



2016 CAAFI® Biennial General Meeting

October 25-27, 2016

Walter E. Washington Convention Center, Washington, DC

Meeting Summary and Outcomes

The 2016 CAAFI® Biennial General Meeting (CBGM) focused on advancing development, demonstration, deployment and commercialization of sustainable alternative jet fuels (SAJF).

The two and a half day meeting provided the opportunity to engage with leaders from across the sustainable alternative jet fuel (SAJF) industry as CAAFI celebrated its 10-year Anniversary. Over the past decade, CAAFI, its members, and the broader aviation community have jointly created the foundation for SAJF development and deployment successes. Participants reviewed the past 10 years of progress, then concentrated on plotting a combined course of action to efficiently accelerate the development and commercialization of significant amounts of SAJF now and in the future.

“With the right policies, the American airline industry will become a willing buyer of competitively priced alternative jet fuel.”

- Michael Scuse, USDA Acting Deputy Secretary of Agriculture

The CBGM is intended to: enable the periodic review of progress made by CAAFI work groups and individuals; foster dialogue about challenges and strategies that spread across various work efforts; create networking opportunities for the furtherance of individual efforts; and provide a forum for general communications from leaders in the industry.

Keynote speakers, panel discussions, and individual presentations provided real-world examples of how the industry is moving toward commercialization and discussed remaining challenges.

Meeting Highlights:

The 2016 CBGM was well attended by professionals across government, industry, and academia, representing the variety of institutions that are eager to advance implementation of SAJF.

CAAFI was honored to host several high-level keynote and guest speakers, including Assistant Secretary of the Navy **Dennis McGinn**, NASA Associate Administrator for Aeronautics Research Mission Directorate **Jaiwon Shin**, JetBlue Interim Chief Financial Officer **James Leddy**, FAA

Administrator **Michael Huerta**, USDA Acting Deputy Secretary of Agriculture **Michael Scuse**, and Transportation Attache of the Indonesian Embassy in Canada, and Alternative Indonesian Representative to ICAO **Saptandri Widiyanto**. These high-level speakers demonstrated their personal commitment to sustainable alternative jet fuels, as well as that of their respective organizations.

Discussion panel and presentation topics included:

- International Aviation Climate Change Policy
- Commercial Successes and Challenges
- U.S. Leadership and Cooperation Activities
- Project Activity Around the World
- Research for the Future of Alternative Fuels
- SAJF Certification and Qualification
- U.S. State and Local Initiatives
- Defense Production Act Progress
- Great Green Fleet Update
- Parade of Commercialization Pursuits
- Stakeholder and Federal Perspectives on the Federal Alternative Jet Fuel Research and Development Strategy (FAJFRDS)

“It’s immensely encouraging to hear about the continued commercialization progress from companies with approved and pending SAJF qualifications, and the several discrete technologies that enable those pathways.”

-Steve Csonka, CAAFI Executive Director

The afternoon of Day 1 included seven “Unconference” Discussion Sessions. These Unconference Sessions provided opportunities for participants to share their perspectives on current challenges for the development, demonstration, and commercialization of alternative jet fuels.

The topics of the seven sessions were:

- Evaluating Sustainability
- Feedstocks and Feedstock Systems
- Enhancing Fuel Qualification Process
- Additional Revenue Streams
- Evaluating Techno-Economic Viability
- Airport Infrastructure Evaluations
- Key Fuel Qualification Challenges

The **Evaluating Sustainability** session focused on the challenges of coming up with a path forward for global sustainability requirements taking into account regional / country regulations and voluntary certification schemes. In the

“Our industry stepped forward as the first global industry to develop a common mechanism to address climate issues.”

Michael Huerta, FAA Administrator

Feedstocks and Feedstock Systems session, participants talked about feedstock maturity, issues relating to particular crops/feedstocks, the challenge of minimizing environmental damage, local/regional needs, and the need for feedstock innovation to develop new options. In

the **Enhancing Fuel Qualification Process** session, participants focused on the challenges of getting fuel research reports reviewed and how this could be better facilitated and prioritized, as well as the potential for development of a generic annex to D7566 that could aid producers getting into the marketplace. The **Additional Revenue Streams** session focused on the need for projects to have multiple outputs to ensure economic viability, specifically discussing water quality benefits as an opportunity, and talked about technological advances that may enable a more diverse agricultural system in the near future.

Challenges discussed in the **Evaluating Techno-Economic Viability** session included the need for consistent approaches to assumptions about depreciation and rate of return, the difficulty of acquiring real-world data and the uncertainty of future conditions, how to project “nth” plant performance, and appropriate inclusion of the policy environment, as well as how to incorporate social and economic benefits and performance. The **Airport Infrastructure Evaluations** session examined the potential role of the airport in getting alternative jet fuels into the system and the delivery infrastructure needs that must be met to enable airport acceptance and distribution of SAJF. The group also discussed the need for evaluating integration requirements at multiple key airports.

