



A Note from the Executive Director

This [CAAFI Quarterly](#) newsletter describes the CAAFI activities and events that occurred October through December 2020. In this issue, we share industry updates and CAAFI team accomplishments. We would also like to take this opportunity to again make two requests regarding high-quality images. 1) We ask that you share any high-quality images you have related to SAF with captions and sources, so we can start building a repository of such images to be used by us and available to our members and 2) Please review the [Members page on caafi.org](#) and provide us with a high-quality image of your organization's logo if it is not already there. I also want to make sure you are aware of the following upcoming items:

- Business Aviation Coalition's European Business Aviation SAF Summit, March 23, Virtual
- [DOE BETO Peer Review, March](#)
- [Jacobsen Conference, May, Denver, CO](#)
- CAAFI's Virtual SAF Forum, June 2-4, 2021

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/SAJF 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?

[DOE announced \\$35 million for bioenergy research and development](#)

[United Airlines pledged to reduce their GHG emissions by 100% by 2050](#)

[USDA requested applications for their sustainable agricultural systems program](#)

[Rolls-Royce announced they will test SAF at 100% for the first time in their next generation engine technology](#)

[Microsoft announced its intention to purchase SAF credits for Alaska Airlines](#)

[Shell and Red Rock signed an offtake agreement](#)

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

Ask CAAFI

Question: What are CAAFI's 2021 priorities?

Answer: At the end of each year, the CAAFI Leadership team prioritizes CAAFI activities for the coming year. We base this on feedback from the CAAFI Steering Group and membership, informal feedback from industry and partners, and on our own observations about challenges and needs in the marketplace. Based on this input, CAAFI leadership will continue to work in four major areas in 2021, focusing on concepts in each area of activity listed below.

CAAFI 2021 Priorities

1. **Communicate the Value Proposition of SAF** – communicate economic, social, and environmental benefits of SAF to federal, state and local governments, regional bodies, non-governmental organizations, the private sector and the public to broaden the base of stakeholders supporting SAF.
 - **Engage with the new Administration and Congressional leadership.**

- **Expand outreach** via various communications releases, interviews, and social media.
 - **Participate in outreach activities** including conferences, seminars, and virtual events.
 - **Support the publication and dissemination of critical SAF research.**
 - **Track and communicate the progress of SAF commercialization activity.**
2. **Enhance the Fuel Qualification Approach** – promote a broadly supported, streamlined certification/qualification program and a more durable, higher capacity process to accelerate the addition of new fuels to the ASTM International specification.
- **Expand and facilitate new producer use of [Tier Alpha and Beta prescreening](#).**
 - **Advise potential SAF producers** on navigating the fuel qualification process, which includes the [ASTM D4054 Clearinghouse](#) and [D4054 Fast Track approach](#).
 - **Continue to coordinate international qualification activities** to share costs and accelerate approvals.
 - **Evaluate learnings from the [National Jet Fuel Combustion Program \(NJFCP\)](#)** for additional improvement to the fuel qualification process.
 - **Initiate work on advancing past the current 50% maximum blending limitations.**
3. **Align Efforts to Enable Commercial Deployment of U.S. SAF Supply** – focus on SAF implementation by supporting feedstock and fuel development, fostering producer-buyer engagement leading to offtake agreements, and building on federal, state and regional supply chain efforts.
- **Leverage the capabilities** of the FAA’s Aviation Sustainability CENTER ([ASCENT](#)) and Continuous Lower Energy Emissions and Noise ([CLEEN](#)) programs.
 - **Partner with federal agencies** through coordination with the Advanced Aviation Fuels Interagency Working Group (AAF
- IWG) under the Biomass Research and Development Board and similar multi-agency efforts to advance activities for SAF development and deployment.
- **Engage with regional, state, and local supply development efforts** with public, academic, private and airport stakeholders.
 - **Work with business aviation** to partner with corporations with ambitious corporate social responsibility goals for fuel supply development and offtake agreements.
 - **Support efforts to create Book and Claim and other creative fuel acquisition processes** to enable optimized (minimized costs and carbon) commercialization of SAF production and delivery.
4. **Implement Frameworks & Share Best Practices** – provide tools, share best practices and integrate information to support communication and understanding among diverse stakeholders on the readiness of feedstocks and fuels, their potential economic, social and environmental benefits and impacts, and their feasibility with regard to supply chains, technology and economics.
- **Expand the use and topical content of [CAAFI Webinars](#).**
 - **Expand the library of [Feedstock Readiness Level \(FSRL\) Evaluations](#)** available on USDA’s National Agricultural Library.
 - **Implement a Commercial Readiness Level Framework** to support fuel producer self-assessment and customer understanding of commercialization progress.
 - **Develop, support and use publicly available tools, data and analyses** to support supply chain development and highlight economic benefits and job impacts, including:
 - [Volpe Freight & Fuel Transportation Optimization Tool \(FTOT\)](#)
 - Techno-economic Analysis (TEA)

