International Civil Aviation Organization

INFORMATION PAPER

A41-WP/504
EX/243
9/9/22
(Information paper)
English only

ASSEMBLY — 41ST SESSION

EXECUTIVE COMMITTEE

Agenda Item 17: Environmental Protection – International Aviation and Climate Change

A POLICY VISION FOR PROMOTING THE SCALE-UP OF SUSTAINABLE AVIATION FUELS (SAFs)

(Presented by the International Transport Forum (ITF) Secretariat and Norway)

EXECUTIVE SUMMARY

This information paper provides an overview of preliminary recommendations emerging from discussions among the members of the Aviation Common Interest Group (CIG); an expert forum of government representatives, the industry, and other stakeholders, convened in June 2021 by the International Transport Forum and funded by the European Commission. The governments of Norway and Sweden co-chair the group's activities. The paper also sets out the next steps in this project, in particular with respect to a draft SAF Policy Vision emerging from this work.

Strategic Objectives:	This information paper relates to the Strategic Objective of Environmental Protection.
Financial implications:	N/A
References:	AESA (2021) Plan de acción sobre reducción de emisiones de CO_2 del sector aéreo internacional en España, Agencia Estatal de Seguridad Aérea, weblink. ANAC (2021) Plan de acción del estado argentino para la reducción de emisiones de CO_2 en la aviación, Aviación Civil Argentina, weblink. EC (2021) ReFuelEU Aviation, European Commission, weblink. ICAO (2017) Declaration of the second conference on aviation and alternative fuels, International Civil Aviation Organization, weblink. ICAO (2022) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), International Civil Aviation Organization, weblink. Lovdata (2022) Forskrift om begrensning i bruk av helse- og miljøfarlige kjemikalier og andre produkter, Lovdata, weblink. Regeringskansliet (2021) Reduktionsplikt för flygfotogen, Regeringskansliet, weblink. The White House (2021) Biden Administration Advances the Future of Sustainable Fuels in American Aviation, The White House, weblink. UK Government (2022) Mandating the use of sustainable aviation fuels in the UK, UK Government, weblink.

1. INTRODUCTION

1.1 In June 2021, the International Transport Forum at the OECD (ITF) established an Aviation Common Interest Group (Aviation CIG) to bring together government representatives, industry members, and other stakeholders to discuss policies best suited to scale up the use of Sustainable Aviation Fuels (SAFs). The European Commission's H2020 programme provided funding for the project. The ITF Secretariat facilitated the Aviation CIG discussions, with the governments of Norway and Sweden co-chairing its biannual meetings. Government representatives from 18 countries[1] and the European Commission participated in the talks. The Aviation CIG aims to facilitate a dialogue on perspectives and experiences that can assist governments in designing SAF policies. The dialogue is based on the premise that SAF is indispensable for reducing emissions in aviation. Future aircraft technologies such as hydrogen or battery electric aircraft could also mitigate the negative impacts of aviation. Yet, SAF is the only decarbonisation option on long-haul routes for the foreseeable future.

1.2 The Aviation CIG is currently developing a SAF Policy Vision to outline policy principles and recommendations that emerged from its meeting discussions. The document aims to reiterate the group's aspiration to support SAF development and deployment across countries with varying market backgrounds and domestic fuel production profiles. The SAF Policy Vision highlights several priority areas that policymakers could consider targeting in the short term to unlock SAFs' growth potential.

1.3 The SAF Policy Vision will aim to reflect diverse perspectives from different world regions in the expert group. Participation from industry partners[2] enriched the dialogue in the group. They expressed expectations regarding the development of a policy landscape that enables SAF market growth in different regions. Discussions differentiated between available feedstock types and production pathways to consider implications on their scalability, environmental footprint and market readiness.

2. OPPORTUNITIES FOR SAF

2.1 SAFs can substitute fossil jet fuel and are derived from bioenergy or power-to-liquid (PtL) pathways. The carbon intensity of SAFs can be very low, depending on the feedstock and production pathway. SAFs are compatible with existing aircraft technology and fuel infrastructure and can reduce carbon emissions from operations of aircraft currently in service. Today, SAFs cost more than conventional jet fuel, which hinders take-up by aircraft operators. Moreover, the SAF supply is limited, and the global production volumes are estimated to be smaller than 0.01% of conventional fuel production. Governments in different world regions support SAFs with various proposed and implemented policy frameworks, ranging from sectoral sustainability plans that acknowledge their role in reducing emissions to regulatory frameworks that mandate deployment. Policies include national and regional initiatives, for example, in Argentina, Norway, Spain, Sweden, the United Kingdom, the United States, and the European Union, as well as global approaches by ICAO[3]. However, the current policy landscape often lacks the certainty needed for fuel producers to invest in significantly expanding production.

