Net Zero, Energy and Transport Committee
Tuesday 30 September 2025
29th 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—
   a. 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;
   b. 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 (CO_2).

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 Orkney[1] 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]

Evidence session on 30 September and next steps

23. On 30 September, the Committee will take 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 will discuss the evidence heard and any next steps. The Committee is likely to take evidence on the LCM from the Scottish Government shortly after the October Parliamentary recess and to consider and agree a report to Parliament shortly after that.

25. 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.