

Net Zero, Energy and Transport Committee
Tuesday 28 October 2025
31st Meeting, 2025 (Session 6)

Legislative Consent Memorandum on the UK Sustainable Aviation Fuel Bill: consideration of the LCM and of wider issues around SAF in Scotland

Introduction

1. The UK Government's [Sustainable Aviation Fuel Bill](#) is under consideration in the UK Houses of Parliament. On 25 July, the Scottish Government lodged a [Legislative Consent Memorandum \(LCM\) on the Bill](#). An LCM is laid when a Bill in the UK Parliament makes provision (a) for any purpose within the legislative competence of the Scottish Parliament or (b) that alters the legislative or executive competence of the Scottish Government. The LCM sets out the Scottish Government's position on whether the Scottish Parliament should consent to such provisions.
2. The Parliamentary Bureau has referred the LCM to the Net Zero, Energy and Transport (NZET) Committee as lead committee. The NZET Committee's role is to report on the LCM to the rest of the Parliament. The main purpose of the report will be to express a view on whether the Scottish Parliament should consent to the provisions in the UK Bill in relation to which the Scottish Parliament has devolved powers or which affect the Scottish Government's executive competence.
3. However, in gathering evidence on the LCM, the Committee has also agreed to take the opportunity for wider consideration of the prospects for sustainable aviation fuel (SAF) production and distribution in Scotland and for it being used to reduce the carbon footprint of flights in Scotland. This fits in with the Committee's overall remit of keeping a watching brief on Scotland's energy transition and progress on transport decarbonisation.

What the UK Bill does and what consent issues the Scottish Parliament is being asked to consider

4. The LCM explains that that the Bill—

“... enables the Secretary of State (SoS) for Transport to fund financial assistance, by way of a levy imposed on suppliers of aviation fuel, to a designated counterparty (a company limited by shares, with shares held by a Minister of the Crown) so that the counterparty may, at the direction of the SoS,

enter into revenue certainty contracts with sustainable aviation fuel producers. This is intended to reduce revenue risk in relation to the production of SAF and support SAF production in the UK, leading to a reduction in aviation emissions.”

5. The LCM adds that the Scottish Government—

“... support the Bill’s overall aims which should help to increase the production and uptake of SAF, thereby reducing aviation emissions, and could help to encourage the establishment of commercial SAF production facilities in Scotland.”

6. In broad terms, the LCM seems to indicate general agreement between the UK and Scottish Government that—
- provisions in the Bill specifically creating the levy relate to taxation; a generally reserved matter. Therefore, no consent is required in relation to most/ all provisions about the levy;
 - most of the remaining provisions in the Bill are about decarbonising the aviation industry and protecting the environment. These are not reserved matters and consent is therefore required.

7. The LCM recommends that the Scottish Parliament consent to most of the latter provisions but that—

“The Scottish Government is still to reach a position on consent in relation to clauses 1, 3, 10, 11 and the schedule as far as it relates to devolved matters. These provisions are subject to ongoing discussion with the UK Government and will be the subject of a supplementary legislative consent motion.”

8. These provisions all give the UK Government the power to make regulations within reserved areas. Some of these provisions require UK Ministers to consult devolved administrations before making the regulations, but not seek their consent. In other cases, no formal requirement to consult devolved Ministers is set out. More detail about the technical detail of these proposed regulations is in paragraphs 17-21, 25-27, and 35-46 of the LCM.

What is SAF?

9. SAF is not one thing. The key characteristic is that all types are normally considered to be [drop-in fuels](#) which means they can be mixed with conventional fossil aviation fuel with no need to adapt the engines or re-fuelling infrastructure. A [trial trans-Atlantic flight](#) on a Boeing 787 with 100% SAF took place in 2023. [Fuel standards currently allow](#) for a 50% SAF blend in commercial jet engines.
10. The [House of Commons Library Briefing](#) for the UK Bill divides SAF into three main types.
11. **First generation (bio-derived)** are ‘oil feedstocks (raw materials) from either crops or waste sources are processed to make a type of SAF called hydro-

treated esters and fatty acids (HEFA). First generation SAFs are already being produced on a commercial scale, including in the UK.' A Royal Society report on [Net Zero Aviation Fuel](#) also includes hydrogenated vegetable oil (HVO) alongside HEFA as possible biologically based jet fuels.

