



## ASSEMBLY — 39TH SESSION

### EXECUTIVE COMMITTEE

#### Agenda Item 22: Environmental Protection – International Aviation and Climate Change – Policy, Standardization and Implementation Support

#### DEVELOPMENT OF ICAO VISION FOR SUSTAINABLE ALTERNATIVE FUELS FOR AVIATION

(Presented by Mexico)

#### EXECUTIVE SUMMARY

The use of sustainable alternative fuels for aviation is a key part of the basket of mitigation measures to reduce aviation CO<sub>2</sub> emissions. Although there are challenges, Mexico has developed processes and taken important steps to reduce CO<sub>2</sub> emissions from aviation and has successfully employed the use of sustainable alternative fuels.

This paper summarizes the current status for the development and deployment of sustainable alternative fuels for aviation, and proposes the development of “ICAO Vision on International Aviation Alternative Fuels (ICAO VIAAF)” as a means to encourage and inspire State to take actions for further developing and deploying sustainable alternative fuels for aviation.

**Action:** The Assembly is invited to:

- a) acknowledge the importance of further developing and deploying sustainable alternative fuels as a key element of the basket of measures to reduce aviation emissions;
- b) acknowledge the value of defining a global objective for sustainable alternative fuels as a way of encouraging necessary actions; and
- c) encourage all Member States, the aviation industry and other stakeholder, to participate in the ICAO preparatory seminar in Montreal from 8 to 9 February 2017, and the ICAO Conference on Aviation Alternative Fuels, to be held in Mexico City, Mexico from 18 to 20 October 2017 that will develop “ICAO Vision on International Aviation Alternative Fuels (ICAO VIAAF)”, by which States will be encouraged to take actions at the national and international levels in further developing and deploying sustainable alternative fuels for aviation.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objective E – <i>Environmental Protection</i> .
<i>Financial implications:</i>	The activities referred to in this paper will be undertaken subject to the resources available in the 2017-2019 Regular Programme Budget and/or from extra budgetary contributions.
<i>References:</i>	

<sup>1</sup> English and Spanish versions provided by Mexico

## 1. INTRODUCTION

1.1 Mexico fully supports the role of ICAO, being at the forefront in facilitating the development and deployment of sustainable alternative fuels for aviation on a worldwide basis. In 2009, ICAO held the first workshop dedicated to this subject and the first Conference on Aviation and Alternative Fuels, where it launched the ICAO Global Framework on Aviation Alternative Fuels (GFAAF) as a global platform to share and disseminate information on worldwide initiatives and actions on aviation alternative fuels.

1.2 In 2012, on the occasion of the United Nations Conference on Sustainable Development, so called Rio+20 conference, ICAO organized the first-ever series of connecting flights powered by sustainable alternative fuels, on which the ICAO Secretary General, travelled from Montréal, Canada to Rio de Janeiro, Brazil. To date, over 2,500 commercial flights have been operated globally using alternative fuels, and the number is expected to grow significantly in the coming years, as more alternative fuel development and deployment projects are announced every year.

1.3 Regarding the fuel certification, ASTM has certified five pathways for the development of alternative fuels for aviation. These pathways enable a broad selection of feedstocks to be converted into alternative fuels. Two of those certifications have been approved since the 38th Assembly, proving that the technology is continuing to advance. Furthermore, approximately sixteen additional pathways are currently under review for ASTM approval.

1.4 These achievements have demonstrated that drop-in alternative fuels are a technically sound solution that would not require changes to aircraft or fuel delivery infrastructure. Deploying these fuels in aviation as a means to limit carbon emissions is of particular relevance as aviation, unlike road-transportation for example, has no alternatives to liquid fuels for the foreseeable future. In addition, the concentration of aviation fuel distribution on a limited set of locations can facilitate the deployment of novel fuels for which the aviation sector has confirmed a strong interest.

## 2. SUSTAINABLE ALTERNATIVE FUELS – RECENT DEVELOPMENT

2.1 ICAO's CAEP has on-going tasks related to sustainable alternative fuels in various sub-groups. For example, according to the CAEP CO<sub>2</sub> emissions trends assessment (Assembly working paper, A39-WP/56), it is estimated that up to 2 per cent of this fuel consumption could consist of sustainable alternative fuels in 2020. While significant uncertainties exist in predicting the contribution of sustainable alternative fuels in the long-term, based on the scenarios evaluated by CAEP, it is possible that up to 100 per cent of international aviation jet fuel demand could be met using sustainable alternative fuels in 2050.

2.2 The future development and use of alternative fuels will highly depend on the policies and incentives in place for such fuels, and also the ecological and economical effectiveness of their use. Based on the analysis assumptions, if enough alternative jet fuel were produced in 2050 to completely replace petroleum-derived jet fuel, it would reduce net CO<sub>2</sub> emissions by 63 per cent, according to the CAEP assessment.

