

Voluntary Report – Voluntary - Public Distribution

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Report Name: Sustainable Aviation Fuel in the UK

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Report Highlights:

As part of a broad push towards reducing carbon emissions in the aviation sector, the newly elected Labour government is seeking to bolster the United Kingdom's (UK) Sustainable Aviation Fuel (SAF) industry, which builds on initiatives and policies from the prior administration. The nascent UK SAF is experiencing significant growth and is on a promising trajectory, contributing to the country's broader efforts to achieve net-zero emissions by 2050.

Executive Summary

Policy and programs

As part of a broad push towards reducing carbon emissions in the aviation sector, the newly elected Labour government is seeking to bolster the United Kingdom's (UK) Sustainable Aviation Fuel (SAF) industry, which builds on initiatives and policies from the prior administration. The UK is making significant strides in through a combination of legislative, regulatory, and industry-driven initiatives. Labour's introduction of the Sustainable Aviation Fuel (Revenue Support Mechanism) Bill aims to provide financial incentives and regulatory support to bolster production, increase the proportion of SAF used in aviation fuel, and accelerate the adoption of SAF. Voluntary industry targets, such as those set by major airlines to incorporate SAF into their fuel mix, are complementing these efforts. Additionally, the adherence to specific sustainability criteria, including the International Sustainability and Carbon Certification (ISCC), is intended to ensure that the UK's SAF production meets high environmental and social standards.

Market developments

The UK SAF market is on a promising trajectory, contributing to the country's broader efforts to achieve net-zero emissions by 2050. The nascent UK SAF market is experiencing significant growth, driven by escalating production, robust and expanding supply chains and rising demand. Domestic efforts to boost SAF production are evident as various facilities ramp up their capacities, converting waste materials into SAF. The demand for SAF is also surging as airlines commit to reducing their carbon footprints by incorporating SAF into their fuel mix. Distribution infrastructure is also evolving, with investments in fueling stations at major airports to facilitate the widespread use of SAF.

Policy and Programs

Jet Zero

Commercial and private jets have operated for some years using SAF blended up to 50% with fossil jet kerosene. In December 2022, the UK government awarded Virgin Atlantic funding to facilitate the first transatlantic flight on a commercial aircraft powered entirely with SAF. This flight took place on November 28, 2023. In April 2024, His Majesty's Government (HMG) went further and unveiled a ["jet-zero" strategy](#) to decarbonize air travel, setting targets to ensure that by 2030, SAF accounts for at least 10 percent of all jet fuel used in flights originating in the UK. This strategy included creating a 'Jet-Zero Council' to accelerate net zero aviation and allocating £135 million (\$173.8 million) to 13 SAF production projects across the country.

Mandate on SAF Production

Commitment by Labour to Maintain Prior Administration SAF Mandate

In April 2024, following extensive consultations with the aviation industry, the prior UK administration published a long-awaited mandate on SAF production. Following the election of Labour government in July 2024, newly appointed Secretary of State for Transport Louise Haigh (Rt Hon Haigh) confirmed this mandate will remain in effect. On July 22, Rt Hon Haigh announced that pending Parliament approval, beginning January 1, 2025, 2 percent of jet fuel supplied in the UK must be SAF (around 287.5 million liters). This requirement will steadily increase over the coming years -requiring 10 percent of domestic jet fuel to be SAF by 2030 (around 1.5 billion

