



## 2018 Look Ahead!

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Dear Stakeholder,

Thank you for helping to advance the industry's pursuit of sustainable alternative jet fuels (SAJF) in 2017, and for working with the Commercial Aviation Alternative Fuels Initiative (CAAIFI®) on our joint goals and priorities – it was another great year for industry cooperation and progress!

### SAJF Highlights in 2017

The industry continued to make significant progress in 2017 with many SAJF advancements and highlights for CAAIFI and our stakeholders, including:

- Progress on ASTM Fuel Pathway Qualification positioned us to see multiple fuels approved in 2018!
  - The ethanol-based alcohol-to-jet (ATJ-SPK) pathway task force, led by LanzaTech, completed all testing, review, and subcommittee balloting, and is awaiting final committee balloting for approval to expand the ASTM D7566 Annex A5 to include the addition of ethanol as an acceptable ATJ-SPK feedstock.
  - The catalytic hydrothermolysis (CH-SK) pathway task force, led by ARA, completed Phase 2 testing, with final research report submittal and balloting targeted for 2018.
  - High freeze point hydroprocessed esters and fatty acids (HFP HEFA-SPK) is in Phase 1 review by the original equipment manufacturers (OEMs).
  - The task force for coprocessing of lipids in petroleum refineries has progressed to the point of enabling final ASTM balloting in spring 2018.
  - The hydrodeoxygenation synthetic aromatic kerosene (HDO-SAK) pathway task force, led by Virent, has completed Phase 1 testing and is submitting the Phase 1 research report to the OEMs for review.
  
- Operational demonstrations on alternative jet fuel were completed:
  - [Gevo delivered](#) its isobutanol-based ATJ-SPK to Chicago's O'Hare international Airport (ORD) for use by eight commercial airlines (Lufthansa, United, Etihad, Cathay Pacific, Emirates, Japan Airlines, Korean Air, and Atlas).
  - SAAB [flew a Gripen single engine fighter jet](#) on ARA's rapeseed oil-based AJF.
  - [Singapore Airlines launched a three-month, 12-flight series](#) in which an Airbus A350-900 flew on SAJF.
  - Hainan Airlines executed China's [first transoceanic flight on biofuels](#), using 15% waste cooking oil-based HEFA fuel on a flight from Beijing to Chicago.
  
- Eight fuel commercialization, offtake agreements and first deliveries were completed:
  - Swedavia, Sweden's largest airport operator, [received its first batch of SAJF](#) at the Gothenburg airport with the help of the Fly Green Fund

