

A Note from the Executive Director

This [CAAFI Quarterly](#) newsletter describes the CAAFI activities and events that occurred July through September 2018.

In this issue, we preview the upcoming CAAFI Biennial General Meeting to be held December 4-6 at the Washington Marriott at Metro Center in Washington, DC. Visit the [registration site](#) for details and to register.

I also want to make sure you're aware of the following upcoming items:

- [ABLC Global 2018](#), November 6-9, San Francisco, CA
- IATA Alternative Fuel Forum, November 15-16, Singapore

We appreciate questions, comments, and suggestions at any time. Enjoy!

Steve Csonka and the CAAFI Team

Quick Links

⇒ Check out "[What's New](#)" for a brief review of noteworthy SAJF news from the last quarter, including funding opportunities.

⇒ Go to "[Ask CAAFI](#)", a segment that highlights and explains relevant topics that impact the SAJF industry.

⇒ See "[CAAFI Team Highlights](#)" for a snapshot of CAAFI work teams' projects and progress last quarter.

⇒ Jump to "[SAJF Deployment Projects](#)" for a summary of select deployment projects around the United States.

What's New?

[Airbus and JetBlue announced a joint commitment to sustainable aviation fuel with first-ever customer delivery flights of new aircraft from the Mobile, AL production facility](#)

[Red Rock Biorefinery Breaks Ground!](#)

[AltAir Fuels Wins another DLA Energy Contract to provide Renewable Diesel to the U.S. Navy](#)

[U.S. Department of Energy awards grants to 36 bioenergy research & development projects, including four alternative jet fuel projects](#)

[Natural Resources Canada Call for Entrants to "The Sky's the Limit Challenge" for Sustainable Alternative Jet Fuel Producers](#)

[Finnair Study Shows Customers Willing to Pay to Mitigate Impact of Flight Emissions](#)

[LanzaTech and Velocys Among Seven Successful Grantees for UK Government Grants Supporting Advanced Fuels Production Plants](#)

[SAS and Preem Sign Letter of Intent to Produce Sustainable Alternative Jet Fuel](#)

[The Business Aviation Community Released "Business Aviation Guide to the Use of Sustainable Alternative Jet Fuels" at European Business Aviation Convention & Exhibition \(EBACE2018\)](#)

[Gevo and Avfuel Agree to Long Term Supply Agreement](#)

Additional information on these news items and additional funding opportunities can be found at [caafi.org](#).

Ask CAAFI

Question: Why should you attend the CBGM?

Answer: The CAAFI Biennial General Meeting is an excellent opportunity for CAAFI stakeholders and leaders alike to experience the momentum of the alternative aviation fuel market, which is in a state of continuous development and maturation.

The event is scheduled for December to allow for the presentation and discussion of results from a number of key events from this year, including: outcomes from International Civil Aviation Organization's (ICAO) Committee on Aviation Environmental Protection (CAEP) meetings; progress regarding the next Farm Bill; the 2018 mid-term election results and implications; and, the maturation of several commercial activities. We'll have keynotes from U.S. airline leadership and Ray Mabus from the Mabus Group and former Secretary of the Navy. We also anticipate some exciting announcements at the meeting from some of our stakeholders! We welcome your participation and are excited to discuss what's next for alternative jet fuel.

The meeting will be held from December 4-6, 2018 at the Washington Marriott at Metro Center in Washington, DC. An overview of the meeting is provided below. The full version of the current agenda can be found [here](#).

Day 1 Morning Session - Commercialization Progress and Value Proposition of Sustainable Alternative Jet Fuel (AJF): In this session we will hear about alternative jet fuel (AJF) deployment progress and plans, discuss key drivers of value proposition for sustainable AJF, and hear about a variety of emerging technologies.

Day 1 Afternoon Session - Aligning Efforts to Enable Commercial Deployment: This session will focus on an introduction to the Aviation Sustainability CENTER (ASCENT) activities, and how the work of ASCENT is applicable to commercialization efforts. Sample analysis to be reviewed include national analyses for lipid-based fuel production, future U.S. AJF production.

Day 2 Morning Session - Aligning Efforts to Enable Commercial Deployment (continued): We will spend the morning exploring ongoing supply chain

development efforts across the U.S., including the USDA Coordinated Agriculture Projects focused on sustainable AJF, CAAFI State Initiatives, ASCENT's regional supply chain projects, and real-world supply chain successes.