12. **Second generation SAF:** 'can be made using waste feedstocks including municipal solid waste (such as black bin bag waste). Second generation SAF has received government funding for pilot projects (through the Advanced Fuels Fund) and is seen as ready to scale and commercialise in the UK. Grains, sugar crops and some types of waste can also be processed in a process known as alcohol-to-jet, which is also generally considered to be second generation SAF.'
13. **Third generation SAF:** 'also known as e-SAF, synthetic fuels, or "power to-liquid" (PtL) aviation fuel, is made using electrolysis, powered by renewable electricity, to extract hydrogen from water. The hydrogen is then synthesised with carbon dioxide into liquid fuels. Third generation SAF has also received UK Government funding but is at an earlier stage of development than second generation SAF.' E-kerosene and synthetic kerosene [are other terms](#) used for fuel generated by combining hydrogen (H₂) and carbon dioxide (CO₂).
14. SAF [currently represents](#) a very low percentage of UK jet fuel, accounting in 2022-23 for less than 1% of the jet fuel consumed that year. Globally, SAF [represents less than](#) 0.1% of global jet fuel volumes.

Decarbonising aviation

15. Scotland's legislative target is to be net zero in emissions by 2045. Aviation is considered one of the most [difficult sectors to decarbonise](#). In modelling for net zero, there are typically projected to be residual emissions in the aviation sector, which must be offset (i.e. with "negative emissions" through separate interventions such as tree planting) to achieve the final target. In the modelling included in the [Climate Change Committee's advice on](#) Scottish Carbon Budgets, aviation is responsible for 16% of residual emissions in 2045.
16. The [Explanatory Notes](#) for the UK Bill state that, on average, emissions from SAF are 70% less than fossil jet fuel on a lifecycle basis. The UK Government [Cost Benefit Analysis](#) for the SAF Mandate includes emission saving assumptions in its Annex 7.3. There are Best, Worst and Central assumptions and assumptions for now and in the future. The Central assumptions for 2035 range from 55% reductions (for SAF from Waste Wood) to 100% (for SAF using Direct Air Capture, of carbon). HEFA from used cooking oil has a 97% saving assumption and SAF from municipal solid waste a 94% saving.
17. SAF has other advantages over conventional fuels. For instance, research [conducted by](#) the National Aeronautics and Space Administration (NASA) and the German Aerospace Centre (DLR) showed that SAF can produce 50%-70% fewer soot particles, which could reduce the warming impact of contrails.

18. But SAF is not the only approach to decarbonising aviation. The International Air Transport Authority's [Aircraft Technology Net-Zero Roadmap](#) states:

'The upcoming aircraft platforms capable of flying long and extra-long-haul flights should be fully or partially powered by SAF, while hydrogen options should be available for mid- and short-range flights in the near future. Commuter flights for very short range should be able to be powered by batteries. Nearing 2050, battery technology may be mature enough to power regional flights and hydrogen technologies could be scaled up to long-haul flights.'

19. The Scottish Government's [Hydrogen Action Plan](#) sets out a hierarchy of expected hydrogen uses, with aircraft placed around the middle.

20. Overall, as SAF is a relatively new form of fuel not yet employed at scale, the extent to which it, in its different forms, can contribute to decarbonisation is still being discussed and evaluated.

Sustainable aviation and Scotland

21. As noted, the Scottish Government's reason for broadly supporting the UK Bill is that it hopes it will be one of the interventions that could kickstart commercial SAF production facilities in Scotland. Paragraph 13 of the LCM adds that—

"There are currently no commercial SAF production facilities in Scotland. However, the UK Government's AFF has provided funding for the development of a demonstration production module operating in Orkney¹ and a commercial scale plant. Project Willow, a feasibility study to identify potential alternative projects that could be developed to secure a long term, new industrial future at Grangemouth, included two SAF projects. The Scottish Government continue to work closely with the UK Government to try to realise the SAF opportunities identified. Scottish Enterprise stands ready to support inward investors looking to progress any of these potential projects and has already received several early stage enquiries relating to SAF production."