- Shell and SBI BioEnergy [signed a contract](#) giving Shell exclusive development and licensing rights to SBI BioEnergy's patented carbon negative drop-in biofuel.
  - [British Airways](#) has partnered with [Velocys](#), a renewable fuels company, announcing their intent to design a series of municipal solid waste (MSW) to jet fuel facilities in order to fulfill their commitment to reduce net emissions by 50 percent by 2050.
  - [Fulcrum Bioenergy closed financing](#) for their first commercial scale MSW-to-fuels biorefinery. The Sierra Biofuels Plant near Reno, Nevada is expected to go online in the second half of 2018 with a capacity to produce 11 million gallons of biocrude per year.
  - Red Rock Biofuels closed financing for their first commercial scale woody biomass-to-fuel biorefinery. The facility near Lakeview, Oregon is anticipated to go online in 2019 with a capacity of 16 million gallons of fuel per year.
  - [Qantas and Agrisoma partnered](#) to establish a commercial alternative jet fuel supply chain in Australia based on *Brassica carinata*, with a target of initial fuel delivery before the end of 2019.
  - Geneva airport agreed to assist in enabling 1% of their supply to come from SAJF supplied by Neste, starting in late 2018.
  - [SG Preston](#) and [Qantas](#) announced that SG Preston will begin supplying Qantas with eight million gallons of SAJF per year over ten years, starting in 2020. The fuel will be used for Qantas flights to Australia departing from Los Angeles Airport (LAX) as a 50/50 blend of non-edible plant oil-based SAJF and petroleum-based jet fuel.
- Numerous CAAFI members and partners were voted onto [Biofuels Digest's Top 100 People in the Advanced Bioeconomy](#).
  - CAAFI Tools and Resources continued to be developed and applied by the community
    - CAAFI released its [Feedstock Readiness Level evaluations repository](#) on the USDA Agricultural Library's Ag Data Commons. The repository will help researchers, funding agencies, and fuel producers and purchasers better understand feedstock maturity and identify gaps and needs.
    - CAAFI executed a major [caafi.org website](#) update to better respond to the needs of our stakeholders; this will be released by the end of the month - check out the "Focus Area" pages and let us know what you think!
  - CAAFI supported SAJF deployment projects that were funded, completed studies and otherwise made progress in 2017
    - The USDA National Institute for Food and Agriculture awarded [Coordinated Agriculture Projects \(CAPs\)](#) to The [Sustainable Bioeconomy for Arid Regions \(SBAR\)](#) project led by University of Arizona and the [Southeast Partnership for Advanced Renewables from Carinata \(SPARC\)](#) project led by University of Florida. Both projects target the production of sustainable AJF. CAAFI leadership is providing advisory oversight and participation on both projects.
    - The South Florida Farm to Fly 2.0 (F2F2) team completed [Feasibility Study Report](#) under a Rural Business Development Grant and completed a test of sugar beet processing in a citrus facility.
    - University of Tennessee Knoxville (UTK) submitted concept paper on hardwoods-to-fuels to the Biomass Research and Development Initiative (BRDI) that led to the submittal of a full proposal in late September. The proposal was developed by a broad team including UTK and Virginia stakeholders.

- The Center for Natural Capital submitted a proposal to the Appalachian Regional Commission (ARC) to support project site selection in southwestern Virginia.
- Five CAAFI SOAP-Jet webinars introduced CAAFI stakeholders to key activities and provided a forum for member information sharing and learning:
  - March 24 – [Advanced Feedstock Supply System Development at the Idaho National Laboratory](#) – David N. Thompson (Idaho National Lab)
  - May 19 – [The Latest Derisking Techniques for Commercial Scale Project Financing in Bio](#) – John May (Stern Bros. & Co) and Tom Dickson (New Energy Risk)
  - June 16 – [Industrial Ecology Frameworks for Sustainable Aviation Fuel Development](#) – Valerie Thomas (Georgia Tech) and Laurel Harmon (LanzaTech)
  - October 13 – [Introducing New USDA NIFA CAP Grant Awardees Developing Regional AJF Supply Chains](#) – Kimberly Ogden (University of Arizona) and David Wright (University of Florida)
  - December 8 – [An Overview of the FAA-Funded Aviation Sustainability Center \(ASCENT\)](#) – Mike Wolcott (Washington State University)
- CAAFI leadership and members participated in the ICAO-hosted [Alternative Fuels Seminar in Montreal](#) to discuss the current state of SAJF deployment, sustainability criteria, life-cycle analysis methodologies, and the regulatory frameworks that support the deployment of SAJF. (Feb 2017) Various members of the CAAFI Sustainability Team have also been providing key support to the efforts of ICAO CAEP Working Groups in advancing the final structuring and evaluation of the CORSIA framework.
- ICAO also hosted [a Conference on Aviation and Alternative Fuels \(CAAF2\)](#) in Mexico City to highlight achievements and agree on future actions. (Oct 2017)
- CAAFI assisted IATA in planning and executing its [Alternative Fuel Symposium](#) in Vancouver, Canada. This annually planned activity provides a platform for industry professionals worldwide, targeting airlines and producers, to interact and find out about the latest progress and insights from across the world of SAJF development and commercialization. (Nov 2017)
- [DOE and USDA released a report that](#) used the estimated biomass production numbers laid out in the 2016 Billion Ton report to illustrate that, based on available biomass, up to 25% replacement of transportation fuels, including aviation fuels, is possible within the next 15 years and would offer the U.S. many economic and environmental benefits.
- Members of the CAAFI leadership team participated in greater than 50 additional workshops, seminars, and project discussions, both domestically and internationally, during 2017, highlighting the expanding scope of efforts to achieve awareness and collaboration amongst many interested parties. Several additional companies have also started engaging with CAAFI in the exploration of additional technologies and approaches toward SAJF supply.

