The SAF Bill is welcome but must promote the most effective type of SAF

Transport & Environment are Europe's leading advocates for clean transport and energy, with over thirty years' of working on UK transport policy. We welcome the Sustainable Aviation Fuel bill, but there are significant improvements necessary to ensure it delivers a sustainable fuel industry which brings growth and jobs to the UK.

The bill will create a 'revenue certainty mechanism' (RCM) by setting a guaranteed price for UK-produced SAF. This is a welcome innovation to provide financial reassurance to investors in UK SAF plants, especially as it will be funded by a levy on fuel suppliers under the 'polluter pays' principle, rather than by taxpayers.

The RCM is a counterpart to the SAF mandate which started in January 2025. Under the mandate, fuel suppliers must blend the following annual percentages of SAF into the total UK aviation fuel mix: 2% in 2025, rising to 10% in 2030, and close to 24% in 2040. There is also a 'sub-mandate' requiring the following proportions of e-SAF: 0.2% in 2028, rising to more than 0.5% in 2030 and 4.5% in 2040.

Fuel suppliers with inadequate/excess SAF supply can trade certificates with each other to meet their obligations, or pay a penalty to 'buy-out' of their obligations altogether. Imported SAF can be used to meet obligations.

The RCM can boost UK industry by providing fuel suppliers with the option of using UK-produced SAF, not imports, to fulfill their SAF mandate obligations.

However, not all SAF types are equally sustainable or scalable, and the bill should be amended to reflect this.

We strongly recommend that the Government allocate a portion of revenue support specifically to the domestic production of synthetic e-SAF, the most sustainable and scalable SAF type.

What is SAF?

SAF is a broad term that encompasses a range of fuels made by different methods, some of which are more sustainable and scalable than others. The types of SAF broadly fall into four groups:

1. **HEFA (hydroprocessed esters and fatty acids)** are fuels developed from oils or fats, such as used cooking oil (UCO). Imported UCO has been subject to

instances of mislabelling and fraud with virgin palm oil linked to deforestation labelled as UCO. Sources of HEFA feedstocks are also limited meaning HEFA will be unable to satisfy the entirety of the UK's SAF mandate. HEFA is excluded from RCM support, something that T&E welcome.

2. **Non-HEFA biofuels** (also called advanced biofuels) are fuels made from biogenic wastes and residues, such as the biogenic fraction of municipal solid waste. UK Government SAF rules say these biofuels can be made from sources like forestry or agricultural residues but not from food, feed or energy crops. The sustainability of such biofuels can vary dramatically depending on their sourcing. Advanced biofuels are expected to be scarce due to limited feedstocks with competing uses and will be insufficient to meet SAF demand in the long run.
3. **Recycled Carbon Fuels** are fuels made from fossil wastes that cannot otherwise be avoided, reused or recycled such as plastics or industrial flue gases. However, because they rely on fossil carbon and energy inputs and emit CO_2 when combusted, they are not carbon neutral.
4. **E-SAFs**, also known as Power to liquid (PtL) fuels, 'e-fuels', or 'synthetic fuels', are usually made by combining carbon captured from the air with hydrogen electrolysed from water using renewable energy. Only e-SAF is truly sustainable and scalable. If made with additional renewable electricity and CO_2 captured directly from the atmosphere, it can be highly scalable. It avoids the land-use impacts, indirect emissions, and feedstock constraints associated with other types of SAFs, such as biofuels, and can reduce lifecycle emissions by over 90%.

   The Government has acknowledged that e-SAFs 'are less reliant on scarce feedstocks and subject to other potential negative environmental impacts' than other SAF types.

Although there are a number of proposed UK e-SAF projects, e-SAF has high start-up costs and is energy intensive, and no project has yet achieved a final investment decision. The RCM can help make these projects a reality, enhancing energy security and supporting economic growth, exports and UK jobs in the production of a fuel of the future.

Risks of not supporting UK e-SAF production

Without dedicated RCM support for e-SAF, the mechanism risks only supporting biofuels and recycled carbon fuels that have limited feedstock availability, are less

sustainable and are not climate neutral. This would be a huge missed opportunity and would lead to two key risks.

