



Alternative Fuels & Chemicals Coalition

*Advocating for Public Policies to Promote the Development & Production of
Alternative Fuels, Renewable Chemicals, Biobased Products, and Sustainable
Aviation Fuels*

April 15, 2022

Mr. Rajat Mathur
Professional Staff Member, Majority
Senate Subcommittee on
Transportation, Housing And
Urban Development (THUD)
And Related Agencies
Senate Dirksen Office Building
Room 184
100 Constitution Ave. NE
Washington, DC 20510

Mr. Michael J. Ciamarra
Professional Staff Member, Minority
Senate Subcommittee on
Transportation, Housing And
Urban Development (THUD),
And Related Agencies
Senate Dirksen Office Building
Room 184
100 Constitution Ave. NE
Washington, DC 20510

Dear Mr. Rajat Mathur, Professional Staff Member, Majority, Mr. Michael J. Ciamarra, Professional Staff Member, Minority

Alternative Fuels and Chemicals Coalition (AFCC) and its member companies' sustainable aviation fuel (SAF) producers appreciate the opportunity to submit statement for the record to the United States Senate Appropriations Subcommittee on Transportation, Housing and Urban Development (THUD), and Related Agencies. These are comments per a virtual meeting held with majority and minority Professional Staff from THUD, on Thursday, April 7, 2022, regarding: *What do SAF producers want from Federal Aviation Administration (FAA)? What airlines should be doing to advance SAF?*

Introduction

AFCC is a collaborative government affairs effort organized by the Kilpatrick Townsend & Stockton law firm and American Diversified Energy. AFCC was created to address policy and advocacy gaps at the federal and state levels in renewable chemicals, bioplastics/biomaterials, cell-cultured food ingredients, single cell protein for food and feed, enzymes, alternative fuels, biobased products and sustainable aviation fuels (SAF) sectors. AFCC member companies work on feedstocks, renewable chemicals, food, feed, fiber, bioplastics and biomaterials, and biofuels impacting the biobased economy.

The aviation sector faces unique challenges as it tries to accomplish its ambitious climate goals, as well as responding to customer and investor-driven desires to decarbonize. SAF is the only near-term technology option for reducing aviation's carbon emissions. Numerous conversion pathways have been approved and there are multiple SAF production facilities under construction or planned in the United States. Congress supporting legislative policies would accelerate SAF development and lower the cost of production.

What do SAF producers want from Federal Aviation Administration (FAA)?

- Help airports and associated tank farms and nearby blending racks build out SAF truck and rail receive infrastructure.
- Assistance with developing on-site blend facilities at major airports that can receive SAF
 - Support first those states that have LCFS programs
 - Support at major airports not in states with LCFS programs
 - Support at airports servicing freight services (UPS, FedEx, etc.)
- Assistance with narrowing the cost differential between RD and SAF
 - SAF certification costs for production
 - Additional costs for transportation of SAF to blend site
 - Cost of recertification of SAF before blending with D1655 jet
 - Cost of certification of final blend of semi-synthetic jet fuel
 - Volume weighted support for up to 50% SAF blends
- Request FAA to fast-track approval of 100% SAF for aircraft use
 - Support certification of new aircraft use of 100% SAF
 - Address type certification of legacy aircraft that require D1655 jet fuel
- Fund support for fuels with lower CI than zero on a CI weighted basis
 - Disincentivize fuels with less than 60% reduction in GHG emissions
 - Incentivize fuels that do not have conflict with food production and indirect Land Use Change (iLUC)
- Support for approving on an expedited basis the proposed 100% Drop-In SAF Annex at ASTM
 - This is a critical pathway needed to overcome some of the infrastructure issues associated with partial SAF blends. The proposed annex would allow already approved SAF to be blended to provide a fully compliant fuel for use in existing aircraft and infrastructure without the need to make significant new investments in the industry. The United Airlines flight using 100% drop-in fuel provided by Virent and Marathon was a great demonstration of the possibilities to provide a pathway to overcome these limitations and minimize any infrastructure changes required by the industry.
- Funding support to advance testing of SAF necessary to gain ASTM approval
 - The costs associated with producing fuel volumes and conducting the testing required for the ASTM approval process can be overwhelming to early-stage companies advancing new technologies. The FAA has in the past provided financial support to pay for the testing and provided grants to offset the costs of producing the initial fuel at volumes sufficient for testing requirements. As more technologies come to market and the demands for testing increase, providing support and

incentives for the engine manufacturers to advance this testing will be critical.

