



WORKING PAPER

CONFERENCE ON AVIATION AND ALTERNATIVE FUELS

Rio de Janeiro, Brazil, 16 to 18 November 2009

Agenda Item 1: Environmental sustainability and interdependencies

THE COMMERCIAL AVIATION ALTERNATIVE FUELS INITIATIVE

(Presented by United States)

SUMMARY

The Commercial Aviation Alternative Fuels Initiative (CAAFI) seeks to enhance energy security and environmental sustainability for aviation through alternative jet fuels. CAAFI is a coalition that focuses the efforts of commercial aviation to engage the emerging alternative fuels industry. It enables its diverse participants – representing all the leading stakeholders in the field of aviation – to build relationships, share and collect data, identify resources, and direct research, development and deployment of alternative jet fuels.

The conclusions for the conference are in paragraph 5 and recommendations in paragraph 6.

1. INTRODUCTION

1.1 Since 2006 the Commercial Aviation Alternative Fuels Initiative (CAAFI) has sought to enhance energy security and environmental sustainability for aviation by exploring the use of alternative jet fuels. CAAFI is a coalition of airlines, aircraft and engine manufacturers, energy producers, researchers, international participants and U.S. government agencies. Together these stakeholders are leading the development and deployment of alternative jet fuels for commercial aviation.

2. BACKGROUND: THE NEED FOR ALTERNATIVE AVIATION FUELS

2.1 The volatility in petroleum prices in recent years has caused fuel to become the single largest component of many airlines' operating costs for the first time in history. High fuel prices have contributed to the challenges facing the industry.

2.2 Concern about the environmental impacts of aviation growth is also rising within the international community. The concerns about climate change impacts of global aviation have contributed to the desire for low carbon jet fuels.

2.3 In early 2006, in response to these growing concerns about energy security and aviation's environmental impact, key stakeholders in commercial aviation organized to explore the potential of alternative jet fuels for aviation. The first meeting of CAAFI was held in October 2006 in Atlanta, Georgia, United States.

2.4 CAAFI's founding members are the Federal Aviation Administration (FAA), the Air Transport Association of America (ATA), the Aerospace Industries Association (AIA) and the Airports Council International-North America (ACI-NA). CAAFI has grown to include a wide range of U.S. and international aerospace manufacturers, researchers, energy companies, and government agencies.

2.5 CAAFI is based on the premise that aviation—international in scope, highly integrated in its fuel supply chain, and with a significant ability to align and coordinate within the industry—is very well positioned to pursue alternative fuels.

3. CAAFI'S FUNCTION AND FOCUS

3.1 CAAFI's goal is to promote the development of alternative jet fuel options that offer equivalent levels of safety and compare favourably on cost with petroleum-based jet fuel, while also offering environmental improvement and security of energy supply for aviation.

3.2 CAAFI primarily serves as a means of exchanging information and coordinating stakeholder efforts. This is done through the holding of technical workshops, outreach to domestic and international aviation, energy, and financial industry forums, and communication with the news media.

3.3 CAAFI participants are evaluating alternative jet fuels in a comprehensive, team-based approach focused on four critical areas:

- a) **Fuel Certification and Qualification:** Given the demanding environment posed by aviation operations, this team ensures the safety of any alternative fuels by creating a new jet fuels approval process via the ASTM International standard setting body. Fuel approval enables the safe use of alternative jet fuels and guarantees manufacturer, user and regulatory confidence in them.
- b) **Research and Development:** This team focuses on sharing analyses and identifying and coordinating research activities to improve understanding of the broad range of new fuel production technologies and feedstocks that may be applied to aviation.
- c) **Environment:** The sustainability of alternative fuels is critical to their use and measuring the spectrum of environmental impacts of any alternative fuel options developed is critical. This team is working to measure engine emissions that affect air quality and quantify the full life-cycle greenhouse gas emissions resulting from the fuel production process including feedstock extraction and transport, fuel processing, fuel distribution, water use and land use changes.

- d) **Business and Economics:** The team facilitates the deployment of alternative jet fuels in the marketplace by connecting fuel producers and consumers, evaluating the business case for use of alternative jet fuel, and identifying opportunities for deployment.

3.4 CAAFI participants meet regularly to evaluate the state of alternative jet fuel developments in these areas, identify gaps and hurdles, and decide on next steps required in the research, development and deployment process.

4. **PROGRESS TO DATE**

4.1 Some of the concrete accomplishments of CAAFI in the past three years include:

- a) key support to the creation of a new jet fuel approval process (see CAAF/09-WP/15) via ASTM International resulting in the first new jet fuel specification (ASTM 7566) in 20 years;
- b) creation of Research & Development roadmaps to track overall progress in alternative jet fuel efforts and to identify gaps in activities to which research and resources can be channeled as needed (see CAAF/09-IP/03);
- c) development of a Fuel Readiness Level (FRL) technology scale as a proposed “best practice” for communicating the progress of alternative jet fuel candidates to researchers, fuel producers and users and investors (see CAAF/09-WP/07);
- d) the development of a jet fuel specific life cycle analysis (LCA) framework for measuring alternative jet fuel greenhouse gas emissions on a life-cycle basis (see CAAF/09-WP/04 and CAAF/09-IP/06);
- e) the facilitation of links between government funding sources, energy companies, airline fuel buyers and investors in support of early commercial deployment (see CAAF/09-IP/10); and
- f) collaboration with and support to other States’ alternative jet fuel efforts.

5. **CONCLUSIONS**

5.1 This paper provides a summary of the Commercial Aviation Alternative Fuels Initiative (CAAFI). Additional information is available at the CAAFI website: www.caafi.org.

5.2 CAAFI has proven to be an effective means of sharing information and coordinating efforts to research, develop and deploy alternative fuels for aviation.

6. **RECOMMENDATIONS**

6.1 The Conference is invited to:

- a) note the effectiveness of the efforts to date of the Commercial Aviation Alternative Fuels Initiative (CAAFI); and
- b) encourage members and observers to participate in the activities and efforts of CAAFI.

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