Day 2 began with break-out sessions of the four CAAFI teams – Environment, Research & Development (R&D), Business, and Certification-Qualification (CQ) – for concurrent 90 minute sessions. At this time, each team focused on its particular area of expertise, reviewing and discussing recent CAAFI activities and products, and taking suggestions for future work plans. On Day 3, before delving into the panel discussions on the FAJFRDS, the CAAFI team leaders reported back to the plenary summarizing the various breakout session activities, outcomes, and team next steps. Takeaways from each team’s break-out session are listed below.

- The **Business Team** focused on means of making the economics of SAJF more attractive, including engaging partners that would utilize co-products of SAJF production. The team also discussed the need for a best practices document to facilitate connections between federal, state, and local business initiatives. Additionally, there is a need to focus on supply side pricing for airlines and how fuel providers can best approach airlines.
- The Environment Team unanimously voted to rename the group the **Sustainability Team**, enabling the group to focus on additional integrated sustainability challenges. During the break-out session, the team discussed the ICAO Greenhouse Gas Life-Cycle

Assessment Methodology document and provided feedback on how alternative jet fuel might be included as an opt-in credit-generating fuel under the California Air Resources Board Low-Carbon Fuel Standard.

- The **CQ team** reviewed the ASTM D4054 Standard Practice for Qualification and Approval of New Aviation Fuel as well as the ASTM D7566 generic annex for SAJF. The team identified concerns, such as how the clearinghouse will deal with the timing of original equipment manufacturer review, as well as areas for improvement, such as incorporating independent verification to ensure fuel meets all requirements.
- The **R&D team** acknowledged that while five SAJF ASTM annexes have been approved, commercialization of SAJF still isn't where we would like it to be. Towards this effort, the team discussed larger themes of conversion/cross-cutting technologies (need to prepare for the next generation of processes), scale-out (need to focus on diversification and develop incentives to level the playing field) and feedstocks and logistics (need to establish best practices for a complete supply chain), as well as ideas for additional CAAFI community communication.

Outcomes & Next Steps:

In line with CAAFI's purpose, the meeting strengthened the alternative jet fuel community by providing attendees the opportunity to exchange knowledge, network with peers, and build partnerships. Through the discussions, work team efforts, and overall engagement at the meeting, CAAFI identified several potential goals for the upcoming year, including:

"Forget scaling up, scale out!"

-Bill Goldner, USDA on SAJF
Feedstocks

- Continuing to improve information sharing and network development for the alternative aviation fuel industry
 - Continuing to bring together stakeholders and supply chain participants
 - Encouraging inclusion of double cropping/winter crops in next Billion Ton Study update
 - Strengthening CAAFI messaging both internally and externally
 - Better communicating positive outcomes to legislators to encourage the development of new incentives
- Continuing to fostering advancement of several new alternative fuel conversion pathway definitions for inclusion in the ASTM D7566
- Increasing use of CAAFI evaluation tools, including the Fuel Readiness Level, Feedstock Readiness Level, and Environmental Progression
 - Developing a set of standards by which the market can select feedstocks
 - Continuing use and expand repository of Feedstock Readiness Level evaluations
 - Developing a ranking of airport readiness for SAJF and support subsequent studies through ACRP, ASCENT, GARDN, etc.

- Consider creating harmonized definitions of techno-economic analyses elements to enhance transparency and comparability of analyses
 - Continuing to develop evaluative tools to increase the understanding of conversion pathways
- Working closely with federal, state and local governments to design and implement state and regional initiatives that foster development of the alternative aviation fuel supply chain
 - Considering how technological advances will enable agricultural diversification
- Continuing to improve global coordination on alternative jet fuel development, evaluation and deployment
- Continuing to expand the development of pre-processing and refining facilities in the supply chain, which is currently the biggest challenge in terms of feedstocks and logistics
- Examining competing and/or complementary markets to gain understanding of how to increase scale through initial markets of high-value low-volume products

CAAFI will consider these opportunities as part of future initiatives planning.

“We are not looking at next month, next year, or even next election cycle. We are looking at the future.”

- Dennis McGinn, Assistant Secretary of the Navy

CAAFI expects to uphold the tradition of the Biennial General Meeting and convene again in 2018. CAAFI is sponsored by the U.S. Federal Aviation Administration, Airlines for America (A4A), Aerospace Industries Association (AIA) and Airports Council International-North America (ACI-NA). Presentations, photographs, further meeting details, and additional information are provided on CAAFI’s website: <http://www.caafi.org>.