- University of Tennessee CAAFI Southeast (UTCASE) Initiative
- **Facilitate international cooperation** on SAF development, evaluation and deployment.

As always, please reach out to me, other members of the Administrative Leadership Team, or any CAAFI Team Lead if you have any feedback, would like to be more involved in the initiative, or have recommendations on new types of engagement you would like us to consider. We remain open to adjusting our priorities as needs arise. We are looking forward to sharing another great year with you in 2021!

CAAFI Team Highlights

Business —

Activities include:

- ⇒ Facilitating opportunities for airline and other end user engagement, identifying supply logistics needs and informing contract processes. Stay tuned for additional announcements in the coming quarters.
- ⇒ Engaging with several firms approaching commercialization, as well as several new producer entrants. CAAFI continues to introduce potential new SAF producers to both fuel suppliers and end users across the civil aviation space.
- ⇒ Continued engagement with the several USDA NIFA-AFRI CAPS with whom CAAFI has strategic engagement: [SPARC](#), [SBAR](#), and [IPREFER](#). CAAFI engaged with several firms for collaboration on upcoming DOE and USDA funding opportunities
- ⇒ Engagement with the OEM and BizAv communities on industry messaging.
- ⇒ Responding to inquiries from policy makers and other third parties interested in fostering SAF development.

Certification/Qualification —

The detailed work of the Cert/Qual team typically happens at the two annual meetings of [ASTM D02](#), the spring meeting of the [Aviation Committee of the Coordinating Research Council](#), various OEM meetings in the US and UK, and adjacent to the

activities of ASCENT, and at venues like the National Jet Fuel Combustion Program.

D4054 updates include:

- ⇒ Version D7566-20 now includes seven annexes with the recent additions of ARA CHJ (Annex A6) and IHI's HC-HEFA (Annex A7). Also, version D1655-20 now includes co-processing provisions at 5% volume for both lipids and FT crude.
- ⇒ Shell IH2: The OEMs have provided their comments to the Phase 1 research report. The OEM comments included recommendations for D4054 Tier 3 and 4 testing. An OEM meeting with Shell is planned for late January to work towards resolution of the comments.
- ⇒ Swedish Biofuels has re-initiated their ASTM project and is concluding some final D4054 Tier 2 testing before submitting their Phase 1 research report.
- ⇒ 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: Initial data has been presented to the OEMs and to ASTM in anticipation of forming an ASTM Task Group.

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

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 —

- ⇒ Continued discussing engaging companies with emerging alternative jet fuel pathways.
- ⇒ Continued developing enhanced prescreening

guidance documents, including publishing [Sustainable Aviation Fuel Prescreening Tools and Procedures](#).

- ⇒ Continued working on a document describing the path to using up to 100% synthetic fuels.
- ⇒ Hosted webinar in which process representatives from Shell and Global Bioenergies provided overviews of the pathways they are pursuing in the ASTM qualification process.

