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Bio jet fuel is nowhere near becoming mainstream

Recently, the Japanese government announced a [target](#) to boost the use of Sustainable Aviation Fuels (SAFs) to 10% of total jet fuel consumption by 2030 as an effort to extend its emission cutting campaign to the skies. Around the same time, Singapore Airlines also announced that it would kickstart a one-year pilot SAF [scheme](#) in 3Q 2022, joining the club of an existing 60+ airlines globally that have committed to adopting more SAFs.

SAFs generally refers to jet fuel that is made from sustainable feedstocks, biomass, waste or scrap materials. Compared to the traditional jet fuels it replaces, SAF emits up to 80% less carbon emission over its lifecycle while costing 2 to 10 times more. As it is largely a product under development, the variations in production methods mainly account for the wide price range.

In the case of Japan, SAFs are expected to be made from carbon dioxide, hydrogen, and municipal/industrial wastes. The Singapore Airlines pilot program will procure 1.25 million litres of neat SAF from Finnish oil refiner Neste Oyj using wastes and residues and mixed with refined jet fuel at Exxon Mobil's facilities in Singapore.

The use of SAFs started as early as 2008 mainly in North America and the Nordic region on a testing basis but there has not been any mass production or real adoption so far. Due to the obvious cost barrier, airlines have been reluctant to deploy such eco-friendly fuels on a large scale. In 2020, airlines only consumed a total of 63 million litres of SAFs worldwide, equivalent to less than 1% of all jet fuel annual consumption.

Compared to their Japanese and Singaporean counterparts, Chinese airlines have remained largely conservative in extending the adoption of SAFs despite testing flights having been conducted by major Chinese airlines such as Air China and China Southern Airline in the early 2010s. In the [Guiding Plan](#) recently issued by the Civil Aviation Administration, the Chinese regulator has set a target of 5 million litres of SAFs to be used between 2022 and 2025, including 2m litres for the year 2025 alone, while it plans to initiate SAFs pilot programs at major airline hubs. The same document also guided its domestic aviation sector to further reduce the carbon intensity of passenger and cargo

transportation by 14% and 4.5% by 2025, respectively. With a massive aviation sector under its supervision, the Chinese regulator appears to have taken a more prudent approach to reduce carbon footprint by replacing older, more fuel-intensive planes and by retrofitting airport facilities rather than going all-in with eco-friendly bio jet fuel.

The European Commission has also proposed to extend its climate ambition with its [Fit for 55 Climate](#) Package, which includes a mandate to include 2% SAF in 2025 and 5% in 2030. However, the plans have not been officially approved yet and EU ETS (Emissions Trading Systems) remain the only tool available to regulate the sector's carbon emissions in Europe.

During the past two years, environmental initiatives within the aviation sector have been largely overshadowed by the ongoing pandemic as airlines globally have been struggling to find their financial footholds. However, the environmental footprint of the sector shall not be easily overlooked as it currently accounts for 2.5% of carbon emissions globally and as air traffic is still expected to grow substantially during the post-covid era. According to the International Civil Aviation Organization (ICAO), the sector is [estimated](#) to grow at 4.3% CAGR from 2015 to 2035 with Asia leading the growth at 6%+ CAGR.

As the sector gradually recovers now that most countries have learned to "live with Covid", we expect more push for green transitioning to take place in the aviation industry. As the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) by ICAO enters the second year of its pilot phase, more airlines are expected to play a more active role in the scheme and in other environmental initiatives. It would hopefully lead to more climate-related initiatives across the aviation sector.

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