22. Two out of the nine potential projects identified in the [Project Willow paper](#) involved SAF production. Other potential projects involved hydrogen, the use of which as means of powering air travel is, as noted, also being explored.²

Previous consideration

23. On [30 September](#), the Committee took evidence from a panel comprising:

¹ This is a reference to the [Sustainable Aviation Test Environment \(SATE\)](#): the UK's first operationally based low-carbon aviation test centre, based at Kirkwall Airport.

² The Committee took evidence earlier this year on the hydrogen aspects of Project Willow: on [13 May](#) and [20 May](#)

- [Graham Hutchings FRS](#), Regius Professor of Chemistry, Cardiff University, Chair of Working Group on [Net zero aviation fuels: resource requirements and environmental impacts](#);
- Celeste Hicks, Policy Manager, [Aviation Environment Federation](#), an NGO campaigning on aviation's impacts for people and the environment;
- Mark Morrison, [Optimat](#): consultants commissioned by Scottish Enterprise in 2023 to author [Synthetic/Sustainable Aviation Fuel Mapping](#) an independent assessment to understand the capability/interest of industry and research organisations in Scotland to support the adoption of SAF;
- [Professor Mercedes Maroto-Valer](#), Director UK Industrial Decarbonisation and Innovation Centre and a member of Professor Hutchings' working group;
- [Seb Eastham](#), Associate Professor in Sustainable Aviation, Imperial College London. Author of [Sustainable aviation fuel: what does it mean for airport expansion?](#)

24. Following the evidence session, the Committee agreed to take evidence from a further panel of witnesses, then from the Scottish Government.

Evidence session on 28 October and next steps

25. On 28 October, the Committee will take evidence from:

- Simon McNamara, Head of Government and Corporate Affairs, [Loganair](#);
- Doug McKiernan, Chief Technology Officer and Co-founder, [Zero Petroleum](#);
- Ralph Lavery, Net Zero Applications Engineer, [CATAGEN](#)

26. The Committee also received a written submission ahead of this session from Unite the Union (see **Annexe**).

27. Following the evidence session, the Committee will discuss the evidence heard and any next steps. The Committee is likely to take evidence on the LCM from the Scottish Government in the next few weeks and to consider and agree a report to the Parliament shortly after that.

28. As noted above, the Scottish Government has indicated that it is reserving its position on consent in relation to certain order-making powers in the Bill and is seeking to reach resolution on these with the UK Government. It has indicated an intention to lay a supplementary LCM in due course. The Committee hopes to be able to consider the supplementary LCM before its evidence session with the Scottish Government.

Clerks to the Committee
October 2025

Annexe – Submission from Unite the Union

Scottish Parliament Net Zero Committee: Sustainable Aviation Fuel

Introduction

This submission is made by Unite, the UK's largest trade union with over one million members across all sectors of the economy, including manufacturing, financial services, transport, food, agriculture, construction, energy, utilities, information technology, service industries, health, local government and the not-for-profit sector. Unite also organises in the community, enabling those who are not in employment to be part of our union.

Unite represents 64,000 members who work directly for the airports, airport suppliers, civil aviation industry and their suppliers. Unite additionally represents thousands of members in the aerospace industry, military aviation, oil and gas and fuel processing industries.

We cannot divorce the fact that this discussion and submission is taking place in the wake of the end of fuel production at Grangemouth Scotland's only refinery. To Unite and those committed workers at the plant this constitutes a horrific act of industrial vandalism and seismic failure in one of the first tests of any Just Transition policy. A joined up industrial strategy would have constituted a plan, inclusive of Sustainable Aviation Fuel development that would have secured jobs and economic activity in the local area.

Unite supports and proudly organises workers in critical industries which are energy and carbon intensive and involve the extraction, processing and transport of fossil fuels. Our members keep the lights on and our world moving. No one inside these industries needs to have the urgent need for decarbonisation explained to them by those outside it. In the transition to a low carbon future and the challenges of net zero our members are not allowing themselves to suffer the fate of the coal miners. Through political malice and industrial vandalism, workers and communities paid a terrible price for deindustrialisation.

