



## A Note from the Executive Director

This [CAAFI Quarterly](#) newsletter describes the CAAFI activities and events that occurred January through March 2020.

In this issue, we share industry updates and CAAFI team accomplishments.

In case you missed it, this quarter **ASTM published Annex A6 to ASTM D7566 for the new catalytic hydrothermolysis jet fuel (CHJ) pathway**. Applied Research Associates (ARA) developed the core technology that utilizes supercritical water process to perform the conversion of lipids into hydrocarbons that closely resemble crude oil. This crude is then hydrotreated and fractionated to produce renewable diesel, jet fuel, and naphtha. This is the first alternative jet fuel pathway that has the potential to be used at 100% due to the major amounts of molecules in the fuel that are critical to engine operation.

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

- [GARDN SAF Talk](#), Montreal, QC, postponed, tbd
- CRC Aviation & ASTM D02 Summer, cancelled
- [BIO International Convention](#), June 8-11, virtual
- [ABLC2020](#), rescheduled July 8-10, Washington, DC

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

*Steve Csonka and the CAAFI Team*

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## 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 Deployment Projects](#)" for a summary of select deployment projects around the United States.

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## What's New?

[Queensland grants funded two SAF projects](#)

[Japanese consortium to study SAF production using Fulcrum Bioenergy's technology](#)

[Boom Supersonic announces first fully carbon-neutral aircraft program, XB-1](#)

[French industry and government agree to promote SAF](#)

[Etihad Airways target net zero carbon emissions and took delivery of Boeing 787 Greenliner](#)

[SAF made available for business jets traveling to World Economic Forum](#)

[Shell and World Energy supply SAF to Lufthansa at SFO](#)

[JetBlue pledges to be carbon neutral by July 2020](#)

[Delta offtake agreement with Gevo](#)

[Aviation industry approval of catalytic hydrothermolysis jet fuel \(CHJ\) brings number of SAF approved pathways to six](#)

[Recent DOE funding and engagement opportunity notices](#)

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

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## Ask CAAFI

The question the CAAFI leadership team received the most over the last several weeks was: In light of

everything that is happening with COVID-19 and its impact on economic activity generally, and on airlines specifically, combined with the recent plunge in oil price, is there anything of substance still happening on the SAF front?

**Answer:** The short answer is yes. Although we recognize there will be delays in certain efforts, CAAFI recognizes that SAF commercialization has always been a long-term strategic focus, and we continue to treat it that way. In the past month, several new potential SAF producers have approached CAAFI for industry coordination. Commercial airlines and the business aviation communities continue planning to take SAF from expanding or new production opportunities. Detailed work continues with new D4054 prospects within CAAFI's R&D and Cert/Qual Teams. We also continue to work with policy makers and other third parties who are focused on ways to close the SAF versus petro-jet and other renewable fuel production price gaps. Our sponsors continue to advocate for enabling policy that if adopted could dramatically change everyone's perspective overnight. Therefore, our encouragement to our readers is to stay focused on the fundamentals and the long-term vision. You are not alone, your work is important and can adapt to the reality around you, and remember, regarding the current maelstrom, "this too shall pass."

If you have any questions about our activities, please feel free to reach out to us.

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## CAAFI Team Highlights

### Business —

CAAFI Leadership continues to evaluate how to best repurpose the Business Team and its remit to reflect evolving SAF industry maturity and needs. This was discussed at an A4A SAF Forum in February, which included participants from airline teams focused on Policy, Sustainability, Fuel, and Special Projects. Additional work on this topic will be postponed for a few months due to current events.

Other activities include:

- ⇒ Facilitating opportunities for airline and other end user engagement, identifying supply logistics needs and informing contract processes.
- ⇒ Working with Michael Baer on his continued development of "SAF Now" initiative targeting a consortium approach to SAF acquisition.
- ⇒ Engaging with several firms approaching commercialization, as well as several new producer entrants.
- ⇒ Foster expanded engagement with the several USDA NIFA-AFRI CAPS with whom CAAFI has strategic engagement.
  - Southeast Partnership for Advanced Renewables from Carinata ([SPARC](#))
  - Sustainable Bioeconomy for Arid Regions ([SBAR](#)) focused on the production of guayule bagasse as a feedstock for SAF production
  - Integrated Pennycress Research Enabling Farm & Energy Resilience ([IPREFER](#)).
- ⇒ 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:

- ⇒ ARA CHJ: Annex A6 for ARA CHJ fuel has been incorporated into D7566-19b and is now available from ASTM.
- ⇒ IHI is the first fuel producer to successfully obtain industry pathway approval via the D4054 Fast Track qualification provision. A concurrent ballot was issued in mid-February, and after withdrawal of the one negative vote received, the ballot passed. IHI's HC-HEFA fuel will be incorporated into ASTM D7566 as Annex A7 with

a 10% blend limit. The revised specification with the new annex should be available in May.

