

CAAFI ... and its 10 year journey to the cutting edge of sustainable jet fuel commercialization

The Commercial Aviation Alternative Fuels Initiative celebrates its 10th Anniversary. Let's take a brief look back at our progress, and then focus ahead to how we will address the challenges that remain to enable meaningful airline use of sustainable alternative jet fuel!

May 24, 2016 – We are proud to announce the 10th Anniversary of the initiation of the [Commercial Aviation Alternative Fuels Initiative](#) (CAAFI®) today, but more importantly, to reflect on the success we've achieved to date, and to similarly look ahead to solving the challenging issues that remain for broad use of alternative jet fuel!

On March 11th this year, CAAFI celebrated with United Airlines, AltAir Fuels, Honeywell/UOP, and World Fuel Services as they introduced drop-in, sustainable alternative jet fuel (SAJF) into regular commercial flights out of LAX. That is just the first of what we project to be several commercialization efforts over the next several years. The industry's ultimate goal is to see SAJF become a primary means for capping, and eventually lowering, the total net greenhouse gas emissions from aviation even as the industry continues to grow and fulfill world-wide demand for safe, high-speed, highly-efficient transport of people and goods to all corners of the globe.

"After a decade of dedicated effort, we know sustainable alternative jet fuel can deliver all the attributes the industry is seeking; now we must deliver on cost and volume, and we're engaged in multiple pursuits to do just that. We continue to be encourage by our steady progress."

– Steve Csonka, CAAFI Executive Director

Why is this industry effort different from others? The global jet-powered aviation enterprise is united in its interest in alternative fuels (commercial, business, and military users). Why else are we different? While most other industries have viable options for switching energy sources, or for introducing other methods to produce power, aviation depends on liquid fuels as the only technically feasible option for several decades to come. But the good news is that SAJF works well, and provides many options for fuel production world-wide from a broad range of sustainable sources.

CAAFI represents an aviation industry coalition that promotes the development and deployment of jet fuels produced from renewable or recycled sources. These fuels can be produced from oilseeds, sugars, plant matter, municipal solid waste, industrial off-gases, and biogas to name a few. The AltAir Fuels in California is producing high quality sustainable jet fuel for commercial aviation, in 30% blends, as well as renewable diesel for the Navy in 10% blends. This renewable fuel is produced from food processing waste streams.

"CAAFI has been the essential source of determination and expertise that has – quite literally – gotten aviation alternative fuels off the ground. We strongly support CAAFI's continuing focus on scaling up supply to make it cost competitive."

– Nancy Young, A4A Vice President, Environmental Affairs.

Multiple studies have shown that SAJF, can reduce net lifecycle carbon emissions and local air quality pollutants around airports. In some cases 60-80% net carbon reductions are possible. In other cases, for

example where biochar is a co-product of the SAJF production, use of that carbon as a soil amendment can actually result in carbon-negative fuels; that is, more carbon is put back into the ground than is generated by the lifecycle of the fuel's creation and use. The aviation industry is keenly interested in these benefits and the fact that these fuels can also improve energy security, minimize price volatility, and provide additional societal benefits including economic and rural development and secondary environmental services.

"USDA is proud to have partnered with CAAFI in the Farm-to-Fly 2.0 Program in evaluating the potential for renewable resources to help aviation meet its goals, and in pursuing commercialization opportunities that benefit rural America.