Unite position Sustainable Aviation Fuel (SAF)

Unite has been a longstanding advocate of Sustainable Aviation Fuels (SAF) highlighting the advantages of these often drop in alternative fuels.

Unite and its heritage unions have been supporting the development of SAF since 2008, and we are frustrated that we are not as far forward on this path than we should be as an important step towards reducing emissions and reaching a Net Zero economy. To be clear, Unite will not accept employers or politicians misusing the urgent need to address climate change as an excuse for policies that attack jobs, pay and conditions or which are designed to benefit shareholders, not workers.

The only just transition we will support is a workers' just transition, including the active participation and oversight of workers in the impacted industries. Unite will

therefore continue to reject any so called “just transition” policies which lack concrete plans for job replacement, economic stability, and community preservation.

The increased development of SAF technologies and production are the only options available for carbon reductions for long haul flights without investments into indirect carbon reductions using offsetting investment into direct air capture technologies.

Unite particularly welcomes the advent of fuels which should significantly reduce the volume of particulates produced by aircraft engines for both improvements into ground air quality but also due to the improvements in the reduction of condensation trail transformation into additional cloud cover which results in the phenomena known as radiative forcing.

Given the price differential between SAF options and traditional Jet A1 kerosene, and the various blends, Unite would hope more can be done to encourage the use of SAF from UK producers to provide price guarantees and security of supply.

SAF is currently hugely expensive in comparison to Jet A1 fuel. This highlights the need for support to encourage change, as the price differential will currently increase the fuel bill by more than 4.3 times. In any airline the cost of fuel is normally higher than their remuneration bill so such an increase will result in substantial increases in the price of a ticket or a kilo of air freight if matters stay the same. There is therefore a need for market stability. The UK's guaranteed strike price (GSP) is a mechanism to provide revenue certainty for SAF producers, to end any impasse, but as yet no specific price has been set.

Unite believes that should any subsidy be involved to assist in the establishment of a SAF supply chain, then the companies benefitting must be compelled to invest in local jobs, skilled apprenticeships, respect trade union rights around recognition and access and commit to collective bargaining.

The UK Sustainable Aviation Fuel (SAF) mandate aims to increase SAF use, with a target of 10% of UK jet fuel being SAF by 2030 and 22% by 2040, requiring 1.2 million tonnes of SAF annually by 2030, there is no mandate over where it is manufactured.

International development

The UK has slipped significantly behind on global SAF production and currently is heavily reliant on imports to reach targets.

Unite believes that without financial support the UK aviation industry will suffer a similar fate as the current electricity market where we need to pay one of the highest costs globally for supplies. It is due in part to this disparity in energy costs as to why UK SAF production industry needs help to preserve the security of supplies.

Governments worldwide, including the EU, and China, have also introduced mandatory SAF usage targets. Others, like the USA, have introduced incentives and stimulus. As well as a SAF mandate, the UK government is introducing a revenue support mechanism for SAF production. The UK Government has recently invested another £63 million to 17 companies to produce SAF as part of a £198 million fund

provided through the Advanced Fuels Fund to support new technologies, but so far this has not translated into largescale production.

Industry demand

SAF customers, including the leadership of all Scotland's airports, are demanding SAF production and supported Grangemouth as a viable hub for this activity. Investment capital is flooding into SAF technology development, and hundreds of full-scale refinery operations are set to come online worldwide in the next few years.

Airports and airlines recognise that SAF is crucial to their own decarbonisation efforts and have announced several investments and/or joint ventures with SAF producers: In 2022 Heathrow Airport announced a £71m project to incentivise the use of up to 155Kt of SAF at the airport in 2024.

In July 2024, Airbus announced a Sustainable Aviation Fuel Financing Allowance fund alongside Air France-KLM Group, Associated Energy Group, BNP Paribas, Burnham Sterling, Mitsubishi HC Capital Inc., and Qantas Airways.

UK airline **Jet2**, which is co-investing in SAF production at in the Northwest, has called on the **National Wealth Fund** to directly invest in SAF production.

