas Biofuels**, alongside the latest market news and expert analysis.

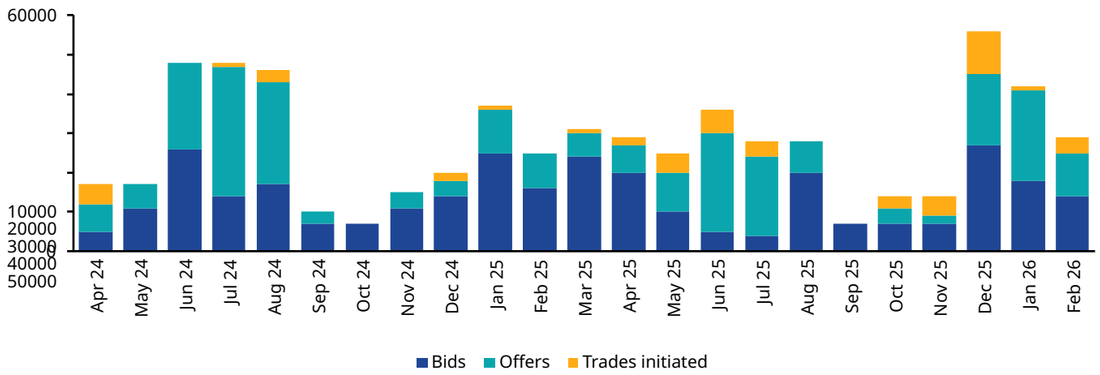
Argus Open Markets®: First HEFA-SPK price-discovery platform

Argus Open Markets (AOM®) is a web-based price discovery platform enabling market participants to post bids and offers and initiate trade for physical commodities in real time on the spot market.

- 2.5mn t of trade initiated on AOM® in 2025 across all biofuels.
- 56,000t of HEFA-SPK trade initiated on AOM® since the launch of the SAF AOM platform up to February 2026.

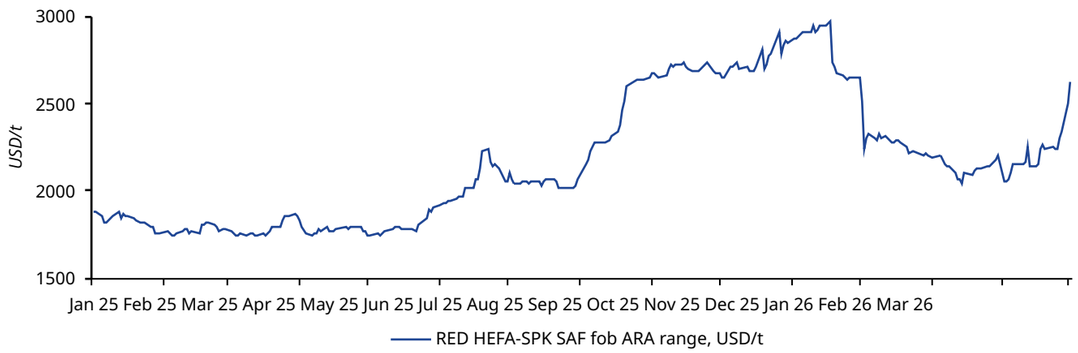


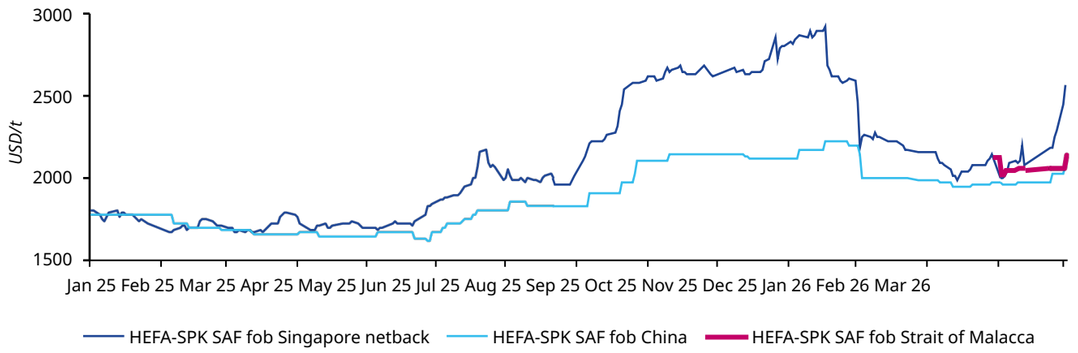
AOM HEFA-SPK SAF activity April 24-Feb 25, tonnes

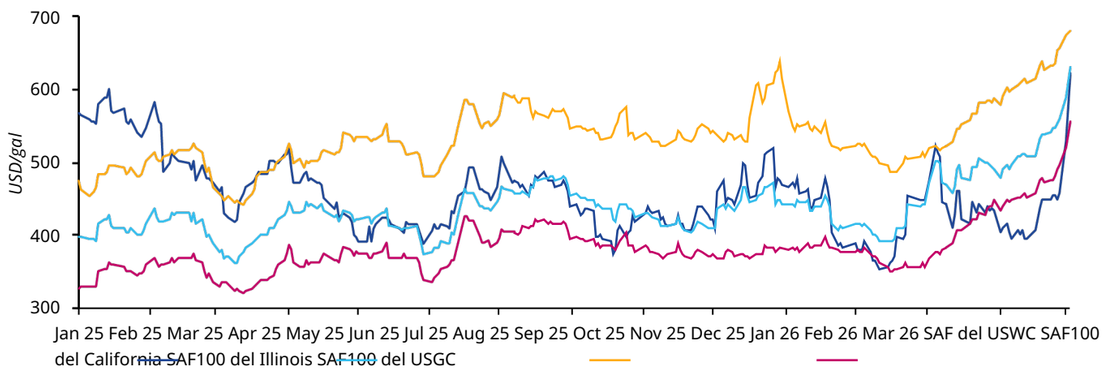


Driving innovation in risk management tools

Liquidity on the AOM® platform has been instrumental in the development of risk management tools, with Intercontinental Exchange (ICE) launching in December 2024 a SAF futures contract settled on the Argus HEFA-SPK fob ARA barge assessment, which has already traded several times.







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Navigate the complex and dynamic biofuels market landscape with transparent and trusted pricing, news and analysis.

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Comprehensive coverage of biofuels in the Americas, as well as renewable feedstock and credit markets.



Argus Biofuels Analytics
Fueling your business with critical insights and long-term analysis on the global biofuels markets.

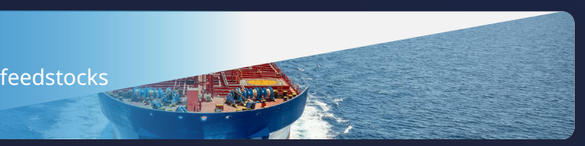


SAF Analytics supplement
The SAF Analytics supplement is an extract of the Argus Biofuels Analytics report, with relevant content curated by analysts to provide a more focussed outlook for demand, supply and pricing of SAF and feedstocks to 2035.

Argus International Biofuels Forward Curves Independent market valuation tool to support investment and trading decisions in biofuels markets.



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