Day 2 Afternoon Session – A Preview of the Global Scene: We'll get an update on the International Civil Aviation Organization's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) as a prelude to Thursday's Global Scene session talking about ongoing activities around the world.

Day 3 Morning Session - Implementing Tools and Best Practices: Our final day will start with a discussion of tools and best practices that can facilitate feedstock and technology maturation, commercialization, and deployment. CAAFI will present a New Approach to Connecting Fuel Producers and Airlines, we will discuss CAAFI readiness resources. Then we'll discuss efforts ongoing at airports to help facilitate commercialization.

Day 3 Global Activities: The second half of Day 3 will focus on activities of partners and stakeholders around the globe. We'll hear from international partners on unique research projects, deployment activities, and public-private partnerships. And don't miss the excellent networking opportunities with key industry stakeholders in side meetings and during the receptions at the end of Days 1 and 2!

You can still register for the meeting, and exhibit options (an exhibit table or poster) are still available. You can also become a sponsor of the event. Details on registration, exhibit, and sponsorship options can be found on our registration website.

Click this [link](http://eventmanagement.cvent.com/events/2018-caafi-biennial-general-meeting/event-summary-435ab849ae794b35b1fc68ff29bc50eb.aspx) (or copy and paste the following <http://eventmanagement.cvent.com/events/2018-caafi-biennial-general-meeting/event-summary-435ab849ae794b35b1fc68ff29bc50eb.aspx>) to register today!

CAAFI Team Highlights
Business —

- ⇒ Continued to expand work with prospective alternative fuel producers and airlines to facilitate opportunities for airline and other end user engagement, identifying supply logistics needs and informing contract processes.
- ⇒ CAAFI leadership continues to work with several firms approaching commercialization, including SG Preston, ARA (and several of its licensees), Velocys, LanzaTech, and others.
- ⇒ Continuing to foster expanded engagement by the latest two NIFA/AFRI/CAP projects, [SPARC](#) and [SBAR](#).
- ⇒ CAAFI is creating a Commercialization Engagement Framework to assist future SAJF producers with business maturation leading to airline engagement for the purpose of achieving offtake agreements.

Certification/Qualification —

- ⇒ An ASTM ballot proposal to add a “fast track” option to the D4054 qualification process is nearing completion (released on 17Oct). This annex will allow for a reduced scope of testing for candidate alternative fuels that have a jet fuel-like composition.
- ⇒ HFP-HEFA (Green Diesel): The OEMs have completed their review of the Phase 1 version of the research report, but additional investigation of the feedstock quality and composition is currently underway. Additional fit-for-purpose testing and rig testing (combustor, fuel nozzle spray, APU cold/altitude starting) have been conducted under the FAA CLEEN II R&D program per recommendations out of this OEM review.
- ⇒ ARA CHJ: ARA submitted a draft version of the Phase 2 research report on September 7 and it is now undergoing final clean-up prior to submittal to the OEM review team. The U.S. Navy has completed its engine test and is in the process of issuing the associated report. The OEMs will work collaboratively with ARA to advance this conversion pathway to ASTM ballot as soon as they receive the Phase 2 research report.
- ⇒ Virent Hydrodeoxygenation: The OEMs have completed their Step 3 review of the Synthesized Aromatic Kerosene (HDO-SAK) research report and have submitted their

comments and Tier 3 and 4 test requirements to Virent. Virent is now reviewing the comments. The FAA is collaborating with an OEM to conduct the required rig testing under the CLEEN II R&D program.

- ⇒ Shell/CRI has submitted their initial batch of test fuel from their IH² demonstration facility to the D4054 Clearinghouse at UDRI and Tier 1 and 2 testing has been initiated. Shell is also working with the FAA to provide additional fuel for testing under the ASCENT National Jet Fuel Combustion Program (NJFCP) to provide data that will help develop streamlined rig testing concepts that may be used to pre-screen candidate alternative jet fuels.
- ⇒ IHI expects to deliver an initial batch of hydroprocessed Bb oil to the University of Dayton for D4054 Clearinghouse testing in October.

Sustainability —

- ⇒ Continued to participate in the LCA, sustainability and alternative fuels tracking work in the ICAO CAEP AFTF and GMTF.
- ⇒ Provided supporting environmental sustainability data for CA LCFS and Oregon Clean Power Plan proposals to add sustainable jet fuel to their programs on a voluntary basis.

R&D —

- ⇒ Continued to engage companies with emerging alternative jet fuel pathways.