Firstly, without domestic production of e-SAF, UK fuel suppliers may simply import supplies from abroad to meet their e-SAF mandate obligations. Already, International Airlines Group (IAG) - owners of British Airways - has recently committed to buying US-produced e-SAF. The RCM must be used to avoid an early industrial opportunity being lost to other global players.

Secondly, there is a serious risk that global e-SAF supply will not meet demand. T&E analysis shows that while more administrations around the world are mandating the use of SAF, notably the EU's ReFuelEU Aviation scheme with its own e-SAF mandate, global e-SAF supply remains constrained with no plants in Europe gaining a final investment decision as of yet.

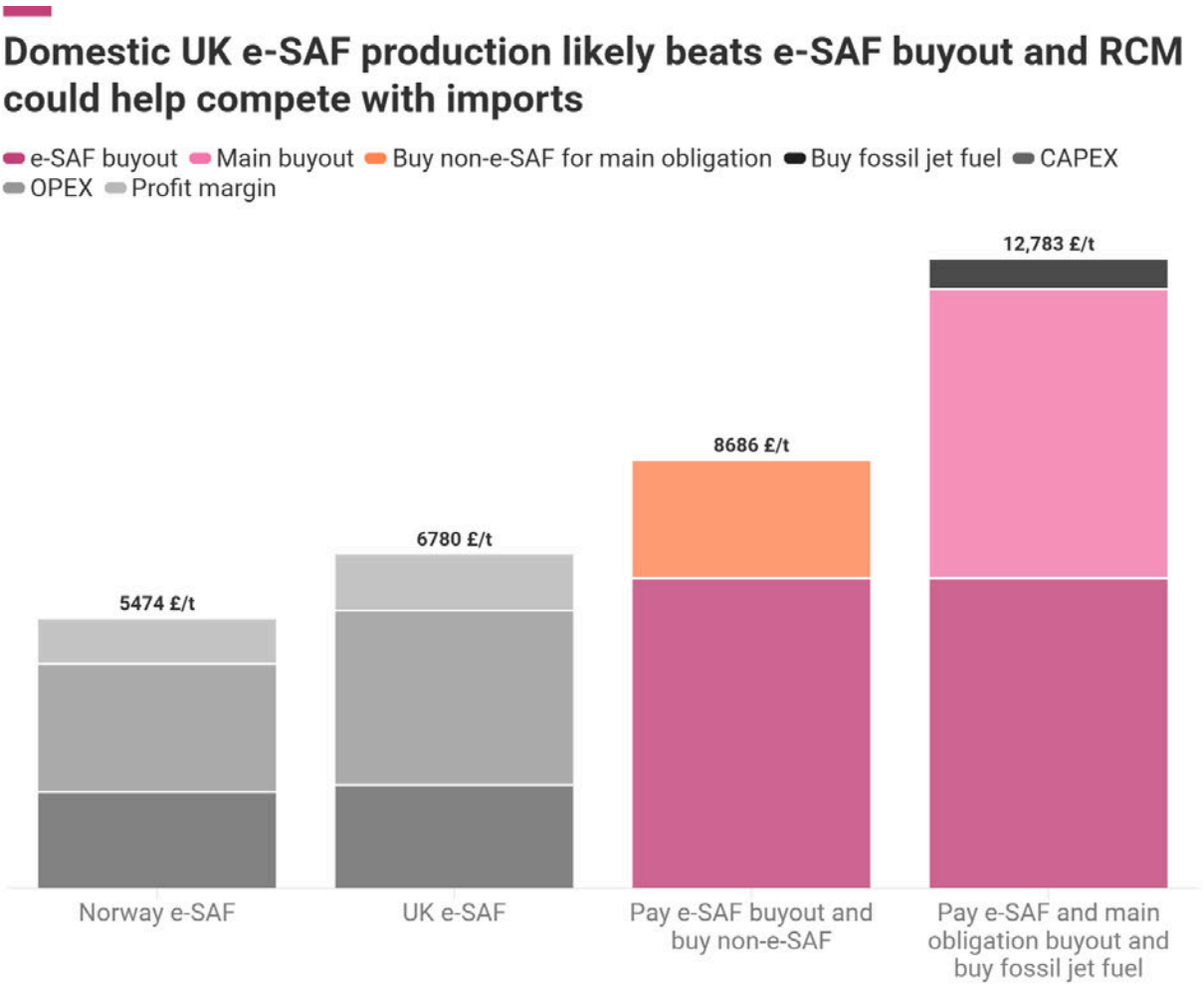
Without enough production of e-SAF, fuel suppliers may struggle to meet their SAF mandate obligations, which could lead to calls from industry for the e-SAF mandate to be weakened or scrapped altogether. This would jeopardise the UK's industrial opportunity in this area and the achievement of the UK's climate obligations.

