



WORKING PAPER

SECOND CONFERENCE ON AVIATION AND ALTERNATIVE FUELS

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Agenda Item 2: Financing and Assistance Programmes for Aviation Alternative Fuels

**GENERATION OF CARBON CREDITS FROM PROJECTS RELATED TO THE
DEVELOPMENT AND DEPLOYMENT OF ALTERNATIVE FUELS,
INCLUDING AVIATION ALTERNATIVE FUELS**

(Presented by the ICAO Secretariat)

SUMMARY

This paper identifies opportunities for possible generation of carbon credits through alternative fuel projects, as a possible means to mitigate projects' investment cost.

Action by the Conference is in paragraph 5.

1. INTRODUCTION

1.1 The development and deployment of alternative fuels provide a wide array of greenhouse gas (GHG) reduction potential. Furthermore, these potential emissions reductions from projects related to the production and use of alternative fuels provide opportunities for possible generation of carbon credits to be traded in carbon markets, serving as a possible means to mitigate projects' investment cost.

1.2 Some of the existing GHG schemes at national, sub-national and supra-national level already have measures in place to allow for the generation of carbon credits from projects related to the production and use of alternative fuels, including:

- a) Processes for the production of alternative fuels can achieve GHG emissions reductions in various ways, such as carbon sequestration in the production process, and feedstock switch away from more GHG-intensive feedstock; and
- b) Use of alternative fuels leads to the replacement of more GHG-intensive fossil fuel for combustion in those end-use applications where the alternative fuels are used.

1.3 In the context of international aviation, there are, in principle, two ways in which the emissions reductions stemming from the production and use of alternative fuels can be used:

- a) Direct reduction and claiming of benefits from the use of sustainable aviation fuels (SAFs); and
- b) Generation of carbon credits outside the international aviation sector from projects and activities leading to the production and use of alternative fuels, and the subsequent use of those carbon credits to offset international aviation emissions.

1.4 At its 39th Session in October 2016, the ICAO Assembly adopted Resolution A39-3 to implement the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Information on the general design and implementation aspects of CORSIA can be found in document CAAF/2-IP/04.

1.5 With respect to paragraph 1.3 a) above, aircraft operators with offsetting requirements under CORSIA will have the opportunity to directly reduce such requirements through the use of SAFs (paragraph 6 of Resolution A39-3, which will be discussed under Agenda Item 3 of this Conference).

1.6 With respect to paragraph 1.3 b) above, aircraft operators with offsetting requirements under CORSIA can purchase and cancel eligible carbon credits to comply with such requirements, potentially including carbon credits issued from projects related to the production and use of alternative fuels outside the international aviation sector. The ICAO Council will determine which types of emissions units and carbon credits will be eligible for the use by the CORSIA, while taking into account the avoidance of double-counting of the same emissions reductions.

2. OFFSETTING PROGRAMMES FOR CARBON CREDIT GENERATION FROM ALTERNATIVE FUEL PROJECTS

2.1 Activities (projects) that achieve a given amount of GHG emissions reductions through their implementation have the potential to generate a proportional amount of carbon credits; for that to happen, the activity has to be registered under one of the existing carbon offsetting programmes. Such carbon offsetting programmes currently in operation include: the Clean Development Mechanism (CDM); the Verified Carbon Standard (VCS); the Gold Standard; and crediting mechanisms administered by national and sub-national governmental institutions.

2.2 Carbon offsetting programmes require registered projects to meet a set of criteria related to the type of activity, and to the means to quantify and verify the achievement of the related GHG emissions reductions. In most of these programmes, activities to be registered meet such criteria through complying with one of the approved methodologies under the programme. Methodologies set the conditions to monitor, quantify and estimate emissions reductions once a project is implemented.

2.3 Clean Development Mechanism (CDM)

2.3.1 In order to better illustrate the possibility of generating carbon credits from alternative fuel projects in carbon offsetting programmes, reference is made to the Clean Development Mechanism (CDM). In the context of the United Nations Framework Convention on Climate Change (UNFCCC), CDM is one of the three market-based mechanisms established under the Kyoto Protocol.

2.3.2 Under the CDM, projects achieving GHG emissions reductions in developing countries generate carbon credits named CERs (certified emissions reductions), each equivalent to one tonne of CO₂. In order to generate CERs, a project activity has to be designed in line with an approved CDM methodology. By following an approved methodology, a project: establishes a baseline scenario;

estimates emissions reductions achieved by implementation of the project; and demonstrates additionality (i.e., demonstrates that emissions reductions generating carbon credits would not have occurred in the absence of the implementation of the project).