2.2 SAF costs are expected to decrease as production scales up, especially for advanced feedstock and production pathways. These fuels can contribute significantly to decarbonising aviation and

[1] Argentina, Canada, Finland, France, Germany, India, Indonesia, Japan, Korea, Mexico, Norway, Poland, Romania, Spain, Sweden, Türkiye, United Kingdom and USA.
[2] Companies that have participated in Aviation CIG meetings include Aramco, Avinor, Boeing, BP, ExxonMobil, Iberdrola, Neste, Praj Industries, Rolls Royce, Safran, Shell and Siemens.
[3] ANAC (2021), Lovdata (2022), AESA (2021), Regeringskansliet (2021), UK Government (2022), The White House (2021), EC (2021), ICAO (2022) and ICAO (2017).

realise additional environmental benefits, such as reduced air pollution and non-CO_2 climate impacts, as well as opportunities to utilise waste resources. Producing SAFs also offers opportunities for domestic industrial development and for improving energy security. However, a successful scale-up of SAFs across diverse aviation markets is contingent on effective policies that promote their use and stimulate investments in production.

3. EARLY SCALE-UP FOR COST REDUCTIONS

3.1 Airlines that want to use SAFs face high prices and limited supply, which constitutes the most significant barrier to short-term market growth today. Targeted policies to provide certainty, reduce costs, and increase production volumes are needed to sustain early market growth. Rewarding early adopters can support actors that are already rolling out SAFs today despite the existing barriers.

3.2 Leveraging existing production assets, for example, through co-processing, can increase SAF supply in the short term. Mobilising investments into production facilities that use advanced pathways promotes their transition from pioneering plant scale to commercial production. The resulting production increases can support cost reductions and market growth.

3.3 Targeted mechanisms to make supplying SAF more flexible, such as book-and-claim or mass-balance schemes, can reduce supply and logistic barriers at an early market stage when SAF availability concentrates on a few locations. Such mechanisms enable suppliers to deliver SAFs to a general fuel pool rather than to a specific aircraft.

4. BENEFITS BEYOND EMISSION REDUCTIONS

4.1 Countries that promote SAFs may profit from domestic industrial development. The transition to SAF will diversify and decentralise fuel production. Many regions host bioenergy resources, and investments in PtL offer opportunities to areas with high potential for renewable electricity generation.

4.2 Production sites will move closer to feedstock resources as SAFs from advanced bioenergy and PtL gain market shares, offering opportunities for local value creation and employment opportunities. Mobilising new countries to produce SAF can also increase energy supply resilience and reduce dependence on fuel imports for some countries.

5. SAFEGUARDING CREDIBLE EMISSION REDUCTIONS

5.1 Countries may choose different strategies and policy designs to promote SAFs, depending on their specific market background and feedstock availability. Despite varying approaches, all policy designs should maximise emission reductions and prevent unintended sustainability impacts, including indirect land-use change (ILUC). To maximise climate benefits, policies should focus on the quantity of avoided emissions rather than only on the volume of SAF production. Policies may consider targeted support for advanced fuel technologies with high emission abatement potential that are comparably expensive today but have a high scalability potential in the longer term.

5.2 Existing carbon accounting methods, sustainability criteria and monitoring measures are not always harmonised. Aligning these is an essential enabler for the emergence of an international SAF

market. It also eases compliance with various regulatory or voluntary frameworks for internationally operating airlines.

6. SAF IN HOLISTIC DECARBONISATION STRATEGIES

6.1 Holistic decarbonisation strategies that embrace all transport modes and available technology options maximise emission reductions across sectors. The policy experience in several markets with biofuels to reduce emissions in road transport provide valuable lessons for promoting SAF. Drop-in fuels are the only available decarbonisation option for international aviation today, while technology breakthroughs for hydrogen and battery electric aircraft are pending. Directing available drop-in fuels to hard-to-abate sectors, including aviation, while promoting alternative, more energy-efficient decarbonisation technologies in sectors where they are available can maximise emission reductions and energy savings across the economy. For example, electrifying road vehicles may reduce the sector's reliance on biofuels and unlock feedstock for SAF production in some contexts.

7. THE VALUE OF PARTNERSHIPS TO PROMOTE SAF

7.1 The SAF transition relies on strong partnerships between governments and industry stakeholders, both within and across markets.

7.2 Effective SAF policies embrace the expertise and capabilities of feedstock producers, fuel producers and suppliers, original equipment manufacturers, airports, and airlines. They also promote stakeholder consultation and involve local communities in projects. Promoting a shared responsibility for increasing SAF production and deployment further prevents a disproportionate allocation of compliance requirements on single actors.

7.3 Co-operation and strategies between neighbouring markets can advance the deployment of SAFs. Reaching consensus for an international regulatory framework to promote SAFs is challenging due to the diverse policy priorities and market readiness across regions. Regional co-operation can accelerate the scale-up of SAF while an international approach is pending.

7.4 Existing SAF production assets concentrate in a few mature markets despite decentralised feedstock resources. Technology transfers and mobilising investments in emerging economies can promote local SAF production, thus accelerating the global scale-up and strengthening support for SAFs in regions at an early deployment stage.

8. NEXT STEPS OF THE AVIATION CIG

8.1 The initial project term of the Aviation CIG extends to December 2022, and a fourth meeting is planned for November 2022. The ITF Secretariat will disseminate outcomes and insights from the Aviation CIG through the SAF Policy Vision with the recommendations presented in this information paper and through a final project report. The Aviation CIG is an open forum. Interested parties can contact the ITF Secretariat for more information at till.bunsen@itf-oecd.org.

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