



A Note from the Executive Director

This CAAFI Quarterly newsletter describes the CAAFI activities and events that occurred April through June 2021. In this issue, we share industry updates and CAAFI team accomplishments. I also want to make sure you are aware of the following upcoming items:

- FAA [CLEEN Consortia meetings](#), week of 01Nov
- [IATA SAFS, Virtual](#) (08:00-11:00 EDT), 3-4 Nov
- IATA AFF, Geneva Hybrid Event, 9-11 Nov,
- [AFCC Inaugural Conference](#), DC, 14-16 Nov
 - SAF will feature prominently via plenary discussions, breakouts, and workshops, including participation from producers, CAAFI personnel and Interagency Work Group leads. CAAFI participants can register for the conference at a discount using the code “CAAFI”.
- ASTM D02 Fall Meeting, Virtual, 17 Nov - 02 Dec
- OPIS LCFS & Carbon, San Francisco, 01-03Dec
- Airbus Sustainability Event, Mobile, AL, 01Feb
- Biofuels International Conference & Expo, Brussels, 15-16 Mar
- ABLC, Washington, DC, 16-18 March
- Our own CAAFI Biennial General Meeting, Washington, DC, 2-3 Jun

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 SAF news from the last quarter, including funding opportunities.
- ⇒ Go to “[Ask CAAFI](#)”, a segment that highlights and explains relevant topics that impact the SAF industry.
- ⇒ See “[CAAFI Team Highlights](#)” for a snapshot of CAAFI work teams’ projects and progress last quarter.
- ⇒ Jump to “[SAF State and Regional Efforts](#)” for a summary of select deployment projects around the United States.

What’s New?

- [Chevron and Gevo to Build SAF Facility](#)
 - [Shell Makes SAF Production Announcements](#)
 - [Biofuel Producers Suggest Changes to SAF Tax Credit Plan](#)
 - [American Airlines Partners with Breakthrough Energy Catalyst](#)
 - [Cathay Pacific Commits to Using 10% SAF by 2030](#)
 - [Honeywell and United Invest in Alder Fuels to Produce SAF](#)
 - [Chevron to Test SAF with Delta Airlines](#)
 - [JetBlue to Expand SAF Use](#)
 - [Boeing and SkyNRG to Scale SAF Globally](#)
 - [American Airlines Set Science-based Targets to Reduce Emissions](#)
 - [Rolls-Royce and Shell Collaborate in SAF Push](#)
 - [Fulcrum Completes Construction on Sierra BioFuels Plant](#)
 - [AvFuel Supplies SAF to FBO](#)
 - [First Flight Using Two Types of SAF](#)
 - [BSCR Standards are Now Official in Canada](#)
 - [Nippon Airways Using Microalgae ASTM Certified Fuel](#)
 - [Rolls-Royce Announced Plans to Enable Net-Zero Economy](#)
 - [UPS Aims to be Carbon Neutral by 2050](#)
- Additional information on these news items and additional funding opportunities can be found at caafi.org.*

CAAFI Leadership Team and Steering Group members continue to edit and/or contribute to a

[Frontiers in Energy Research Sustainable Aviation Fuels “Research Topic.”](#) This collection will be an open-source resource for SAF research and perspectives. Three papers have been published in the special topic so far on fuel properties, feedstock characterization, and new biorefinery concepts. Keep an eye on this Research Topic for more papers to be published soon.

Special Note: Deciding to pursue some new challenges, Nancy Young left her position at A4A last week, after investing 14 years of impactful effort as VP of Environmental Affairs at A4A. We would like to acknowledge the special contributions that Nancy has made on behalf of the aviation enterprise and its pursuit of improved sustainability. She has worked effectively with ICAO/CAEP, CAAFI, CLEEN, ASCENT, REDAC, NASA R&D and much, much more, on policy, outreach, and creating vision. We thank her for her years of service, as a dedicated colleague and valued friend. We will miss her leadership and advocacy and wish her luck in her next endeavor.