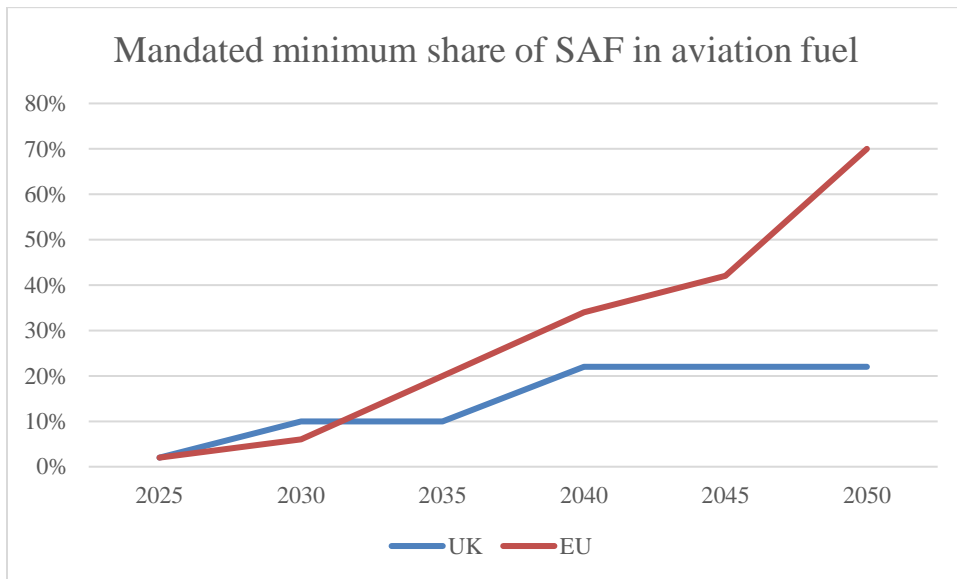
liters), and 22 percent by 2040. This will apply ‘primarily’ to commercial flights, and not to private aircraft, as the obligation is on suppliers of jet fuel. Over the next 5 years this equates to an average annual increase of 1.6 percent of SAF in the overall aviation fuel supply.

Emission reductions and traceable certificate scheme

HMG anticipates that the mandate will reduce emission by up to 2.7 metric tons of carbon dioxide-equivalent (MtCO₂e) in 2030 and up to 6.3 MtCO₂e by 2040. Although CORSIA eligible SAF assumes a 10% net GHG emissions reduction compared to the fossil fuel baseline of 89 g CO₂e/MJ, this reduction must be 40% to be eligible for certificates from the mandate. The mandate is also expected to generate economic growth, with Labour estimating domestic SAF production will add over £1.8 billion (\$2.3 billion) and over 10,000 jobs to the UK economy.

The mandate will also introduce a traceable certificate scheme for aviation fuel suppliers. Suppliers will receive a certificate proportional to the amount of GHG emissions reduction they achieved in the previous year. These certificates can then be used to meet the mandate obligations, and excess certificates can be sold to other suppliers who may need additional certificates.

A key feature of the mandate is the buy-out mechanism, which allows obligated suppliers to discharge their obligations if they are unable to secure a supply of SAF, whether by imports or from domestic production. This mechanism sets a maximum price for Mandate certificates, preventing excessive costs from being passed on to consumers. The buy-out price is designed to encourage the supply and trading of SAF certificates over the use of the buy-out option, promoting actual emission reductions.



Other UK Commitments on SAF

The UK is a signatory to the International Civil Aviation Organization’s (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) standards. The UK has committed to meeting SAF sustainability criteria under this scheme. In addition, the UK government has elected to adopt the Renewable Transport Fuel Obligation’s (RTFO) renewable fuels methodology for calculating the lifecycle carbon intensity of SAF. The UK

has indicated that its RTFO methodology is more stringent than the CORSIA and not at odds with the UK's ICAO commitments.

Sustainable Aviation Fuel (Revenue Support Mechanism) Bill

As part of the [King's speech](#) in July, the Labour government has introduced a legislative proposal aimed at addressing carbon emissions in the aviation sector. The [Sustainable Aviation Fuel \(Revenue Support Mechanism\) Bill](#) seeks to promote the production and use of SAF through a series of additional financial incentives and regulatory measures. The bill, which is a key component of the Labour's strategy to achieve net-zero emissions by 2050, includes provisions for subsidies, tax credits, and grants to support SAF producers and users. It also establishes a robust regulatory framework to ensure the quality and sustainability of SAF, including stringent standards and a certification process for producers. In addition to financial and regulatory support, the bill emphasizes the importance of research and development. It allocates funding for innovation grants, collaborative projects, and pilot programs to advance SAF technologies and improve production processes. Market development is another critical aspect of the bill, with measures to offer long-term contracts to procure supply from SAF producers, facilitate public-private partnerships, and invest in infrastructure to support SAF distribution and use. Environmental impact is at the forefront of the bill's objectives, with specific targets for carbon emissions reductions in the aviation sector and criteria to ensure that SAF production does not negatively impact food security, biodiversity, or land use. The introduction of this bill marks a significant step forward in the UK's efforts to combat climate change and reduce the carbon footprint of the aviation industry. The bill aims to align UK's domestic strategies with international efforts to promote sustainable aviation.

