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# THE FUTURE OF FLIGHT: SUSTAINABLE AVIATION FUEL

*Aviation is soaring towards a greener future, and at the heart of this transformation is Sustainable Aviation Fuel, or SAF. But what exactly is SAF, why is everyone in the industry talking about mandates, and what's the story behind the new SAF Bill?*

## WHAT IS SAF?

SAF is a next-generation fuel designed to reduce the carbon footprint of air travel. Unlike traditional jet fuel, which is derived from "fossil" crude oil sources, SAF is a certified jet fuel that is produced from a blend of fossil fuels and synthetic components, including renewable feedstock such as plant and cooking oils, agricultural waste, and even household rubbish. The magic of SAF lies in its ability to be blended with conventional jet fuel and used in existing aircraft engines, all while slashing lifecycle greenhouse gas emissions by up to 80%. In short, SAF allows us to keep flying without weighing so heavily on the planet.

## THE SAF MANDATE

To accelerate the adoption of SAF, governments and regulators are introducing mandates—rules that require a certain percentage of aviation fuel to be sustainable. The idea is simple: by setting clear targets, the industry is incentivised and

encouraged towards investing in greener alternatives. The UK's SAF Mandate commenced on 1 January 2025 and requires aviation fuel suppliers to provide increasing amounts of SAF, starting at 2% of jet fuel demand in 2025, increasing to 10% in 2030 and 22% in 2040 where it will remain until there is greater certainty regarding SAF supply. The Mandate also provides certainty for producers and investors, helping to scale up production and bring costs down. For airlines, it is a clear signal that the days of fossil-only flying are numbered.



## INFRASTRUCTURE TO REACH SAF MANDATE TARGETS

To meet the targets set in the SAF Mandate, the UK government is supporting the production, distribution, and utilisation of SAF. In 2022, the UK's Advanced Fuels Fund ("AFF") was launched, allocating £135 million for the development of SAF production plants in the UK and on 29 January



2025, the Government announced a further £63 million investment into the AFF to support SAF producers across the UK including in Teesside. The UK currently has only one industrial scale SAF refinery facility, but we understand that five commercial SAF plants expected by 2025. The government is also offering fuel producers a share of £400,000 of government funding to support the testing and qualification of greener fuels.

These efforts are essential to ensure that the aviation sector can transition smoothly to using SAF and achieve the mandated targets. SAF is also a cornerstone of the UK's Jet Zero initiative, which aims to achieve net-zero aviation emissions by 2050. The Jet Zero strategy outlines various measures, including increasing the uptake of SAF, improving aircraft efficiency, and developing zero-emission aircraft technologies. SAF is critical in reducing the carbon footprint of the aviation sector, as it can significantly lower greenhouse gas emissions compared to traditional jet fuels. By integrating SAF into the Jet Zero initiative, the UK is positioning itself to meet its ambitious climate goals while fostering innovation in aviation.

## SAF BILL: THE UK'S LEGISLATIVE LEAP FORWARD

On 11 June 2025, the SAF Bill had its second reading in the UK House of Commons. The purpose of the SAF Bill is to support the production of SAF by establishing a revenue certainty mechanism. Key features include:

- + **Revenue Certainty Contracts:** Guarantees stable prices for SAF producers through contracts, balancing market and strike prices and ensuring a minimum price, managed by a government-owned counterparty.
- + **Secretary of State Powers:** Can direct, revoke, and set terms for contracts for up to 10 years (extendable), and provide financial assistance (grants, loans, guarantees, insurance) to the counterparty.
- + **Levy on Suppliers:** Aviation fuel suppliers must pay a levy (varying by market share, with possible exemptions) to fund the revenue certainty contracts and related costs; suppliers may also be required to provide financial collateral.
- + **Surplus and Penalties:** Surpluses may be returned to levy payers with rules to ensure customer benefit; financial penalties up to

£100,000 or 10% of turnover for breaches, with a clear process for notices, appeals, and recovery.

- + **Transparency and Regulation:** Public register and publication of contract details (with redactions for sensitive information); broad regulatory powers, including consultation with devolved governments.
- + **Scope and Commencement:** Applies UK-wide; most provisions immediate, contract provisions start two months after Royal Assent.

