

Closing Remarks by the Director, Air Transport Bureau,
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**ICAO WORKSHOP ON AVIATION AND ALTERNATIVE FUELS
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After three days of a very informative workshop, I would like to summarize some of the proposals and questions raised during this event as we move toward establishing a global roadmap for Aviation Alternative Fuels and define its role in the programme of action on international aviation emissions.

The two main aims of the workshop, as laid out on the first day were: to stimulate a dynamic exchange of views and to initiate work on a global roadmap for the effective, and the responsible contribution of aviation alternative fuels to protecting the environment. I believe, having sat through some of the sessions myself, that we have been successful in both respects.

I will begin with references to the welcoming remarks by the ICAO Secretary General, Dr. Taïeb Chérif and the excellent keynote address by the IEA Senior Transport Energy Specialist, Mr. Lewis Fulton. They put some very important questions to the audience: What is the international aviation sector going to contribute to the development of alternative fuels? And, to what extent does ICAO think this would contribute towards reducing aviation's carbon footprint?

As we heard over the last three days, much progress has been achieved to date and there are high expectations for the use of more environmentally friendly drop-in alternative fuels for aviation in the short term. At the same time, research is underway with potential for a globally-available alternative fuel

in the mid to long-term. However, concerted international action will be necessary to translate this possibility into a reality.

It is clear from this workshop that aviation alternative fuels could be a win-win solution in that they will reduce aviation's dependence on climate changing fossil fuels while stabilizing the economic volatility associated with conventional fossil fuels. Now, let us take another look at these alternatives. While synthetic fuels are already or soon to be available, their environmental benefit over conventional fuels is unclear. They do however address the issue of energy security and also diversify energy sources. Biofuels, on the other hand, seem to offer environmental benefits but the production scalability issues need to be resolved. Regardless of these challenges, the importance of alternative fuels in the development of balanced and robust strategies to mitigate the impact of aviation on the environment is unquestionable.

One of the things I was struck by on the first day was the variability in estimating life-cycle costs of alternative fuels. Some said that GTL plant footprint is similar to that of an oil refinery while some others indicated that it may be as much as double that. I am sure all the analyses were done correctly but the difference in numbers points to differences in inputs and assumptions. There may therefore be a need to standardize quantification of life-cycle carbon footprints of all fuels. This will be an essential input not only to compare alternative fuels in terms of their environmental benefit but also an extremely useful tool in any schemes, market-based or otherwise, which incentivizes the use of environmentally friendly alternative fuels. ICAO can provide an adequate forum for such discussions on this matter.

The presentations from policy makers and regulatory authorities also highlighted the need for a common, standard way of measuring progress in

alternative fuels' development. The interesting concept of Fuel Readiness Levels was introduced. Similar to the need for standardized life-cycle analysis, a global framework for measuring technological progress would be desirable. Furthermore, use of standardized vocabulary and terms used in alternative fuels discussions would tremendously help communications.

As is so often the case in recent industrial undertakings where the supplier and consumer base is not limited to any one country or region, global cooperation will be essential in ensuring the consistent and standardized use of alternative fuels. This is especially true of aviation which relies on a standard and consistent infrastructure across the world for its efficient operation. However, at present, the international aviation community has not achieved an integrated approach to alternative fuels. While regional and national efforts by airlines, manufacturers, and fuel producers have done an excellent job of bringing together the expertise to consider technical issues, the subject has been addressed in a fragmented way. ICAO can help with better coordination since it is the only globally recognized forum to deal with aviation. We at ICAO are as committed as ever to exercising leadership for achieving effective coordination among all aviation stakeholders, be they States, industry or specialized agencies.

ICAO realizes that aviation stakeholders represent the leading edge of technology in our society and therefore must lead the efforts to implement solutions that reduce aviation's environmental footprint while allowing economic growth. Research and development in aviation technologies, such as the use of alternative fuels, offers great promise. Aviation, because of its pioneering technological innovations, can and should be the "first mover" at a global scale for alternative fuels. Once developed for aviation, these

technologies will also trickle down to other sectors for an overall better environmental performance.

Although most of the speakers highlighted the importance of drop-in fuels for aviation, I would like to remind us not to let this short-term concern blind us to other future technological opportunities. The higher level of environmental benefit that some of the future fuels might bring may justify the cost of developing new aircraft and engine architectures or possibly retrofitting the existing ones. The futuristic concepts presented by NASA and some of the manufacturers should also continue to be pursued.

The global roadmap that all of us will be working on in the next few months should include:

- Coordination mechanisms among the major international specification groups on new fuel specification and simplified approvals of new alternative fuels
- Rules and standard methodologies for calculating lifecycle (well-to-wake) carbon footprints
- A globally harmonized way of assessing technology readiness level of aviation fuels
- A standardized vocabulary and definition of terms used in alternative fuels
- Guidance to facilitate airport/airline/distributor/fuel supplier costs and benefits

- Alignment of several broad feedstock-centric research roadmaps and programmes to ensure bio-fuel supply development is coordinated between aviation, agriculture and renewable fuel interests
- Alignment of various national and government-backed infrastructure investments in synthetic and bio-fuel pilot plants and possibly full-scale production facilities

A lot of useful information has been gathered at this workshop. This information will surely assist ICAO and all aviation stakeholders in establishing a global roadmap for alternative fuels that enables the aviation sector to diversify its fuel supply base. This is essential in protecting the environment while enabling aviation growth.

ICAO is, of course, at the forefront of this international coordination and is leading the way to a globally agreed road map that will identify the roles and responsibilities of the main stake-holders as well as provide a timeline of actions.

In conclusion, on behalf of ICAO and the workshop participants, I wish to thank the Environmental Unit, ably headed by Ms. Jane Hupe, for organizing such an insightful and informative workshop. I would especially like to acknowledge Ms. Blandine Ferrier for her tireless efforts in the organization of this workshop.

My most sincere gratitude also goes to the speakers, chairs and moderators of the different panels who took the time out of their very busy schedules to be here and share their important work with us. Last but not the least, I would like to thank each and every one of you for attending and actively participating in this workshop. I wish everyone a safe and “carbon-efficient” return home.

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