Sustainability criteria

The International Sustainability and Carbon Certification (ISCC) is playing a significant role in shaping the SAF industry in the UK. The UK does not have specific regulatory or legal obligations mandating ISCC certification. However, the ISCC is widely recognized and used to ensure compliance with sustainability criteria, including those set by the RTFO and alignment with international standards such as the EU's Renewable Energy Directive (RED).

ISCC certification is intended to ensure that SAF production does not lead to deforestation, loss of biodiversity, or other negative environmental impacts. This certification also sets criteria for greenhouse gas savings, requiring that SAF must demonstrate a significant reduction in emissions compared to conventional jet fuel. The ISCC includes rigorous auditing and traceability requirements, which are intended to support transparency and that sustainability criteria are met throughout the supply chain. Compliance with ISCC standards can enhance market access for UK SAF producers and help them meet regulatory requirements and UK market expectations for sustainability.

Voluntary Industry targets

In the UK aviation sector, key actors have introduced voluntary targets to incorporate SAF and other renewable fuels. [British Airways](#), [Heathrow Airport](#) and [Rolls Royce](#) have all committed to achieving net zero carbon emissions by 2050. Additionally British Airways and Virgin Atlantic have targets of 10 percent SAF in their flights by 2030. Investment in SAF production, research and SAF-compatible engines and technologies has also been prominent in recent [industry announcements](#). This represents industry's view that SAF will be a significant component of UK aviation's path to net zero emissions.

Markets

Consumption

UK jet fuel consumption was almost 14 billion liters in 2023, of which SAF made up less than 1%. UK SAF consumption was around 48 million liters in 2022 and 138 million liters in 2023. If the UK SAF mandate is fully implemented, then SAF demand is expected to reach 287.5 million liters by 2025, increasing to 1.5 billion liters in 2030. Prior to the announcement of the UK's Sustainable Aviation Fuel (Revenue Support Mechanism) Bill, around half of this demand was expected to be supplied by previously planned production capacity. However, critics predict that growth in overall jet fuel usage in the UK is expected to nearly entirely negate any CO₂-eq emissions reduction due to the incorporation of SAF.

In 2023, the UK currently imported around 64 percent net jet fuel and is expected to maintain a dependence on imports. If domestically produced SAF can keep up with growing demand, this may reduce the UK's reliance on imported jet fuel. However, this will depend on the feedstocks and technologies used to produce domestic SAF. The export of UK SAF products will depend on the UK SAF products being able to meet other countries sustainability and/or input requirements.

Price

In 2024, the price of SAF in the UK, although falling, remains considerably higher than conventional jet fuel prices. In the UK under the SAF mandate, the buy-out price for SAF combined with low supplies (compared to conventional jet fuels make) will translate into higher costs for consumers as the proportion of SAF in commercial flights increases, until SAF production is able to scale up. The Sustainable Aviation Fuel (Revenue Support Mechanism) Bill may increase the investment and commercialization of new technologies such as the Fischer-Tropsch and alcohol-to-jet processes, which could lower UK SAF fuel prices in the future. The SAF prices have been falling in recent months; the SAF price floor is expected to meet HVO prices, as hydrotreaters swap to HVO production as the SAF price premium drops. The implementation of the UK SAF mandate in January 2025 may increase the price of SAF.

Production

Currently, only one facility in the UK is producing SAF (Phillips 66, using co-processing waste oils in Yorkshire), and is expected to produce around 50 million liters of SAF per year by 2025. Eight more facilities have been publicly announced and are set to begin production over the coming years. Notable planned production facilities include Lanzatech Dragon, producing 102 million liters of alcohol-to-jet fuel coming into operation in 2026 and Altalto Immingham, producing 20m gallons per year from waste coming into operation in 2027. The previous UK government committed to having at least five commercial-scale SAF plants under construction by 2025.

SAF used in the UK is currently made from waste oils, including used cooking oil (UCO). Hydro-processed Esters and Fatty Acids (HEFA) and co-processing are expected to be the principal production pathways for SAF used in the UK in the short-term. The availability of waste fats and oils is expected to limit the future scalability of the HEFA production process. The amount of HEFA eligible under the SAF Mandate will decrease from 71 percent in 2030 to 35 percent in 2040 as HEFA is gradually phased out. For this reason, the UK is expected to

pivot it's SAF sector towards other production pathways in the medium-to-long term as the competition for waste fats and vegoils, especially between Europe and North America, intensifies.

Attachments:

No Attachments.