## WHY DOES THIS MATTER?

The SAF Bill is more than just another piece of legislation—it's a bold step towards decarbonising one of the most challenging sectors. The Bill will soon progress to the House of Lords before receiving Royal Assent. Legislation is expected to be in place by the end of 2026. For aviation stakeholders, it opens up a new world of regulatory compliance, contract negotiation, and risk management. For the industry, it's a call to innovate and collaborate. And for the planet, it's a breath of fresh air.

But how does the UK stack up against the global competition? The UK is certainly in the race, but it's not quite leading the pack.

Norway and Sweden appear to be flying ahead when it comes to SAF. Norway has a blending obligation for aviation fuel suppliers, mandating a minimum 0.5% SAF content, aiming to reach 30% by 2030. Sweden has imposed a greenhouse gas emissions reduction obligation for jet fuel suppliers with an initial mandate of 1% in 2021, increasing to 30% by 2030.

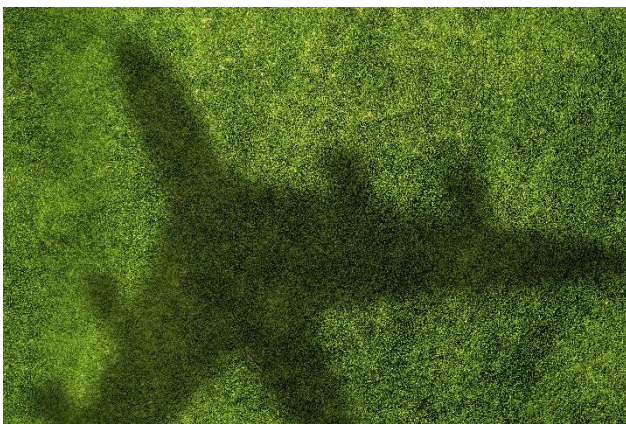
The European Union ReFuelEU regulation has a target of 2% SAF at EU airports by 2025, increasing to 70% by 2050.

In 2022, then President Joe Biden introduced tax credits and grants for SAF production in the Inflation Reduction Act. There was almost \$300 million in investment towards SAF and developing technologies as well as the establishment of the Sustainable Aviation Fuel Grand Challenge which was aimed at scaling up SAF production in the US, with a target of 3 billion gallons of SAF by 2030, aiming to meet 100% of aviation fuel demand with SAF by 2050. However, on his first day in office President Trump froze the Inflation Reduction Act 2022 and signed the executive order, 'Unleashing



American Energy' which was considered a significant setback for SAF. Indeed, some SAF producers have announced a halt in production, while they await government clarification on whether the tax credits will continue. Some positive steps are still being taken, with the new administration approving a SAF refinery loan in Montana in February 2025.

The UK's approach is robust and evolving, but staying ahead will require constant innovation and a willingness to learn from international frontrunners.



## SAF'S ROLE IN MEETING CORSIA TARGETS AND ETS

SAF is integral to helping airlines meet the targets set by the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). CORSIA aims to stabilise CO<sub>2</sub> emissions from international aviation at 2019 levels by requiring airlines to offset any emissions above this baseline. SAF can play a crucial role in reducing the overall emissions of airlines, thereby decreasing the need for offsets. While not currently, mandatory, it is anticipated that it will become so from 2027. In 2025, there are 129 states voluntarily participating in CORSIA.

On 19 May 2025, the UK and EU revealed plans to connect their respective Emissions Trading Systems (ETS) as part of their newly formed strategic partnership. The aim is to enhance cooperation on carbon emissions and potentially exempting each other from their Carbon Border Adjustment Mechanisms (CBAMs). This proposed linkage, which would be governed by an arbitration-based dispute resolution process and ultimately overseen by the Court of Justice of the European Union for EU law matters, still requires further formal steps, including ongoing consultations and authorisations from both sides.

The UK is also in the process of developing its own CBAM, with a technical consultation open until July 2025.