Ask CAAFI

Question: What is the U.S. Government SAF Grand Challenge and what will it mean for the industry?

Answer: On Thursday, September 9, 2021, the U.S. government announced a [SAF Grand Challenge](#). Goals identified include increased government engagement that will enable the U.S. domestic production of 3 billion gallons of SAF per year by 2030, and full replacement of petroleum-based jet fuel (approximately 35 billion gallons per year) by 2050. The Challenge is accompanied by a [Memorandum of Understanding](#) between the U.S. Departments of Energy, Transportation, and Agriculture.

CAAFI appreciates the recognition by the government of the truly “grand challenge” associated with decarbonizing aviation (commercial, business, general, special use, and military), and how SAF will play a predominant role in enabling such to occur in a timely manner. We also value the recognition of the importance of the aviation sector in delivering significant jobs, gross domestic product (GDP), and trade, essential to the health of our

economy, as well as providing a means of safe, high-speed, efficient transport of people and goods.

While the aviation industry appreciates all the work that has been accomplished so far through academic, private, public, and joint efforts, CAAFI also recognizes the government’s acknowledgement that much work remains. SAF has been in development since 2006, and has been in commercial use since 2016, but SAF usage has remained very modest as a result of insufficiently coordinated efforts to address risk, cost, competition with other renewable uses, and overall scale-up.

CAAFI leadership commits to working with the [SAF Interagency Working Group](#) (SAF IWG) that has been tasked with developing the SAF Grand Challenge Roadmap and Recommendations over the coming 6 months. We then look forward to participating in that roadmap’s execution. CAAFI believes this will accelerate the ramp-up of SAF production from a very broad range of sustainable feedstocks and conversion processes through supported research, development, demonstration, and deployment efforts, as well as implementation of enabling policy initiatives. CAAFI strongly believes that domestic SAF production can result in significant development of jobs and rural development, while providing other environmental services (e.g., improved air quality, enhanced waste management sustainability).

More information about the Challenge will be released in the coming days and weeks, including the scheduling of industry workshops to inform the SAF IWG roadmap development. The first several of those workshops occurred in Sep and Oct, and more will follow with various industry practitioners. Please watch your email for announcements of other workshops through the 4th quarter. We’ll also be publishing updates via CAAFI’s Blog, [The SAF Carafe](#), as well as on our [homepage](#).

Our thanks go out to leadership within DOT, DOE, and USDA for recognizing the vital need to pursue a viable decarbonization strategy for the industry, and then working to actualize this challenge and pending effort across government and industry.

CAAFI Team Highlights

CAAFI hosted the following one webinar during this reporting period:

⇒ Infrastructure Financing Opportunities from U.S. Departments of Energy (DOE) and Agriculture (USDA) presented by Jigar Shah (U.S. DOE) and Mark Brodziski (USDA) on July 28th

Business —

Our business engagement has remained fairly robust since the beginning of the year, with new producers, new suppliers, new customers, and many adjacent participants contacting us for guidance and assistance (now on a weekly basis), or asking for introductions to others who can assist with their commercialization efforts. We are very pleased to see this level of engagement, and to help many!

Certification/Qualification —

The work of the Cert/Qual team is aligned with the activities of ASTM's aviation fuel subcommittee [the Aviation Technical Committee of the Coordinating Research Council \(CRC\), and the National Jet Fuel Combustion Program](#). [It is supported by](#) periodic OEM meetings in the US and UK and various ASCENT projects.

