



CONFERENCE ON AVIATION AND ALTERNATIVE FUELS

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Agenda Item 2: Financing and assistance programmes for aviation alternative fuels

Agenda Item 3: Challenges and policy making

Agenda Item 4: Defining the ICAO vision on aviation alternative fuels and future objectives

VIEWS OF ICOSA ON THE ICAO VISION FOR AVIATION ALTERNATIVE FUELS

(Presented by the International Coalition for Sustainable Aviation)

SUMMARY

This paper outlines ICOSA's views on the role of sustainable aviation fuels (SAF) in contributing toward mitigating the international sector's climate impacts. ICOSA provides its thoughts on developing an ICAO Vision on Aviation Alternative Fuels, SAF policies, and financing approaches.

Action by the Conference is in paragraph 5.

1. INTRODUCTION

1.1 At its 39th Session in 2016, the ICAO Assembly reaffirmed its global aspirational goal for carbon-neutral growth from 2020, and recognized the work to explore a long-term global aspirational goal for the sector in light of the 2° C and 1.5° C temperature goals of the Paris Agreement. Currently, international aviation emissions currently account for 2 percent of global carbon emissions, without taking into account non-CO₂ impacts, and that figure is expected to increase to 5 percent by 2050.

1.2 While sustainable aviation fuels (SAF) can be a part of the solution to lowering the international aviation sector's climate impact, it is important that a meaningful contribution by alternative aviation fuels is properly designed to avoid unintended, negative consequences. Programs and policies that are designed in an effort to achieve meaningful contributions from alternative fuels should put in place proper greenhouse gas (GHG) accounting, provisions to avoid double-counting, and sustainability safeguards to ensure SAFs deliver real emissions reductions.

2. ICAO VISION ON AVIATION ALTERNATIVE FUELS

2.1 In CAAF/2-WP/13, the ICAO Secretariat proposes aspirational volumetric targets for specific years as part of the proposed ICAO's Vision on Aviation Alternative Fuels. In ICOSA's view, the ICAO Vision on Aviation Alternative Fuels should inspire innovation and technological break-throughs at a level required to meet the challenge of mitigating international aviation's climate impact. However,

as formulated, these volumetric targets are disconnected from the GHG performance of the many different varieties of SAFs. In effect, the targets maximize the volume of SAF utilized, rather than the amount of carbon abated. This could result in substantial policy support going towards fuels that either increase aviation sector emissions or, at best, provide marginal benefits.¹

2.2 ICSA urges States to avoid endorsing volumetric targets for SAFs at CAAF/2 for the reasons discussed below.

2.2.1 **Feedstock cultivation and land availability.** The scenarios that informed the proposed ICAO Vision on Aviation Alternative Fuels and associated targets rely heavily on optimistic assumptions on land availability for feedstock cultivation, which appear to be inconsistent with the global endeavour to tackle climate change and the potential impacts of climate change in agriculture yield improvements. In particular, when it comes to land availability, the scenarios do not take into account the impact that Article 5 of the Paris Agreement on conservation and enhancement of sinks and reservoirs of greenhouse gases including forest could have in the availability of land for SAF feedstock cultivation.

2.2.2 **Indirect land use change.** The underlying analysis carried out by CAEP did not take into account indirect land use change (iLUC) as a modelling assumption.² Yet, iLUC is an integral element in the LCA methodology under CORSIA.³ By not properly accounting for iLUC, the CAEP assessment overestimates the environmental benefits (and underestimates the environmental risks) of a significant expansion of SAF production.

2.2.3 **Sustainability considerations.** The sustainability considerations addressed in the CAEP assessment of alternative jet fuel only covered a fraction of the sustainability themes highlighted in ICAO's General Assembly Resolution A38-18. The CAEP assessment and the ICAO Secretariat aspirational goals should be updated to only reflect the potential contribution of sustainable aviation fuels in the context of a global sustainable development undertaking. The scenarios reported in CAAF/2-WP/6 provide a broad range of fuel production scenarios with various theoretical degrees of sustainability. However, it would be inaccurate to assume that the scenarios take into account the actual production potential of sustainable aviation fuels. Furthermore, SAF development should only be done when a robust sustainability assurance framework is in place to avoid unintended, negative consequences.

2.2.4 **Unsound scenarios.** The SAF replacement in the illustrative scenario and the 50 percent scenario are not an appropriate basis for the setting of aspirational goals for SAF. The values reported by CAEP were not designed, and should not be interpreted, as a call to develop policies to promote the development of SAF at such levels. There is significant uncertainty about whether any or all of the assumptions considered in the scenarios are achievable by 2025, 2040 or 2050.

2.2.5 **Short-term deployment of SAF.** CAAF/-WP/6 suggests that a 5 Mt/year production of SAF for international aviation is a reasonable assumption for the 2025 short-term deployment of SAF. CAAF/2-WP/6 acknowledges that the figures for 2025 were never endorsed nor suggested by CAEP's Alternative Fuels Task Force, and therefore highlighted two other arguments to support these figures, in addition to the current offtake agreement numbers provided in CAAF/2-WP/10.

2.2.5.1 First, it notes the potential impact of country pledges aiming to end the sale of gasoline and diesel cars by 2040 or earlier in freeing up global HEFA fuel production capacity. Road transport

¹ Sammy El Takriti, Nikita Pavlenko, and Stephanie Searle, "Mitigating international aviation emissions: Risks and opportunities for alternative jet fuels," the International Council on Clean Transportation, March 22, 2017, <http://www.theicct.org/mitigating-intl-aviation-emissions-risks-and-opps-alt-jet-fuels>.

