

CAAFI Environment Team Advances Greenhouse Gas and Sustainability Metrics for Sustainable Alternative Jet Fuel Deployment

What? A path forward for addressing greenhouse gas life cycle analyses (GHG LCA) and sustainability issues was agreed to at the Environment Team meeting of the Commercial Aviation Alternative Fuels Initiative (CAAFI). The meeting was hosted by the Federal Aviation Administration (FAA) and the Air Transport Association of America (ATA) on August 24th and 25th, 2010 in Washington, DC. The following provides meeting outcomes as reported by CAAFI sponsors who lead or are key participants on the team.

Why? Gaining agreement on how to assess and confirm the environmental impacts of alternative fuels as they are produced and used is critical to their deployment. The CAAFI Environment Team is taking this issue head on, preparing guidance for calculating/evaluating life cycle greenhouse gas emissions (GHG LCA) and other aspects of sustainability that are needed to assess the environmental impacts and sustainability of alternative aviation fuels. In particular, near term GHG LCA guidance will help facilitate long-term off-take agreements for alternative aviation fuels.

Who? The CAAFI Environment Team includes stakeholders from the commercial aviation and alternative fuels communities, including airlines, equipment manufacturers, fuel producers, government agencies, military, environmental groups and academia.

Meeting Highlights

The Environment Team reviewed and discussed the latest work in aviation alternative fuel GHG LCA, including indirect and direct land use change, water usage, and land use efficiency, as well as the status of regulatory efforts such as the Renewable Fuels Standard 2 from the U.S. Environmental Protection Agency. The team also focused on broader questions of sustainability, including sustainability activities at the U.S. Department of Energy, the European Sustainable Ways for Alternative Fuels and Energy in Aviation (SWAFEA) program and sustainability criteria developed by the Roundtable for Sustainable Biofuels and the International Standardization Organization (ISO). The sustainability criteria cover environmental aspects such as biodiversity, water and air quality, toxicity, and in some cases, economic and social issues such as community development, labor relations, and corporate governance. The group also heard about the concerns of non-governmental environmental organizations with regard to biofuel development and deployment.

The primary goal of the meeting was to identify key environmental issues to be evaluated in addition to greenhouse gas emissions and to develop a strategy for defining analysis approaches for those resources. The Environment Team reviewed and discussed various approaches to sustainability and the need for resource evaluation. It was decided that the team would form two subgroups: the first would spearhead the continued GHG LCA approach to provide more specific guidance on GHG LCA in the context of alternative aviation fuels, with expansion to cover issues relating to indirect land use change, while the second would develop a list of key resource sustainability issues that may be relevant in purchase decisions for aviation alternative fuels. While a core group of experts will undertake the work, the broader CAAFI Environment Team will provide stakeholder review.

Presentations

The CAAFI Environment Team would especially like to thank the following contributors and their organizations for their presentations during the meeting:

Presenter	Organization	Topic
Lourdes Maurice Nancy Young Kristin Lewis	Federal Aviation Administration Air Transportation Association of America DOT John A. Volpe National Transportation Systems Center	Sustainable Alternative Fuels, GHG Emissions, and Beyond
Warren Gillette	Federal Aviation Administration	Roadmap Discussion
Nancy Young	Air Transportation Association of America	Recent U.S. Government and Airline Partnerships: Farm to Fly and DLA-Energy Strategic Alliances
Aaron Levy	U.S. Environmental Protection Agency	Renewable Fuel Standard 2 Life Cycle Analysis (LCA) Update
William Harrison	Air Force Research Labs	Update on Interagency Working Group activities on AFRL Framework and Guidance Document for Estimating GHG Footprints of Aviation Fuels and Case Studies
Dave Morgan	U.S. Department of Energy – National Energy Technology Labs	Results on AFRL Framework and Guidance Document for Estimating Greenhouse Gas Footprints of Aviation Fuels
Jim Hileman	Massachusetts Institute of Technology	PARTNER Project No. 28 - Alternative Fuels Cost Benefit Analysis and First Order Approximation
Bruce Dale	Michigan State University	Increasing Crop Production Without Incurring Land Use Change
M. Michael Hightower	Sandia National Laboratories	Water for Energy
Phillipe Novelli	ONERA	Sustainable Way for Alternative Fuel and Energy (SWAFEA) and European Approach to Lifecycle Analysis and Sustainability
Elizabeth Schuler Kate Collarulli Brian Siu	World Wildlife Fund Sierra Club National Resources Defense Council	NGO Roundtable Discussion: LCA Beyond GHGs – Sustainability, ILUC, Biodiversity and Other Concerns
Alison Goss Eng	U.S. Department of Energy	Overview of DOE’s approach towards the creation of sustainable biofuels through the consideration of water resources, feedstock production, indirect land use, and biodiversity
Antoinette “Toni” Stein	American Center for Life Cycle Analysis	Overview of the International Standards Organization system for product LCA and sustainability comparison
Matt Rudolf	Roundtable on Sustainable Biofuels	Overview of RSB and its sustainability activities

Actions

- 1) A subgroup headed by Jim Hileman (MIT) will pursue expansion and refinement of GHG LCA guidance and analyses for aviation alternative fuels.
- 2) A subgroup headed by Kristin Lewis (DOT, Volpe Center) will pursue sustainability criteria and guidance beyond GHG LCA.

- 3) The two subgroups will provide refined, concrete guidance that may be used to define the GHG LCA and other resource sustainability terms for future alternative aviation fuel purchase agreements.

About CAAFI

CAAFI's mission is to enhance energy security and environmental sustainability for aviation through alternative fuels. CAAFI is a forum that focuses the efforts of the U.S. commercial aviation supply chain 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 needed data, and motivate and focus research on aviation alternative fuels. See CAAFI Fact Sheet:

<http://www.caafi.org/about/brochure.html>