SAF State and Regional Efforts

◇ Connecticut

- The conversion of the South Hartford-based Materials Innovation and Recycling Authority (MIRA) facility to a jet fuel processing facility remains an attractive opportunity. CAAFI continues to engage with Praxair, Linde, Pratt & Whitney and state government contacts. A proposal was made via presentations to state authorities. The goal is for events to converge toward the end of this year when Fulcrum's MSW-to-liquid facility is commissioned.
- Contact has been initiated with DOE's Idaho National Labs in anticipation of an MSW-to-liquid focused initiative in the DOE EERE \$90 million plus broad agency announcement. It is expected that the optimization of waste separation and stream management will be a major focus. Central CT will be a key case study for the expected proposal.

◇ Florida

- CAAFI continues engagement as a co-founder of the Florida Coalition for Sustainable Agriculture, Water and Energy (FCSAWE). The core FCSAWE members include the Florida Department of Agriculture and Community Services (FDACS), University of South Florida (USF), University of Florida (UF), and subject matter experts on beets, sorghum, pongamia, carinata, elephant grass, and eucalyptus. The group continued working toward

establishing a set of focused near-term objectives.

- A partnership of UF and Argonne National Labs with CAAFI support for market transformation planning was announced as a recipient of \$3.92 million multi-year award under DOE's BETO Topic Area 4 – Bio-Restore to execute a project that will develop energy cane in the region surrounding Lake Okechobee. It is expected that the project will be under contract and begin work during the first quarter of 2021, with CAAFI launching the market transformation activity.
- The SPARC supply chain team, which is led by CAAFI's Executive Director, Emeritus Rich Altman, is progressing on two fronts.
 - Initial resilience modeling of the carinata supply chain using FTOT was completed by the USF and modeling of the first and last mile is underway.
 - An effort to establish a beneficial rotation between carinata and sorghum for application in both Georgia and Alabama has been initiated. The emergence of interest from Nuseed in Richardson Seeds' sorghum research and a potential sorghum animal feed market was confirmed.

◇ Southeast Regional ASCENT Support

- Regional efforts to support woody biomass based SAF supply chains continued in the quarter. To this end, the University of Tennessee's Institute of Agriculture (UTIA) and CAAFI formed a joint collaboration in the Southeast (UTCASE) and completed an executive summary of a presentation to prospective processors and service providers to the industry. The intent is to utilize UTIA's extensive tool suite to aide new entities in their early business development efforts. The expensive UTIA tool suite has largely been used for policy planning to date. A list of prospective customers was prepared by

CAAFI leadership and initial introductions were made.

Development Zone in the same region as an Opportunity Zone.

◇ Vermont

- GSR Technologies has been selected for two Value Added Producer Grants (VAPG). The first is a planning grant to adapt its technology to a new dairy farm site in Franklin County. The second is an advanced phase grant to initiate manufacturing operations for GSR's organic fertilizer co-product stream and is a direct result of the CAAFI / GSR multi-year collaboration with USDA and the Vermont.

◇ Bioeconomy Development Zones

- CAAFI is assisting efforts to encourage and promote a strong bioindustry in rural areas by designating certain areas as Bioeconomy Development Opportunity Zones. Having areas throughout the U.S. designated as Bioeconomy Development Opportunity Zones will attract investment into these areas that can help establish a strong bioeconomy. CAAFI is coordinating with Ecostrat, Inc. who is with working various state agencies and private entities in several states, including:
 - South Carolina – Working to get two separate areas designated as Bioeconomy Development Zones. These areas overlap with regions that are also current Opportunity Zones. Having areas designated as Bioeconomy Development Opportunity Zones, means that developers, companies, etc. will be able to take advantage of the benefits of both the Bioeconomy Development Zone and the Opportunity Zone programs. The intent is to attract investment into these zones that will establish bio-based companies and create jobs in the bioenergy industry.
 - Oregon – Working to get an area designated as a Bioeconomy

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.