### **CAAFI 2018 Priorities**

Based on the status of these various efforts within the industry, and with input from our constituency, CAAFI leadership has identified the following priorities on which we will continue to focus in 2018:

- **Communicate the Value Proposition of SAJF** – CAAFI will communicate the economic, social, and environmental benefits of SAJF to the federal government, non-governmental organizations, private sector and public to broaden the base of stakeholders who can continue to enable active investment in the development, demonstration, deployment, and commercialization of SAJF. New CAAFI efforts will partner with airports to address misconceptions about the logistics and use of SAJF, identify opportunities to monetize market pull, and assess infrastructure needs (if any) which might help facilitate SAJF usage.
- **Enhance the Fuel Qualification Approach** – CAAFI will promote the use of the D4054 Clearinghouse to enable a broadly-supported, streamlined certification/qualification program. Leveraging new, shared funding and staffing approaches, improved methods, and enhanced specification requirements, CAAFI intends to foster a more durable, higher capacity process to handle the significant queue of potential SAJF candidates.
- **Implement Frameworks & Share Best Practices** – CAAFI will continue to develop tools to evaluate the technical readiness of feedstocks and fuels, and commercial readiness of producers to identify prime targets of opportunity for sustainable near term supply. In 2018, CAAFI plans to continue our SOAP-Jet seminar series and we will hold our Biennial General Meeting (more information [below](#)).
- **Develop the U.S. SAJF Supply by Aligning Efforts to Enable Commercial Deployment** – CAAFI will focus on real-world implementation by supporting project development under Farm to Fly 2.0, leveraging the capabilities of the FAA-sponsored Aviation Sustainability CENTER (ASCENT), fostering producer-buyer engagement leading to offtake agreements, supporting the execution USDA-funded projects, and pursuing other initiatives to enable supply chain development and facilitate commercialization of SAJF. CAAFI will continually reach out to additional stakeholders, forge new partnerships, and leverage the interest and resources of current partners to align efforts that build upon the [Federal Alternative Jet Fuels R&D Strategy](#).

### **CAAFI Leadership Team Expands**

We are happy to announce that the CAAFI Leadership Team will expand in 2018 with the addition of Chris Tindal to the team as CAAFI Assistant Director. Many of you know Chris from his work leading the U.S. Navy's Great Green Fleet program and his limitless support of sustainable fuels. He will be a great addition to the team. Look for more information about Chris and his new role in the upcoming CAAFI Quarterly (Q4 2017).

Rich Altman, CAAFI Executive Director Emeritus, is scaling back his efforts on CAAFI operations to concentrate his efforts on East Coast state initiatives (as described above) established under Farm-to-Fly". Rich continues his ties to CAAFI leadership and communications to provide the best possible guidance to initiatives from Vermont to southern Florida in the development of project teams and supply chains that can serve as templates for similar approaches in expanded state and regional venues.

### CAAFI Biennial General Meeting

Finally, we plan to hold the **CAAFI Biennial General Meeting** on December 4-6, 2018 in Washington, DC. The meeting will allow stakeholders to share experiences, highlight existing opportunities and strategize to maintain our forward progress on the development and deployment of SAJF. Expect to see a Save the Date announcement with additional information in your inbox soon. We look forward to seeing you there!

As always, please reach out to me or any of the CAAFI Team Leads if you would like to be more involved in the initiative, or have strong recommendations on new types of engagement we need to consider. On behalf of the CAAFI Leadership Team, the CAAFI Steering Group, and all of our constituents, I'm looking forward to a great 2018!

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Csonka". The signature is fluid and cursive, with the first name "Steve" and last name "Csonka" clearly distinguishable.

Steve Csonka  
CAAFI Executive Director