– Todd Campbell, USDA Rural Development, Energy Policy Advisor

We've come a long way since our establishment and are proud to reflect on the significant accomplishments of the industry over the last 10 years, which include:

- Collaboration with FAA, ASTM and aircraft manufacturers to validate and establish the drop-in jet fuel concept, followed by 5 alternative jet fuel approvals.
- Created and released the [ASTM D4054 Users' Guide](#), to assist entrepreneurial firms with navigating the fuel qualification process.
- Crafted the [Fuel Readiness Level](#) evaluation framework, and receipt of endorsement for the use of this evaluation methodology as a best practice by the International Civil Aviation Organization.
- Created [Sustainability Overview](#) and [Environmental Progression](#) frameworks to complement CAAFI/USDA Feedstock Readiness Level.
- Published [R&D Critical Challenges Position White Papers](#), and holding multiple webinars on various topics of interest to the alternative fuel community.
- Issued [Guidance for Selling Alternative Fuels to Airlines](#) in cooperation with Airlines for America (A4A), to help producers prepare for airline offtake discussions.
- Formed strategic alliance between airlines (via A4A) and the Defense Logistics Agency, signaling a "single market" for alternative jet fuel.
- Facilitated the signing of the "Farm to Fly 2.0" agreement between USDA, DOE, and CAAFI sponsors to accelerate the development of feedstocks, execute various feasibility assessments, and foster regional development activities in several states.
- Facilitated airline/fuel producer offtake agreements in cooperation with A4A. There are currently 7 publicly communicated agreements to date.
- Expanded cooperation with international counterparts in Australia, Brazil, Spain, Germany, and Indonesia.

"FAA is proud of the success of CAAFI and the industry in laying out the foundations for SAJF development ... a vision, a common industry language, new tools and processes, guidance documents, thought leadership, fostering of collaboration (worldwide), and execution."

– Dr. Lourdes Maurice, Executive Director, FAA Office of Environment and Energy

Over the next 10 years we envision the following:

- Enable industry production of SAJF volumes that help aviation achieve carbon neutral growth from 2020 onward.
- Enhance the efforts being undertaken in the National Jet Fuel Combustion program a multi-agency and industry effort to improve the understanding of the impact of variation in fuel composition on combustion.

The results of this multi-million dollar research work will assist the industry in significantly lowering

the cost and time associated with ASTM International qualification of new fuel pathways, help the industry to move in the direction of more compositionally-based fuel specifications, and enable the use of fully synthetic fuels that can completely replace the use of petroleum fuels, and further reduce net carbon emissions.

- Offer assistance to the commercialization of multiple fuel production facilities associated with all existing and future ASTM approved pathways, to produce sustainable jet fuel from every form of affordable, sustainable feedstock possible.
- Maximize the impact of U.S. government agencies with support for the implementation of a national alternative jet fuel R&D strategy.
- Continue to foster business development efforts leading to pilot, demonstration, and full scale production opportunities, leveraging support from other interests.
- Take advantage of the tremendous gains taking place in genetic mapping and evaluation to leverage the development of lower cost and higher production purpose-grown feedstocks for SAJF.
- Pursue advanced fuel production concepts like electro-fuels, solar-fuels, and tailored microbial conversion of low-cost feedstocks, that are still in their infancy, but represent great opportunities.

"Our industry's challenge is to increase the global supply and bring down the price of sustainable aviation biofuel to meet strong demand from airlines and reduce carbon emissions. CAAFI is an important partner in the effort to advance sustainable aviation jet fuel."

– Julie Felgar, managing director of Environment Strategy for Boeing Commercial Airplanes.

CAAFI will be providing further updates on our progress, as well as other related efforts from across the industry, as we lead up to our 10-year anniversary celebration and review at the CAAFI Biennial General Meeting in October 2016.

About CAAFI: CAAFI's four sponsoring organizations – the U.S. Federal Aviation Administration (FAA), Airlines for America (A4A), Airports Council International - North America (ACI-NA), and Aerospace Industries Association (AIA) – came together in 2006 to establish the CAAFI coalition, which today represents more than 800-members and 450-organizations. Together, these stakeholders from government agencies, airports, fuel producers, airlines, NGOs, aerospace companies and others are leading the development and deployment of alternative jet fuels for commercial aviation and its partners.

To find out more about our work, or better yet, to discover or propose how you can engage with the aviation enterprise, please contact us at info@caafi.org, and find additional information about many of the things discussed above at www.caafi.org and on twitter at @caafiaviation.