Viability of e-SAF

Although e-SAF plants have high start-up costs and require large amounts of electricity, our analysis shows that UK e-SAF production can still be viable.

As shown in the graph below, even accounting for the relatively high price of UK electricity, a unit of UK-produced e-SAF could be cheaper and therefore more attractive to fuel suppliers than them 'buying out' of their e-SAF mandate obligations. This is because fuel suppliers would not only have to pay the e-SAF buy-out obligation, but also procure more (non-e-) SAF to meet the main SAF obligation that e-SAF would have covered. Buying out of both the e-SAF and main obligation would be very costly - more than £12,000 per tonne of fuel. A more likely scenario is where a fuel supplier considers buying out of their e-SAF obligation and procuring another form of (non -e-) SAF to meet their main obligation instead, costing around £8,700 per tonne in total. This would still cost more than buying UK-produced e-SAF, estimated at around £6,800 per tonne.

In addition, energy costs form a large part of e-SAF OPEX. The RCM could help bridge the price gap between domestic e-SAF and imports from countries with lower clean energy costs, such as Norway whose potential e-SAF price is shown in the graph.



Source: T&E, based on Project SkyPower cost model for grid-connected Fischer-Tropsch 80 kt/yr e-kerosene plant in different regions, average 2023 HEFA price (EASA) as proxy for non-e-SAF and assume 600 £/t of fossil jet fuel. Assume 0.86 £/€.

Improvements to the bill to ensure that the RCM supports the delivery of the e-SAF mandate

To ensure the RCM is effective at supporting the most sustainable and scalable e-fuels, the bill should commit a proportion of RCM support to e-SAF projects - at least enough to enable production to meet the SAF Mandate's e-SAF quota of around 65,000 tonnes of e-SAF in 2030, equating to one large plant.

Without ensuring that some of the RCM goes towards e-SAF there is a risk that the funding is used exclusively for advanced biofuels. This risks a lack of supply of e-SAF, forfeiting the jobs and growth benefits that would come from supplying the fuel domestically, and potentially, the e-SAF mandate quota not being met. We propose the following:

- The public bill committee insert a new subsection to clause 1 of the bill, requiring the Secretary of State to direct the designated counterparty to ensure sufficient revenue certainty contracts are issued throughout the operation of the revenue certainty mechanism to meet the UK e-SAF submandate.[1] This includes a minimum of one direction to offer to enter a revenue certainty contract specifically for "power-to-liquid aviation fuel"[2], by the end of 2027.

- Clause 16 is amended as follows: "sustainable aviation fuel" means aviation fuel that is renewable transport fuel, and includes "Power-to-liquid aviation fuel as defined in article 2(1) of the Renewable Transport Fuel Obligations (Sustainable Aviation Fuel) Order 2024""[3]. This would ensure that e-SAF projects can be funded under the RCM.

- Ministers to publicly state their support for e-SAF projects as eligible, viable and fundable under the RCM. This would give investors greater confidence to move towards final investment decisions in the UK's e-SAF projects.

Beyond the bill itself, we call for e-SAF production to be considered as a recognised energy-intensive industry, as outlined in the recent industrial strategy, and eligible to benefit from lower electricity costs.

A more detailed explanation of T&E's position can be found on our website.

Further information

Dr Roger Tyers

UK Aviation Policy Manager, T&E

roger.tyers@transportenvironment.org

[redacted]

[1] The e-SAF submandate is defined as the "power-to-liquid aviation fuel obligation" in Article 3 of the Renewable Transport Fuel Obligations (Sustainable Aviation Fuel) Order 2024

[2] "Power-to-liquid aviation fuel" as defined in article 2(1) of the Renewable Transport Fuel Obligations (Sustainable Aviation Fuel) Order 2024)

[3] See article 2(1) of the Renewable Transport Fuel Obligations (Sustainable Aviation Fuel) Order 2024