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California's green leap towards sustainable aviation fuel

MARKET INTELLIGENCE REPORT

Report

The reduction of carbon emissions from jet fuel is a challenge being grappled with globally. It is also a pillar of California's climate response efforts. The state is taking steps towards increased production and use of sustainable aviation fuel (SAF) as it looks to lead US climate response efforts for fuel decarbonisation. However, challenges to implementing production incentives are impacting its targets, while the industry's demand for access to a greener emissions profile continues to increase.

Clearing the skies: What is sustainable aviation fuel and why is it so hard to attain?

Over the past months there has been increasing commentary in California on the growing use of sustainable aviation fuel (SAF) from both Los Angeles (LAX) and San Francisco airports.

SAF is an alternative fuel that has potential to dramatically reduce lifecycle carbon emissions compared to traditional jet fuel (up to 85%), and is a 'drop in' replacement. It is synthesised from feedstocks such as forestry residues, cooking by-products like vegetable oil, algae, animal fats, or waste from landfill, agriculture, and municipal solid waste. While the climate benefits of SAF are significant, the aviation industry is encountering challenges in scalability, cost, and availability.

Given the aviation industry is dependent on jet fuel, transitioning to sustainable alternatives on a larger scale demands substantial increases in production capacity. Four years ago, SAF accounted for just 0.1% of global fuel supply compared to the current 1%. With over 50 airlines now planning to use SAF to partially operate their flights, demand is soaring.

Global SAF production is currently limited. This is partly due to low incentives and high costs for oil refineries. The raw materials used to produce SAF are also used in other industries like food, cosmetics, and chemicals. Competition for these feedstocks further drives up prices and limits the international supply available for SAF production. Striking a balance between using feedstocks for SAF while ensuring food security and avoiding environmental impacts from land-use change is a complex task for policymakers looking to incentivise production.

These constraints on production are increasingly recognised, and with low supply and high demand, SAF is currently sold for up to four times the price of regular jet fuel.

Industries are attempting to make headway on SAF usage. United Airlines promotes its use of SAF from LAX on its 140 daily flights, however, it notes that only 0.1% of its overall fuel use is currently SAF. Another commercial stakeholder in the US investing in SAF is the Bank of America, who have made a US\$1.5 trillion, ten-year [sustainable finance commitment](#). This includes committing US\$2 billion in sustainable finance for SAF production and other low carbon aviation solutions, and a 10-year partnership with SkyNRG to support the production of 4.5 million litres of SAF per year, beginning in 2025. The Bank of America also has a [three-year agreement](#) with American Airlines to support the purchase of 3.8 million litres of SAF annually.

California's green leap: State Legislature passes bill to achieve 20% SAF use by 2030

California continues its work to achieving its goal of carbon neutrality by 2045, requiring a 94% reduction in petroleum use and 86% percent reduction in total fossil fuel use between 2022 and 2045. Efforts to mitigate challenges in implementing SAF production incentives may impact these targets.

In late August 2022, the California Legislature passed a [bill](#) that will require the California Air Resources Board (CARB) to develop a plan to incentivise the production of sustainable fuels. In doing so, this bill will set a SAF usage target for aircraft in California of at least 20 percent by 2030. This bill will require CARB to begin implementing the plan by July 2024.

In creating the plan, CARB will quantify greenhouse gas reductions associated with SAF, identify barriers to the SAF production targets, set milestones for achieving the targets, ensure that SAF incentives are comparable to other renewable fuel incentives, and identify tools for increasing SAF supply and demand, including buildout of relevant infrastructure.

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