- ⇒ The aviation industry also approved the addition of FT biocrude as an acceptable feedstock for co-processing in ASTM D1655.
- ⇒ Shell IH2: The draft Phase 1 research report is currently being finalized and will be submitted to the OEM review team in late April or early May.
- ⇒ Swedish Biofuels has re-initiated their ASTM project and is finalizing their Phase 1 research report.
- ⇒ Global BioEnergies and Vertimass have initiated their engagement with ASTM and are in the process of collecting test data.
- ⇒ There is also a bit of movement from a renewable diesel producer to move the HFP-HEFA process along.

### 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 —

- ⇒ Hosted [CAAFI Webinar](#), More Than Biomass: Purposefully Grown for Ecosystem Services by Cristina Negri (Argonne National Lab)
- ⇒ Continued discussing engaging companies with emerging alternative jet fuel pathways.

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## SAF Deployment Projects

### ◇ 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 and

state government contacts. During the quarter, CAAFI initiated dialogue with Pratt & Whitney and airlines seeking to focus attention on the opportunity to produce SAF production at the site. Toward the end of the quarter, the state focused on near-term COVID-19 relief efforts and dialogue regarding the conversion of the MIRA facility slowed.

### ◇ Florida-based State and Regional Efforts

- CAAFI continued engagement with 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 (UFL), 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. CAAFI and FCSAWE are targeting the following federal funding opportunities:
  - ◉ [DOE's Funding Opportunity Announcement \(FOA\) – Topic Area 4 - Bio-Restore](#)  
The concept paper submitted by University of Florida and Argonne National Labs surrounding the developing and valuing of ecosystem services was accepted for a full proposal. The proposal will be submitted in mid-May and focuses on the area surrounding Lake Okeechobee that is considered to be the primary area where nitrogen flow directed to the Atlantic coast is causing Blue Green algae. The project has the potential to supply sustainable ethanol to multiple Southeast processors for alcohol-to-jet fuel (ATJ) production.
  - [USDA Rural Development Grants](#)  
Work was initiated with the Suwannee Planning district to develop a

methodology for use within the Southeast Partnership for Advanced Renewables from Carinata (SPARC) team to focus on small grain crush. Small grain crush with hexane extraction is a critical path for the oilseed supply chain in the Southeast and a focus of SPARC's supply chain team.

- The SPARC Supply Chain, which is led by CAAFI, was a focus at the annual SPARC meeting was held in Tampa, FL at the end of February. The team adopted a work breakdown structure that focuses on continuing work on both the implementation of resilience considerations and additional case studies using the Freight and Fuel Transportation Optimization Tool (FTOT). An ongoing focus of building on state-by-state opportunities is also part of the plan. Note that, if requested, these methodologies can be made available to all interested state and regional efforts. Thank you SPARC leadership!
- Outreach continued to FL's Red Tide / Blue Green Algae task force in the governor's office as well as the Florida Department of Agriculture and Community Services (FDACS) to obtain support for R&D programs that will take advantage of FDACS' R&D focus in the State Energy and Climate Policy published in October 2019. The completion of the legislative session in mid-March normally marks the beginning of programs that would benefit from these efforts. However, the COVID-19 issue has delayed issuance of these reports indicating agency intent.
- Michael Shoemaker represented CAAFI at a Renewable Energy Conference hosted by Georgia Tech during the quarter. A member of CAAFI's State and Regional Team, Michael is leading efforts to work with Georgia's Office of Economic Development and Center of Innovation on expanding carinata and cellulosic energy crop production.
- Regional Efforts to Support Woody Biomass

Work via the ASCENT Southeast Supply Chain Development lead University of Tennessee's Institute of Agriculture (UTIA) was launched during the quarter. The goal of the effort is to utilize UTIA's significant array of tools associated with establishing wood residual and slash availability in the region. This could include a focus on supporting a bottoms-up analysis by perspective processors interested in establishing projects in the region. UTIA / ASCENT are working with CAAFI to refine the approach and potentially launch in the near-term with ASCENT available funding.

#### ◇ Vermont

- GSR technologies submitted a Value Added Producer Grant (VAPG) application in March to adapt its technology to a new dairy farm site. The initial farm site where initial VAPG work occurred several years ago is out of operation.

*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.*

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

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