Simultaneously, the European Commission is preparing for a 2026 review of the EU ETS by inviting stakeholder feedback through a public consultation and is considering further changes to the EU CBAM as well as introducing an Industrial Decarbonisation Accelerator Act later in 2025. These developments signal significant regulatory and operational changes ahead for both EU and non-EU businesses, as the region continues to refine its approach to carbon regulation and industrial decarbonisation. Currently, Switzerland remains the only non-EEA country with a linked ETS agreement with the EU, highlighting the complexity and significance of the proposed UK-EU linkage.

## SAF IN ACTION: VIRGIN JFK FLIGHT

In November 2023, Virgin Atlantic flew the world's first 100% SAF flight from London to JFK in a Boeing 787. This government-backed initiative showcased the feasibility of SAF in long-haul flights and highlighted the UK's commitment to advancing green aviation technologies.

Sadly, the achievement of operating the first net zero transatlantic flight using 100% SAF was marred by the ensuing investigation by the Advertising Standards Authority, which upheld the complaints that Virgin Atlantic's claim of operating a 100% SAF flight was misleading. Full details behind the reasoning of the ruling can be found in our briefing note: ["When is 'Sustainable Aviation Fuel' not sustainable?"](#). What the ruling does demonstrate is a lack of understanding both by consumers and even authorities, like the Advertising Standards Authority, about what SAF and being fully SAF mean. It is crucial to educate the public and stakeholders about the benefits and limitations of SAF to garner support and drive adoption.

## SAF'S IMPACT ON NEXT-GEN AIRCRAFT

Aircraft manufacturers are actively working on next-generation aircraft designed to be more compatible with SAF. Boeing are actively working with suppliers to understand how 100% SAF interacts with the aircraft components that come into contact with the fuel. By developing aircraft that can maximise the benefits of SAF,





manufacturers are contributing to the broader goal of reducing aviation emissions.

All Airbus aircraft are already certified to fly with up to 50% SAF which has the potential to reduce lifecycle CO2 emission by up to 80% on average. Airbus has pledged to go beyond this, and for the next generation of Airbus aircraft to be able to fly with a blend of up to 100% SAF.

Similarly, Boeing has also announced that by 2030, all its commercial aircraft will be certified to fly with 100% SAF.

These efforts are essential to ensure that the aviation industry can meet its environmental targets and transition to a more sustainable future.

## REALISM OF REACHING SAF TARGETS AND POTENTIAL BARRIERS

The initial SAF Mandate target of 2% of jet fuel to be SAF in 2025, is achievable and on track. Whereas, the targets for 2030 and 2040, are ambitious, and several barriers could impede progress. These include high production costs, limited availability of feedstock, technological challenges, and regulatory hurdles. Airlines may face difficulties in sourcing sufficient quantities of SAF and integrating it into their operations. Additionally, the financial implications of transitioning to SAF could be significant, requiring substantial investment.

If the targets are not met, there could be consequences for carriers, including financial penalties as outlined in the SAF Bill 2025.

These barriers, however, are being addressed. Airbus is advancing the use of SAF by trialling a "Book and Claim" system, which is designed to make SAF more accessible and encourage its global adoption. This method enables buyers to purchase SAF certificates and claim the related emissions reductions, regardless of where the actual fuel is used, thus overcoming logistical barriers and supporting customers who may not have direct access to SAF supplies.

To support this initiative, Airbus has signed a memorandum of understanding with several industry partners, demonstrating a collective commitment to increasing SAF usage. Throughout 2025, Airbus will act as an intermediary by acquiring SAF certificates, managing their sustainability credentials through the Roundtable

on Sustainable Biomaterials, and reselling them to interested operators. This approach is expected to stimulate both supply and demand for SAF, helping to accelerate the aviation sector's transition to more sustainable energy sources.

## SO WHERE DO WE LAND ON SAF?

The SAF Bill marks a significant step forward for the UK's aviation industry, setting clear mandates and providing the financial and regulatory framework needed to accelerate the transition to greener skies. With government support, industry collaboration, and a focus on innovation, the sector is now firmly on the path to reducing its carbon footprint. While challenges remain, such as scaling up production and managing costs, the direction is clear. The journey to net-zero aviation is underway, and with continued commitment, sustainable flight is becoming a reality for the UK and beyond.

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