2.3 Other CAEP tasks related to this subject include: the definition of Life Cycle Assessment (LCA) methodology and sustainable criteria; and development of guidance for potential policies and approaches for the development of sustainable alternative fuels.

2.4 At the national level, Oslo Airport in Norway became the world's first "bioport" in 2015 by offering 2.5 million litres of aviation biofuel annually to its users. The fuel is offered through a

partnership with the fuel supplier Avinor and is distributed regularly to departing flights operated by KLM, SAS and Lufthansa. In 2016, Los Angeles International Airport in the United States, announced that it would have more than 56.8 million litres of aviation biofuel available over a 3-year period from fuel provider AltAir fuels distributed to departing flights from United Airlines.

2.5 In addition, over the past three years, the world has seen significant development and deployment of clean, renewable sources of energy for aviation. For example, under the ongoing partnership of ICAO with the United Nations Development Programme (UNDP) and Global Environment Facility (GEF), a pilot project has been initiated on the use of solar-energy at airports in Jamaica, which could be replicated in future in other countries. In 2015, the methodologies for the UNFCCC Clean Development Mechanism (CDM) for aviation projects, including on the use of solar panels to power aircraft at gates, were approved.

2.6 In 2011, the Mexican decentralized public agency: *Airports and Auxiliary Services* (ASA) developed a comprehensive fuel program, identifying existing and missing elements for the efficient supply of biofuel in Mexico. The objective of the program is to supply 15% of the aviation fuel demand, by 2020. This program has allowed that the first commercial flights operated on biofuel were conducted between 2011 and 2012. Consequently with this development in Mexico, ASA has an inventory for biofuels, in order to spread the use of this alternative fuel in the Mexican aviation, enabling more “greener flights”.

2.7 To continue with this development strategy, ASA is working on studies and assessments to support the development of the entire value chain, from obtaining the biomass, to the development of the market, in collaboration with other relevant entities that participate within the Mexican Federal Government.

2.8 Therefore, the Assembly is invited to acknowledge the importance of ICAO Global Framework for Aviation Alternative Fuels website (GFAAF), and to request the Secretariat to continue improving that website, with the following objectives:

- a) Exchange information and experiences between ICAO members interested or are in the process of developing activities for the use and exploitation of alternative fuels for aviation.
- b) Share researches and developments conducted worldwide, with regard to alternative jet fuels.
- c) Identify and develop policies and measures that can encourage the development of alternative jet fuels, for the reduction of CO<sub>2</sub> emissions.
- d) Identify and evaluate the potential environmental impacts associated with the production and the use of Bio fuels throughout its life cycle.
- e) Provide information on existing certification/standards for the life cycle of sustainable alternative fuels.
- f) Exchange information on technology developments for the extraction, refining and distribution of alternative jet fuels, including product trading among countries.
- g) Share business plans for the pricing, investment climate assessments, profitability and growth of the alternative fuels for aviation in its economic cycle

2.9 Inform the progress of the aforementioned web site (paragraph 2.8) to the Conference on Sustainable Alternative Fuels for Aviation, to be held in Mexico City in 2017.

### 3. NEXT STEPS

3.1 While significant technological advances have been made and various initiatives are taken by governments and the aviation/alternative fuel industry so far, a global vision needs to be developed under ICAO with a defined objective for sustainable alternative fuels as a way of encouraging necessary actions in further developing and deploying sustainable alternative fuels for aviation.

3.2 The Resolution A38-18 adopted by the 38th Assembly in 2013, requested Member States to develop policy actions to accelerate the appropriate development, deployment and use of sustainable alternative fuels for aviation, as part of a basket of measures to limit carbon emissions from international aviation.

3.3 It is appropriate time to take stock of the recent achievements and subsequently to develop a global ICAO vision to encourage States to take policy actions on this subject. This would further strengthen the contribution of ICAO and its Member States to the UN Sustainable Development Goal, SDG 7: “Ensure access to affordable, reliable, sustainable and modern energy for all”.

3.4 In this regard, as the first step, all Member States, the aviation industry and other stakeholders should participate in the ICAO seminar to be held in Montreal, Canada from 8 to 9 February 2017, to exchange information on the latest progress and challenges on the development and deployment of sustainable alternative fuels for aviation.

3.5 Building upon the results of the ICAO seminar, all Member States, the aviation industry and other stakeholder should also participate in the ICAO Conference on Aviation Alternative Fuels to be held in Mexico City, Mexico from 18 to 20 October 2017, to develop “ICAO Vision on International Aviation Alternative Fuels (ICAO VIAAF)”, by which Sates will be encouraged to take actions at the national and international levels in further developing and deploying sustainable alternative fuels for aviation.

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