



WORKING PAPER

CONFERENCE ON AVIATION AND ALTERNATIVE FUELS

Rio de Janeiro, Brazil, 16 to 18 November 2009

ANNOTATED AGENDA

(Presented by the Secretariat)

Provisional agenda

1. Environmental sustainability and interdependencies
2. Technical feasibility and economic reasonableness
3. Measures to support development and use
4. Production and infrastructure

1. INTRODUCTION

Background

1.1 The need to address climate change is clear and sustainable alternative fuels are a key element of ICAO's basket of measures for reducing the impact of aviation on climate.

1.2 Following the Workshop on Aviation and Alternative Fuels in February 2009, this Conference will promote improved understanding of the potential use, and the related impacts of alternative aviation fuels as requested by the 36th Assembly of ICAO by bringing together technical and policy experts from all major stakeholders.

1.3 Delegations to the Conference are expected to include high-level delegates (Ministers, Directors General, Directors, and other senior officials) duly authorized to make decisions in order to formally adopt recommendations made by the Conference, and experts in subject areas to serve as their advisors.

Objective

1.4 The primary objective of the Conference is to develop an ICAO High-Level Roadmap on Aviation Alternative Fuels that builds upon the work of the key stakeholders and existing roadmaps to facilitate and accelerate the deployment of sustainable aviation alternative fuels as a key approach to reducing aviation's environmental impacts. The high-level roadmap will describe the elements that need to be further explored over the short, medium, and long terms to enable policy decisions in this area for

international aviation. It is anticipated that this roadmap will be presented in conjunction with the outcomes of the High-Level Meeting on International Aviation and Climate Change by ICAO at the 15th meeting of the Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP15) in December 2009.

1.5 In order to develop the high-level roadmap, the exchange of information among all stakeholders is essential, particularly by sharing best practices and lessons learned.

1.6 The following agenda describes the areas where discussion and agreement by Contracting States is urgently needed to ensure a comprehensive, unified vision for this critical piece of ensuring international aviation's sustainable future.

Organizational matters

1.7 The provisional agenda for the meeting, which will be presented for adoption, will not provide for general statements by participants. However, ICAO Contracting States and International Organizations are invited to submit their written Statements electronically to be posted on a dedicated area of the ICAO website.

1.8 Participants are invited to refer to the tentative timetable (CAAF/09-WP/2) that will be made available on the ICAO website after 2 October 2009 for the proposed schedule of work of the CAAF.

1.9 With the exception of the opening at 0930 hours on the first day, the meeting hours are from 0900 to 1700 hours with appropriate breaks. The session(s) will be organized accordingly.

1.10 This meeting will be conducted on a paper-free basis as much as possible. No documentation posted electronically prior to the meeting will be distributed in hard copy. However, once the meeting has begun, documentation will be printed and distributed (2 copies per State; 1 copy per Observer Organization).

2. ICAO HIGH-LEVEL ROADMAP ON AVIATION AND ALTERNATIVE FUELS

2.1 Sustainable alternative fuels show promise of being an intrinsic part of an approach toward reducing the carbon footprint of international aviation. As such, it is important to consolidate information about the initiatives already underway in order to facilitate and accelerate the development and deployment of sustainable fuels for aviation.

2.2 The high-level roadmap will showcase existing roadmaps and communicate what the international community expects to achieve from alternative fuels in the future. The roadmap to be developed by the conference is envisaged as a living document, highlighting in its initial form, the work already accomplished and describing the elements that need to be further explored to enable future policy decisions in this area. The roadmap should also facilitate and accelerate the development and deployment of sustainable alternative fuels for aviation over the short, medium, and long term. The Conference will be invited to approve the initial high-level roadmap during the final day of the Conference for communication to COP15 as a part of the ICAO strategy for reducing the carbon footprint of international aviation.

3. ANNOTATED AGENDA

Agenda Item 1: Environmental Sustainability and Interdependencies

Anticipated Action/Conclusion/Recommendation by the Conference: *Agree that addressing sustainability and environmental interdependencies when considering alternative fuels is essential. Endorse the use of life cycle analysis as the appropriate means for comparing the relative greenhouse gas (GHG) emissions from alternative jet fuels to those from conventional jet fuel. Acknowledge that emissions associated with both direct and indirect land-use changes may result from the cultivation of biomass or renewable oils for biofuel production, and agree to account for those emissions when establishing an alternative fuels programme.*

3.1 **Background:** The Conference will be informed of reasons why States are interested in sustainable alternative fuel options and of the environmental interdependencies that exist.

3.2 **Life Cycle Analysis Framework:** The Conference will be presented with the status of ongoing efforts to examine the life cycle of GHG emissions from alternative jet fuels. The discussion will include a review of what should be considered within a life cycle analysis, the complexities associated with the task, and recent results.

3.3 **Outlook:** Beyond the GHG emissions of concern for climate change, the Conference will also be informed of the potential air quality benefits from alternative fuels and low-sulphur conventional fuels, such as from their reduced sulphur content and PM emissions.