² See ICAO Doc 10069, CAEP/10 Report, paragraph 8.5.14.

³ See CAAF/2-IP/1 paragraph 3.2.1.

currently consumes around 3.45 Mt/year of HEFA fuel, which can be used both for aviation and for ground transport. While a successful electrification of road transport could have an impact in the long run on use of HEFA fuel for aviation, it is unlikely that HEFA would be used by the aviation sector in large quantities in the near future.

2.2.5.2 Second, the HEFA-diesel currently produced for ground transportation is not necessarily sustainable as it heavily relies on feedstocks with either high risks of indirect land use change or high risks of indirect effects, such as palm oil and soybean oil. Fuels made from these feedstocks would negate any emissions reductions aeroplane operators could claim in the context of CORSIA as, in most cases, it would result in alternative fuels with greater carbon intensities than conventional jet fuel on the biofuel consumption within the light-duty vehicle sector, the heavy-duty vehicle sector is projected to maintain a substantial residual fuel demand through 2050 regardless of light-duty electrification, and may compete for biofuels made from sustainably-available feedstocks.⁴

3. PERSPECTIVES ON ENABLING POLICIES

3.1 If aviation alternative fuels are to contribute to the international aviation sector's climate objectives, enabling policies must be designed that first and foremost ensure emissions reductions and the sustainability of the fuel produced.

3.2 **Need for proper GHG accounting.** SAF policies should be designed with proper GHG accounting in mind. It is critical that alternative fuels policies are based on GHG reductions verified through carbon accounting to provide certainty of any climate benefit. SAF policies should account for both direct and indirect land use change. The combination of direct and indirect land use change is known in ICAO discussions as induced land-use change (ILUC). When ILUC is properly accounted for, certain biofuels can be worse for the climate than conventional fuels. Therefore, proper GHG accounting needs to include ILUC to avoid alternative fuels that are worse than conventional fuels from a climate perspective. Indirect emissions are of key importance to main products, as well as by-products, and wastes and residues with existing market uses and high utilization rates. Diversion from those existing uses, in some cases, can generate other indirect emissions, increasing the carbon intensity of these feedstocks.

3.3 **Need for sustainability safeguards.** When it comes to sustainable aviation fuels, there is a substantial amount of uncertainty in modelling emissions and a wide range of potential negative impacts on ecosystems and communities, depending on the feedstock and other factors. A robust set of sustainability criteria and an operative framework are needed to guard against these uncertainties, reduce unintended consequences, and ensure emissions reductions.

3.3.1 ICSA welcomes the work on sustainability of SAF as reported in CAAF/2-IP/1. ICSA believes it is of utmost importance to develop a comprehensive set of sustainability criteria for SAF covering the three pillars of sustainability—environmental, social and economic sustainability—and a meaningful framework to implement them through Sustainability Certification Schemes that meet a set of eligibility requirements. Clarity and long-term certainty for fuel producers should be achieved by completing all work on developing and operationalizing sustainability criteria as soon as possible. That will allow fuel producers to adapt and/or design their supply chains accordingly and avoid stranded assets.

3.4 **Need to prevent double-counting.** Another important element of designing SAF policies is to develop provisions to avoid double-counting of the associated emissions reductions. Emissions

⁴ Chris Malins, "Waste not, want not: Understanding the greenhouse gas implications of diverting waste and residual materials to biofuel production," commissioned by the ICCT, August 24, 2017, <http://theicct.org/waste-not-want-not>.

reductions should be used only once for compliance in mandatory schemes or toward voluntary goals, and double-claiming among aeroplane operators and between States should also be avoided.

4. **NEED FOR SMART FINANCING**

4.1 If SAF is to help meet ICAO's and the international aviation sector's climate objectives, then smart policies and financing approaches from a number of aviation stakeholders would need to be put in place to expand SAF production.

4.1.1 ICSA supports approaches to the commercial deployment of SAF that incentivize alternative fuels being developed and used but only in a way that meets sustainability criteria and has proven life-cycle emissions significantly below a conventional jet fuel baseline.

4.1.2 Importantly, investment in research and development is needed to develop future SAF technologies. Further, closing the large price gap between conventional kerosene and alternative fuels will be critical to allowing SAF to compete on a level playing field.

4.1.3 Government action alone will not establish a viable market for SAF. If airlines and other aviation stakeholders believe that SAF can significantly contribute to achieve emissions reductions by 2050, the aviation industry must be willing to invest to help the market along. Early movers have made early investments in SAF to meet their own carbon emissions goals and to stimulate the market. Other industry players should also advance SAF development so that SAF use could reach the scale needed to assist in mitigating international aviation's climate impact.

5. **ACTION BY THE CAAF/2**

5.1 The CAAF/2 is invited to:

- a) note ICSA's view that further work is needed to understand the potential contribution SAF could make toward mitigating international aviation's impact on climate change;
- b) note ICSA's concern that volumetric targets have the potential to undermine ICAO's aspirational goal of carbon-neutral growth from 2020;
- c) recommend that the use of aviation alternative fuels be acknowledged by ICAO only if it complies with robust sustainability criteria and an associated framework, delivers significant greenhouse gas emissions reductions, after accounting for indirect land use change and other indirect effects, and avoids double-counting;
- d) request that States consider existing uses of SAF in other transport sectors when designing deployment policies to ensure that public resources are used effectively; and
- e) refrain from adopting aspirational volumetric targets for SAF deployment at CAAF/2.