Glasgow, Edinburgh, and Aberdeen airport bosses were participants in a campaign to turn Grangemouth into a SAF production site. Representatives have argued that turning Grangemouth into a SAF manufacturing plant is imperative for Scotland's industrial future. Grangemouth supplied Glasgow, Edinburgh, Aberdeen, and Newcastle airports.

If the UK government doesn't act fast, we risk being left behind and dependent on imports for this critical fuel supply. This would raise serious energy security issues.

The UK must rapidly increase use of SAF. We are far behind on building domestic capacity to produce this supply. Interviews that Unite conducted with SAF experts say that, given current trajectory, we are not likely to meet the 2030 targets through domestic production.

Without a rapid increase in new domestic supply, this means the bulk of SAF used in the UK will need to be imported.

UK refineries (including Grangemouth) should play a key role in creating a domestic SAF supply: if the political will is there to make it happen. This would support energy security, support an economic strategy that powers UK workplaces and communities and limits reliance on imports.

SAF production will require refinery capacity, and existing plants can be modified to refine SAF. This is more cost effective then building a new SAF refinery from scratch. Given this, experts we have spoken to say it makes little sense to close UK refineries rather than start a transition process.

A 2023 **Scottish Enterprise** report assessed the prospects for developing a domestic SAF industry. It noted Petroineos as arguably the key potential supply chain participant given its existing capabilities and capacities.

Grangemouth supplied jet fuel to most of Scotland's airports and therefore already had a pre-existing customer base and the infrastructure to deliver SAF.

It is 30-70% cheaper to convert an existing refinery to SAF than build a new plant from scratch. The UK government estimates that a commercial scale SAF plant "typically costs £600 million to £1 billion" to reach economical scale. Scottish Enterprise also estimates costs between £500 million and £1 billion for a 500 Kt plant. They also estimated that it takes five years from initial planning to commercial production.

From interviews with sector experts, Unite have been told converting an existing refinery is somewhere between 30% and 70% cheaper than building a brand-new plant at a greenfield site. Additionally, the International Energy Agency states that repurposing an old refinery can reduce costs by up to 34% compared to building a new facility from scratch. Other academic studies have found that repurposing costs can total as little as 20-25% of the costs of establishing a new facility.

There are no accurate figures available comparing SAF transitions worldwide: as refinery companies keep this information commercially confidential. But there was a strong consensus amongst all academic and industry experts that Unite has consulted that conversion is generally cheaper than building from scratch.

Need for government stimulus and leadership

Unite's experience in speaking to investment specialists about industrial transitions is that companies are unlikely to invest without the government being involved in several ways.

Investors would be more likely to allocate capital to projects such as supporting development of refineries into SAF sites if they could identify a solid government commitment. It is clear that the active support of the administration in the US and the Labor government in Australia has underpinned the business case for the development of SAF, which in turn has encouraged investor support.

The UK government can take the same approach, encouraging the deployment of UK pension fund capital in the creation of a domestic SAF industry that would both create jobs and drive decarbonisation.

The net zero blueprint mentioned above makes two recommendations that are relevant here:

- **Focus the National Wealth Fund on supporting the commercial development of higher risk net zero industries and projects, where it can play a valuable role bridging gaps in capital markets**
- **Accelerate delivery of the revenue certainty mechanism for UK producers of sustainable aviation fuel**

The National Wealth Fund could be a co or lead investor in the redevelopment of SAF refineries. This would encourage other institutional investors to consider investing. At the same time if the government provided a revenue certainty mechanism this would increase investor confidence in the demand for output from the refinery.

State support for institutional investment in the redevelopment of refineries also aligns with the government's objectives as set out in the ongoing pensions review. One of the four key policy areas of the first phase of the review is: 'Encouraging further pension investment into UK assets to boost growth across the country'

It is vital that such investment comes with a clear investor commitment to decent work and trade union rights. It is Unite's experience that investor policies are often extensive on environmental issues but severely lacking on workers' interests. A workers' just transition must ensure the creation of good quality, unionised jobs that ensure, as a minimum like for like pay, and terms and conditions as those that they have replaced as well as collective bargaining arrangements.