D4054 updates include:

- ⇒ The recent interest in unblended, or 100% SAF has reenergized the Virent SAK D4054 effort. Virent SAK is a pure aromatic stream that when blended with other SPKs such as FT or HEFA will result in a fully formulated fuel. Virent has worked with the OEMs to define the remaining qualification tasks and is now conducting the final round of testing.
- ⇒ Shell IH2: Shell has finalized their D4054 Tier 3 & 4 test plan with the OEMs and is now working with the OEMs to identify test facilities. Shell is also working on scaling up production to supply the necessary quantities of test fuel to conduct the testing.
- ⇒ Swedish Biofuels Phase 1 research report has been completed and was submitted to the OEMs for review in mid-July. Most of the OEM feedback has been received, and Swedish

Biofuels will soon begin addressing the OEM comments.

- ⇒ Global BioEnergies has been working with the D4054 Clearinghouse and other European labs to conduct D4054 Tier 1 and Tier 2 testing. Initial data has been generated and is undergoing preliminary evaluation.
- ⇒ CSIR – Indian Institute of Petroleum has completed their initial round of Tier 1 and 2 fuel property testing and is reviewing the results to determine the next steps. It appears that additional Tier 1 and 2 testing may be required before the data is sufficient to generate the Phase 1 Research Report.

Other companies that have initiated contact with the ASTM OEM team and have shared preliminary data include Green Lizard, REVO International, and OMV Downstream GmbH.

An ASTM task force has been formed to develop specification criteria for an unblended (or 100%) alternative jet fuel. It is expected that this effort will take some time before the draft D7566 specification revisions are ready for balloting to the ASTM aviation fuel subcommittee.

We are now also seeing increased engagement from petroleum refiners and suppliers who are interested in increasing the types and maximum blend levels for SAF co-processing at existing refinery installations. ASTM task forces have been established to develop specification criteria for co-processing of hydroprocessed biomass, pyrolysis oil derived from discarded tires, and to increase the current approved 5% limit on co-processing of lipids feedstock to 30%. Note that these specification provisions will be incorporated into the ASTM D1655 conventional jet fuel specification upon approval.

Sustainability —

Most of the effort and focus of the Sustainability team has been to support deliberations of ICAO and its work on CORSIA.

- ⇒ Continued to participate in the LCA, sustainability and alternative fuels tracking work in the ICAO CAEP Fuels Task Group (FTG), Working Group 4 (CORSIA), and Sustainability Certification Scheme Evaluation Group (SCSEG).

R&D —

- ⇒ The R&D team has submitted a paper on the issues, challenges and solutions around using 100% SAF. The team also worked to develop an interactive webinar to explore the topic on October 6th.
- ⇒ Continued discussing engaging companies with emerging alternative jet fuel pathways.

Feel free to reach out to [Josh Heyne](#) if you have interest in fuel screening efforts.

SAF State and Regional Efforts

◇ Southeast, Appalachian, and Mid-Atlantic Regional Efforts

- CAAFI is working as an advisor on the Central Appalachian project in which they have identified hardwood feedstocks for a SAF biorefinery. Five potential sites have been identified in KY, NC, and VA that have sufficient feedstocks to supply commercial scale operations. The team has had productive meetings with Kentucky government personnel and is working on a plan to help attract business to the state. A broader plan of action for the entire region is being put together by the various stakeholders.
- CAAFI is working in an advisory role for the Mid-Atlantic Sustainable Biomass Consortium (MASBio) which an AFRI-funded project investigating methods to increase biomass yields, optimizing harvest and logistics strategies, and improving bioproduct conversion processes. Working with several entities that are interested in developing woody biomass feedstock supply chains and possible commercial scale plants throughout the Southeast – GA, SC, TN, and TX.
- The University of Tennessee Institute of Agriculture (UTIA) and various stakeholders including CAAFI are developing potential next steps in their initiative to attract SAF-related businesses to TN.

◇ Hawaii

- The State of Hawaii Legislature is considering two bills to facilitate the production of SAF: 1) [HB327](#) Creation of a Sustainable Aviation Task Force, and 2) [HB 683](#) Matching funding program for Hawaii-based low-greenhouse gas fuel manufacturers through the state's Hawaii Technology Development Corporation.

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