Agenda Item 2: Technical Feasibility and Economic Reasonableness

Anticipated Action/Conclusion/Recommendation by the Conference: *Adoption of the proposed Fuel Readiness Level (FRL) as a best practice for managing and communicating research status and development needs; readiness for airworthiness and environmental certification; and the practicality of deploying fuels for use in current and future aircraft, engines, and the aviation fuel infrastructure. Acceptance of definitions of commonly-used terms related to alternative aviation fuels. Recommend that those definitions be incorporated into formal ICAO documentation.*

3.4 **Fuel Readiness Level:** The “Fuel Readiness Level” concept, a universal scale that measures the technical and production maturity of candidate, will be presented to the Conference as a gated risk management tool for researchers and those seeking to produce fuels for aviation buyers. The proposed scale is the “Technology Readiness Level,” which is based upon risk management processes long in use by the manufacturing sector.

3.5 **Definitions:** A number of terms, including short-term, medium-term, long-term, drop-in, generation, and others are commonly used without a harmonized definition. To ensure that participants in the Conference have a common understanding of such terms when they are used, a set of definitions will be proposed for adoption for use during the Conference. The Conference will also be invited to consider submitting these definitions for incorporation into relevant ICAO documentation.

3.6 **Lessons Learned:** Other sectors have produced alternative fuels using a wide variety of feedstocks for decades. The Conference will be informed of the lessons learned outside of the aviation sector during the development and deployment of an alternative fuel source. Relevance to the aviation sector will be highlighted.

3.7 **Outlook:** The Conference will be informed of existing aviation alternative fuel research and development roadmaps. A qualitative review of the types of drop-in fuels that could possibly be available during the next 40 years will be presented.

3.8 **Beyond drop-in fuels:** The Conference will be informed of costs and benefits that could result from future alternative fuels with performance properties that differ from today's petroleum-based fuels.

3.9 **Aircraft Technology:** The Conference will be informed about the investment and time required to bring new engine/and aircraft designs that will accommodate other than drop-in fuels to the market, and will be invited to encourage States to establish a means of encouraging aircraft/and engine manufacturers to make these investments.

Agenda Item 3: Measures to Support Development and Use

Anticipated Action/Conclusion/Recommendation by the Conference: *Urge States to support the qualification and production of drop-in alternative fuels that are environmentally sustainable and economically reasonable, to utilize existing standards and policies outside of ICAO for the qualification and airworthiness approval of drop-in alternative aviation fuels. The Conference will be invited to encourage States to develop incentive programmes for the development and deployment of sustainable alternative fuels for aviation*

3.10 **Fuel Formulation:** The Conference will be informed of the investment and time required to develop a prototype aviation alternative fuel and will be invited to encourage States to establish a means of encouraging fuel producers to make these investments for sustainable aviation alternative fuels.

3.11 **Fuel Qualification:** Lessons learned through the fuel qualification and airworthiness approval processes will be shared with the Conference. The Conference will be invited to recognize the existing industry standards and airworthiness authority policies outside of ICAO for the qualification and approval of fuels and urge States without their own standards and policies to consider adopting these standards for their use. The Conference will be informed of the current state of alternative aviation fuel airworthiness approval worldwide and current proposed measures to support these activities.

3.12 **Piston-Powered Aircraft:** The Conference will be informed of the potential to reduce the greenhouse gas emissions associated with flight in piston-powered aircraft through the use of sustainable alternative fuels.

3.13 **Incentives:** The Conference will be informed of incentive programmes being developed for encouraging the development and use of alternative fuels, and will be invited to encourage States to develop incentive programmes for the development and deployment of alternative fuels for aviation.

3.14 **Deployment:** The Conference will be informed of existing goals for the deployment of drop-in alternative fuels over the short-term, and non-drop-in, advanced alternative fuels over the medium, and long-term, and States will be urged to support these goals.

Agenda Item 4: Production and Infrastructure

Anticipated Action/Conclusion/Recommendation by the Conference: *Identify techniques for conducting cost-benefit analyses as a means to assist States in determining where their investments in aviation alternative fuels will be the most effective. Share best practices and*

techniques that States could apply to overcome aviation-specific global production, distribution, and storage challenges associated with alternative fuels. Identify areas where investment is needed and urge States to provide investment in those areas.

3.15 **Background:** The Conference will be informed of global production, distribution, and storage challenges associated with aviation alternative fuels. The Conference will also be informed of the regions of the world best-suited for specific feedstocks for alternative fuels.

3.16 **Investment Needed:** The Conference will be informed of the areas where investment is needed in order to address these challenges, and will be invited to urge States to provide investment in those areas.

3.17 **Sources of Financing:** The Conference will be informed of potential sources of financing for sustainable alternative fuel programmes to support the aforementioned investment needs, and how to access those sources.

3.18 **Cost-Benefit Framework:** The Conference will be presented with best practices for conducting cost-benefit analyses for the purpose of assisting States and airport / airline and fuels supplier/distributor interests in analyzing investments in aviation alternative fuels.

— END —