



## **CONFERENCE ON AVIATION AND ALTERNATIVE FUELS**

**Mexico City, Mexico, 11 to 13 October 2017**

**Agenda Item 1: Developments in research and certification of aviation alternative fuels**

**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**

### **PROGRESS OF THE LATIN AMERICAN REGION ON THE DEVELOPMENT AND DEPLOYMENT OF ALTERNATIVE FUELS FOR AVIATION**

(Presented by Guatemala on behalf of the member States of the Latin American Civil Aviation Commission<sup>1</sup> (CLAC))

#### **SUMMARY**

The Latin American region has developed successful cases on alternative fuels for aviation; this success has largely been to inter-institutional and intersectoral coordination.

On the basis of the above, the importance of forging partnerships of cooperation between States, international organizations and other interested parties for the development of alternative fuels is highlighted. The need for a program to disseminate funding sources and the importance of establishing strategic lines for the development of incentives and the promotion of technology transfer are also considered in its right dimension.

Action by the Conference is in paragraph 4.

## **1. INTRODUCTION**

1.1 The Latin American region has made significant efforts in the development and deployment of alternative fuels for aviation, conducting various investigations, pilot tests, joint initiatives between Civil Aviation Authorities and Air Operators, among others. Also, within the framework of the work carried out within the framework of the Latin American Civil Aviation Commission (CLAC), this issue has been included.

1.2 Specifically in Resolution A21-07: Guidance on the Environment and Civil Aviation in Latin America, in the reduction strategies, the theme on alternative fuels for aviation was included as an important measure to reduce greenhouse gas emissions in civil aviation recommending the following:

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<sup>1</sup> The Spanish version of this paper was provided by the Latin American Aviation Commission.

- promote research, innovation and technological progress programs for the development of alternative fuels in civil aviation, under a sustainable approach;
- promote initiatives for the use of alternative fuels in aviation; and
- work in coordination to promote that the use of alternative fuels does not become an economic tax burden for air transport.

1.3 It is important to highlight the work that Latin American states have developed to promote alternative fuels for aviation, including the signing of interinstitutional and intersectoral agreements, as well as research and development in academic institutions.

1.4 A successful example of an interinstitutional and intersectoral partnership is the Framework Agreement for Technical Cooperation for the Development of Aeronautical Biofuels promoted in the State of Argentina, in which the National Civil Aviation Administration (ANAC), the Subsecretariat of Aerial Commercial Transport (The National Institute of Industrial Technology (INTI), the National Institute of Agricultural Technology (INTA), Aerolíneas Argentinas, SA (National Institute of Agricultural Technology), the Ministry of Environment and Sustainable Development of the Nation (SAyDS) (ARSA), Austral Líneas Aéreas Cielos del Sur, S.A. (AUSA), YPF, S.A. and the Argentine Chamber of Biofuel (CARBIO).

1.5 The intention of this agreement was to form a technical working group that allows the analysis, development and conclusions of an aeronautical biofuel project at national level that will have as its premise the economic viability, refining and sustainable production of the raw materials to be used. It emphasized the need to take into account fiscal aspects, the feasibility of production at scale, promotion of a program and incentive scheme for small and medium producers and the importance of identifying financing mechanisms.

1.6 In addition, the Dominican Republic in December of 2016 through the Dominican Institute of Civil Aviation, signed the Declaration of Punta Cana, which establishes the roadmap on the use and production of alternative fuels for aviation. This declaration was signed by the National Energy Commission (CNE), the National Council on Climate Change and the Clean Development Mechanism (CNCCMDL), the Civil Aviation Board (JAC), the Airport Department (DA) and the Dominican Institute of Civil Aviation (IDAC).

1.7 In the case of Bolivia, recently, it has invested in pilot plant projects for the experimentation and production of biofuels, such as biodiesel from soybean, black palm, piñon (*Jatropha*) and macororó (*ricinus comunis*).

1.8 The important results of Mexico on this issue must be weighed in the right light, since since 2008 through the Secretariat of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA), has promoted research on crops agricultural crops with potential for the production of bioenergy (figs and *jatropha*) and has implemented schemes to support farmers to supply the nascent alternative fuels industry by supporting technological packages for the production of bioenergy inputs and their incorporation into the value chain through incentives for their participation as partners in this branch of agribusiness.

1.9 In addition, Mexico carried out diagnostic and route mapping exercises for alternative fuels for aviation in 2010 and 2011, and developed several demonstration and commercial flights with the use of these fuels with different air carriers. In addition, the "Bioturbosina Cluster" began operating in 2015. This is a 4-year research and development program led by the Instituto Potosino de Investigación Científica y Tecnológica (IPICYT) and supported by the Secretariat of Energy (SENER) and the National Council of Science and Technology (CONACYT) and in which 9 Mexican research centers and two foreign researchers participate.

1.10 The purpose of this cluster is to contribute to the establishment of the industry in Mexico through the investigation of various biomass sources, the construction of two bioturbosine production demonstration plants from oils and alcohols, respectively; as well as the creation of capacities to ensure sustainability along the supply chain, and finally, the generation of information and models that contribute to the economic viability of alternative fuels. The bioturbosina cluster considers active interaction with various interest groups such as airlines, aircraft manufacturers, State Secretariats and agencies, the Aeronautical Authority, consortiums in other countries and international organizations.

1.11 In Brazil there is extensive experience in the use of biomass for energy purposes, such as sugarcane ethanol and biodiesel. Modern bioenergy has an important role in the country's energy matrix. Various initiatives have been taken with the aim of developing biofuel production for aviation. These initiatives involve the entire productive chain necessary for the creation of the new industry, which includes: production of raw materials, processing and conversion technologies, distribution and marketing logistics and sustainability certification.