2.3.3 Although the CDM has approved methodologies related to the production and use of various liquid alternative fuels (see Appendix¹), at the time of writing this paper, there were no CDM methodologies approved for the production or use of aviation alternative fuels (AAFs). It is worth noting, however, that CDM has two approved methodologies related to aviation activities, developed in cooperation with ICAO:

- a) Methodology AM0116: Electric taxiing systems for airplanes; and
- b) Methodology AMS-I.M.: Solar power for domestic aircraft at-gate operations.

2.3.4 With reference to the CORSIA, paragraph 25 of Resolution A39-3 requests the ICAO Council to explore further development of aviation-related methodologies for use in offsetting programmes, including mechanisms or other programmes under the UNFCCC, and encourages States to use such methodologies (e.g., those methodologies listed in the previous paragraph) in taking actions to reduce aviation CO₂ emissions, which could further enable the use of carbon credits generated from the implementation of such programmes by the CORSIA, without double-counting of emissions reduction and if determined eligible for the use by the CORSIA. Furthermore, paragraph 24 of Resolution A39-3 requests the ICAO Council to promote the use of emissions units generated that benefit developing States.

3. OTHER POLICY INSTRUMENTS FOR CARBON CREDIT GENERATION FROM ALTERNATIVE FUEL PROJECTS

3.1 Various policy instruments are used throughout the world at national and sub-national levels to reduce emissions from fuel use. These instruments can be grouped as follows:

- a) Requirements for a certain amount of alternative fuels to be blended with traditional fossil fuels for use in a given subset of end-use applications (e.g., transport, industrial facilities, etc.); and
- b) Requirements for alternative fuels to meet a specific GHG performance standard.

3.2 In some cases, these policy instruments allow for the generation of carbon credits:

- a) A constituency where a “Group a)” policy instrument is applied may allow fuel suppliers who increase the percentage of alternative fuels in a blend beyond the required minimum to generate credits that can then be sold to other stakeholders regulated by the scheme and not meeting the requirements applicable to them. The transfer of carbon credits is usually done in the context of a credit trading system created exclusively to support implementation of the regulation; and
- b) Similarly, a constituency where a “Group b)” policy instrument is applied may allow fuel suppliers who over-perform a standard (e.g., carbon intensity) to generate credits for trading in a similar way to the one described above.

¹ For CDM Methodologies please see: <http://cdm.unfccc.int/methodologies/index.html> [retrieved 7 July 2017]

3.3 It is important to note that both types of policy instruments usually apply exemptions for specific uses, with aviation fuels being a common case for such exemptions. However, the inclusion of AAFs under the coverage of these instruments is technically feasible, as it would require setting specific requirements for aviation fuels, in a way similar to that applied to other end-use applications.

4. WAY FORWARD

4.1 Carbon offsetting programmes currently in operation provide opportunities for the generation of carbon credits from the production and use of alternative fuels. However, related methodologies do not yet cover the production of AAFs to be used as a replacement of conventional aviation fuels in aviation activities. Nevertheless, methodologies for the generation of carbon credits from other aviation-related activities are approved.

4.2 As described, there are ways in which the production of alternative fuels could obtain carbon credits from offsetting programmes, serving as a possible means to mitigate projects' investment cost. In such cases, the generation of carbon credits would not be directly linked to the emissions reductions related to the use of the alternative fuel produced, but to specific aspects of the production process, including:

- a) Facilities producing alternative fuel from waste can obtain carbon credits under a GHG scheme with an approved methodology applicable to activities diverting waste from landfills, thus reducing landfill-related methane emissions; and
- b) Facilities producing alternative fuels from any feedstock can claim GHG emissions reductions and subsequent generation of carbon credits for the use of renewable energy sources in the production process (e.g., solar or wind-based electricity, solar steam or heat generation), or for the application of carbon capture and storage technologies.

4.3 There are no technical barriers for other policy instruments to allow for the generation of carbon credits related to AAFs. In most cases, the national or sub-national nature of such instruments prevents their application to international aviation activities. However, linkages with national aviation activities could be established, thus allowing for carbon crediting related to AAFs.

5. ACTION BY THE CAAF/2

5.1 The CAAF/2 is invited to recognize the opportunities for possible generation of carbon credits through alternative fuel projects, as a possible means to mitigate projects' investment cost.

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APPENDIX

LIST OF APPROVED CDM METHODOLOGIES ON THE PRODUCTION AND USE OF LIQUID ALTERNATIVE FUELS

- Methodology AMS-I.G.
Plant oil production and use for energy generation in stationary applications
- Methodology AMS-III.T.
Plant oil production and use for transport applications
- Methodology AM0089
Production of diesel using a mixed feedstock of gasoil and vegetable oil
- Methodology ACM0017
Production of biodiesel for use as fuel
- Methodology AMS-I.H.
Biodiesel production and use for energy generation in stationary applications
- Methodology AMS-III.AK.
Biodiesel production and use for transport applications
- Methodology AMS-III.AQ.
Introduction of Biogenic Compressed Natural Gas (Bio-CNG) in transportation applications

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