SAJF Deployment Projects

- ◇ **North Florida** - CAAFI's engagement with the Southeast Partnership for Advanced Renewables from Carinata (SPARC) is helping set important supply chain development precedents. While the activity of SPARC is funded by USDA NIFA, complementary CAAFI activities are being developed in member states and via the engagement with Freight and Fuel Transportation Optimization Tool (FTOT) team at the Volpe Center.

- An initial “beta test” for a “bottom up” analysis centered on the SPARC supply chain utilizing Volpe’s FTOT model was executed in Cambridge, MA. The University of South Florida (USF) is leading this initiative in coordination with FAA and Volpe with accumulated inputs from the SPARC Supply Chain Team. The scenarios were assembled with data from ARA (processing), Agrisoma (grain and meal delivery) and CAAFI (fuel outputs and supply chain coordination). USF visited Volpe during the quarter to further explore potential scenarios and familiarize USF with FTOT. The Supply Chain and SPARC leadership teams are currently developing the data for the next set of FTOT analyses.

◇ **Virginia and Multistate South Central Atlantic Coast Region F2F2** – The Southcentral Atlantic State Supply Chain Alliance (SASSCA) received notification in mid-July of USDA NIFA’s approval of the their Letter of Intent (LOI), this Clemson-led team is focused on completing a full proposal for the forest / wood based project for \$10 million over 5 years. The team includes Clemson, North Carolina State University (NCSU), Virginia Tech (VT) and University of Virginia (UVA). CAAFI’s own Rich Altman will lead the cross-functional supply chain initiative and will focus and coordinate the efforts of the SASSCA research team through an Advisory Board, including FAA, DOE, USDA Rural Development, CAAFI Assistant Executive Director, processors Velocys and Honeywell, and airlines United and FedEx.

- This project may create a generalized template for identifying potential facility sites via the integration econometric analysis (NCSU), agent-based analysis (VT), harvesting analysis (Clemson) and full systems analysis (UVA).
- The SASSCA team is also focusing on a comprehensive long-term effort to build a co-product base using lignin and new gasification efforts to produce sustainable ethanol from forest waste made possible by advanced catalyts.
- CAAFI organized a meeting in Richmond, VA with the VA Secretary of Agriculture and Forestry, as well as VA Economic

Development to engage the Secretary’s office in both the VA and SASSCA efforts as Advisory members. Nate Brown (FAA) and Aaron Robinson (United) represented CAAFI and the aviation industry at the meeting. As a result of the meeting VA State government joined the SASSCA Advisory Board.

◇ **Vermont F2F2** - With the encouragement and engagement of Vermont’s Agriculture Department and their counterparts in Quebec, the F2F2 team members are exploring the option of engaging in the Canadian Green Aviation Fuel Innovation Competition, and are currently contacting aviation, dairy and research entities in Canada to establish interest. Success hinges on the engagement of Quebec utility company Energir (formerly Gaz Metro) that had previously expressed interest. CAAFI’s role, if the project proceeds, will be to engage Natural Resources Canada and customer interests to secure their support. Proposals are due February 2019.

◇ **South Florida F2F2 / Georgia** - In the first half of 2018, LanzaTech’s ethanol-to-jet process was added to the ASTM D7566 Specification for alcohol-to-jet fuels, and in the same quarter, LanzaTech received a grant from DOE to move forward with the evaluation of an up to 20 million gallons per year fuel processing facility at its Freedom Pines facility in Soperton, GA, with a target operation start date in 2020. South Florida beets, Louisiana sorghum and now advanced research emanating from the SASSCA project for wood-derived ethanol are all candidates for further development to ensure the opportunity for local supplies and low feedstock cost, which will maximize economic development and job opportunities in the region.

◇ **Connecticut F2F2** - Discussions continued with the Connecticut Center for Advanced Technology (CCAT) regarding the path to reopening consideration of the conversion of the current South Hartford Materials innovation and Recycling Authority (MIRA), which is supported by the operator. The move follows a failure of the initial proposal for facility conversion. Two Fischer-Tropsch providers and at least one airline customer expressed interest during the

reporting period. These opportunities are scheduled for discussion with new CCAT leadership after the election. A meeting to put together an action plan is anticipated by year-end.

If you are aware of other scenarios that could be appropriate for a regional development effort, please let us know. For more information, see [CAAFI's State Initiatives](#) page.

Please check the [CAAFI website](#) on a regular basis for more detail on pending activities.

Email peter.herzig@dot.gov with any ideas for CAAFI Quarterly items of interest, caafi.org news suggestions, or inquiries about subscription to the CAAFI Membership group.