1.12 In 2010, public and private institutions formed the Brazilian Alliance for Aviation Biofuels - ABRABA. In the years 2012 and 2013, workshops were held within the framework of the "Sustainable Biofuels for Aviation in Brazil" Project - SABB, which resulted in a report on the potential biofuel production potential for aviation in Brazil and the main challenges. As a way of giving continuity to the SABB's work, the Brazilian Platform for Aviation Biofuels was established.

1.13 The Platform and the airline GOL developed, during the World Cup of 2014, the program "flying green", that consisted of the operation of more than three hundred flights with use of aviation biokerosene. The flights with biofuels were also made by the companies TAM (in association with Airbus) and Azul. The companies used biofuels based on pinion-tame and sugar cane, respectively. The project "Blue + Green" was developed in partnership with the manufacturer of aviation engines GE and Embraer. In October 2013, the airline Gol made its first commercial flight with biofuel. ANP Resolution 20/2013, which allows the addition of biofuel to aviation kerosene, up to the limit of 50% in volume, for aircraft.

1.14 The public and private sectors in Brazil have studied mechanisms to reduce the cost of production of biofuels, such as: research on abundant and cheaper raw materials, analysis of refining methods, design of logistics for production and transport of more efficient biofuels, among others. In addition, the Renewal program is in the final stages of development as a means of encouraging the production of biofuels in Brazil, especially for the road sector, but would also cover the air sector. However, it is believed that it should be necessary to develop a specific instrument within the Renovabio that promotes the organization of public and private actors for the structuring of the productive chain of aviation biokerosene in Brazil.

1.15 In relation to the financing of initiatives Argentina and Bolivia have used own resources of the National State; and Mexico has used funds from the Federal Expenditure Budget (PEF) and the SENER and CONACYT Energy Sustainability Fund.

1.16 It is important to note that in most Latin American states there is no specific strategic policy or framework for the promotion of alternative fuels for aviation; however, the initiatives that have been developed are framed in the normative provisions for the development of bioenergy, as in the case of Mexico, which has promoted initiatives within the framework of the implementation of the Law on the Promotion and Development of Bioenergetics (enacted in 2008); and the case of Brazil in the framework of Renovabio (program in final phase of elaboration in the executive power, but that will still be submitted to the approval of the National Congress).

## 2. ANALYSIS

2.1 Taking into account the successful examples of Latin American initiatives, the need for an inter-institutional and intersectoral work is visualized so that each institution contributes according to its knowledge and competences for the development of initiatives on alternative fuels for aviation; ICAO should facilitate and encourage the establishment of alliances and cooperation both within States and with others so that they can work in a coordinated manner in the various aspects of the production and commercialization of alternative fuels, for example in the exchange of information on improved species for the production of biomass, or the coordination of tests for certification processes.

2.2 These partnerships can also support other States to begin work on alternative fuels for aviation; in the case of Latin America, Argentina, Brazil and Mexico have a long way to go in this matter, so that they can support with their lessons learned and promote South - South cooperation in the development of their own initiatives.

2.3 The importance of establishing alliances and promoting cooperation on this issue was highlighted by the panelists who participated in the First Ibero-American Symposium on Environment, Civil Aviation and Climate Change held in Guatemala City from July 18 to 21 2017.

2.4 As noted in the introductory part, the financing of the initiatives has mostly been from the State's own resources, however, it is necessary that in the framework of the strategy "no country is left behind", ICAO so coordinated with cooperation agencies to disseminate programs and mechanisms that take into account the financing of various initiatives in the framework of the research, development and deployment of alternative fuels.

2.5 It is important to recognize that in a number of countries in the region there are no specific policies on alternative fuels for aviation, so ICAO could develop guidance material and promote the exchange of ideas and experiences on policy development in this area including strategic lines for the establishment of incentives, sustainability policies, technology development, financing, among others.

2.6 In this regard, it is considered relevant to emphasize that the research carried out, in addition to the development of biotubes, will consider that research on the effects of these fuels on climate change, such as the analysis of cycle of life to quantify the emissions during the whole process of the generation and consumption of these biofuels, and also addresses the methodology to estimate the mitigation of greenhouse gases that could involve, in order to generate tools and results that allow to contribute in the best decision-making to generate public policy in the matter.

## 3. CONCLUSIONS

3.1 The Latin American region ratifies its support to the International Civil Aviation Organization as the appropriate forum for discussion of important issues such as the promotion of initiatives for the production and use of alternative fuels for aviation; however, it is important to note that, through consensus, this international organization can develop strategic lines to have a harmonization of criteria in its research and deployment.

3.2 The Latin American region recognizes the importance of the proposed ICAO Vision on alternative aviation fuels to meet the challenge of encouraging States to take national and international action to develop and deploy sustainable aviation fuels without specific obligations to individual states. In addition, considering that in the foreseeable future commercial aviation has no alternatives to liquid fuels as an energy source, the prioritization of the use of sustainable fuels for the aviation sector as an acceptable way of reducing emissions from the industry.

4. **ACTION BY CAAF/2**

4.1 CAAF/2 is invited to:

- a) include among the conclusions of this Conference the need for inter-institutional and intersectoral coordination for the research and development of alternative fuels for aviation;
- b) promote programs of collaboration between States in this area, so that they can learn about successful cases and join efforts in developing initiatives together;
- c) develop a program to disseminate the different models and sources of funding available for alternative fuels for aviation and to promote partnerships for capacity building;
- d) establish strategic lines and entrust ICAO with the development of guidance material, mainly on incentives, development and transfer of technology for alternative fuels for aviation;
- e) encourage the development of policies in states that consider the aviation sector in its regulations on the use of alternative energies; and
- f) support the proposed ICAO Vision on alternative fuels for aviation, without imposing specific obligations to each state on its voluntary contributions.

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