Sustainable Aviation Fuels: A Canadian Perspective

2019
The Green Aviation Research and Development Network (GARDN) is a not-for-profit organization primarily funded by the Business-Led Network of Centres of Excellence (BL-NCE) of the Government of Canada and the Canadian aerospace industry. GARDN’s mission is to increase the competitiveness of Canada’s aerospace industry by reducing its environmental footprint. In 2018, a number of GARDN projects were also funded by the Government of Canada through Natural Resources Canada (NRCan) and Environment and Climate Change Canada (ECCC).

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EXECUTIVE SUMMARY

Nearly 15 years ago, Canada was among the first countries to voluntarily set environmental targets to reduce the carbon footprint of commercial aviation and to pioneer research into the development of sustainable aviation fuels (SAF). Ongoing efforts to reduce greenhouse gas (GHG) emissions from the air transport sector at the federal and provincial levels include a variety of regulatory and policy instruments to incentivize the production and uptake of SAF across Canada.

Since 2009, the Green Aviation Research and Development Network (GARDN) has played a pioneering role in the development of SAF through collaborative research projects where cross-sectoral industrial and academic partners have co-created less-environmentally-impactful ways to travel by air.

Whereas some of the proposed mechanisms analyzed in this white paper can contribute to the development of SAF supply chains from a regional perspective, they will not, by themselves, drive the transition toward commercial deployment of SAF.

Future efforts demand addressing current gaps and opportunities from a collaborative and integrated perspective throughout the following strategic areas: (1) research, development and demonstration (RD&D) and innovation, (2) financing and strategic partnerships, (3) policy and regulations, (4) technical and sustainability certifications, (5) outreach and knowledge transfer, and (6) consortia-building and regional initiatives.

These strategic areas form the basis of GARDN’s vision of a Pan-Canadian Sustainable Aviation Fuels Initiative (SAFI Canada), a commercialization roadmap that builds on the principles of the circular economy, strategic eco-design and industrial symbiosis to advance the decarbonization of the Canadian air transport sector through the use of domestically produced SAF.

To operationalize the objectives pursued by SAFI Canada, this document encompasses a set of succinct recommendations for each of the analyzed strategic areas that require further work to bridge the “valley of death” while avoiding the introduction of competition distortions within the aviation sector.