- Funding support to develop and advance new technologies for SAF through the demonstration phase and early engineering work prior to the final investment decision on the first commercial deployment of technologies at scale
 - In order to be successful in providing SAF to the market, new technologies will be required to convert more readily available feedstocks such as lignocellulosic materials and waste products to SAF. Such nascent technologies carry inherent risk due to the uncertainty of the technologies to be feasible at commercial scale. However, the actual risks cannot be known until the technology is practiced at demonstration scale and then subjected to an appropriate engineering development program to understand the true costs for commercialization. Funding is needed to help offset the costs of such efforts and provide the necessary information to reduce commercialization risks and attract investors to support a commercial project.
- Advance a study on the infrastructure needs for delivering SAF to airports
 - The ability to aggregate, blend and test SAF (whether as a neat fuel, blending component, or as part of a final Jet A blend) before being delivered to an airport is critical. The current aviation fuel infrastructure is not set-up to handle multiple fuel types from various sources that require blending to a final product. A process (or entity) is thereby needed to aggregate any potential fuels, blend it to the necessary specifications and provide testing and certification **prior** to delivery to the airport. A study should be conducted on how best to provide SAF safely to the airport and ensure its quality.
- Funding up to \$25 million for SAF pilots and up to \$50 million for SAF demo units, as such funding generally is unavailable from VCs, private equity, strategic equity, etc. Such funds will show that new technologies work and scale in order for the developer then to apply for DOE/USDA loan guarantees, bond financing, etc. for first commercial projects. FAA should support continuing Congressional appropriations annually for these funding programs.
- Development capital for up to \$50 million per SAF applicant to complete FEL 1-3 studies for completing an EPC agreement and a working capital line to get to financial closing with a lender and project equity. FAA should support continuing Congressional appropriations annually for these funding programs.
- Any appropriation or funding or incentives that enable participation of foreign technology providers with U.S. companies. SAF is globally applicable, and developments elsewhere could be useful to U.S. and developments in the U.S. will be helpful in places where U.S. airlines fly as they would have SAF on their return journeys as well.

- The number one regulatory hold back on faster adoption of Sustainable Aviation Fuels, is the lack of a SAF Tax Credit which leaves fuels producers at a disadvantage to produce SAF versus renewable diesel. While not the purview of the FAA, this is the top priority for SAF stakeholders, including producers and airlines. The FAA could help facilitate the adoption of low carbon aviation fuels through continued support of research and development programs particularly supporting testing and pilot programs that can be cost prohibitive for new technologies. Further, efforts that support expansion of the last mile infrastructure including blending tanks, pipelines would help reduce the cost of SAF.
- The FAA has awarded grants in support for research on biofuel projects. The funds currently are earmarked for academic R&D and does not make available funds for projects that are in development. Viable SAF projects have access to Construction Equity and Construction debt once all the engineering (development capital) is completed. The difficulty developers and producers have is attracting development capital funding. Presently there are more than 30 projects representing over \$50 billion in capital needs all on hold due to lack of development capital fund available in the government, public and private sectors. This could represent hundreds of millions of gallons of SAF that could be produced annually. Thus, there is a great need for financial support of development funds across the spectrum of the biofuel projects in development and FAA can provide development for viable projects. Our suggestion is the FAA allocate \$500 million to \$1 billion for the development capital required by SAF producers and developers providing a minimum of \$20 to \$50 million per SAF project. This spreads the risk of capital deployment 25 to 50 SAF projects that would benefit the entire airline industry versus funding one or two large projects. How do we access support from the FAA (and other government entities) and come under the umbrella of R&D for development funds for completed researched projects that research and are actively in the development process?
- 80 million acres of our forest lands are at risk of catastrophic forest fires.
 - The U.S. Forest Service's Hazardous Fuels Reduction effort has attempted to reduce the amount of highly flammable brush, dead, beetle-killed trees and slash piles. But over the last decade, they've only been able to treat 0.16% of the 80 million acres at risk.
 - Want to help reduce catastrophic forest fires and promote economically viable SAF production? There's a simple way to accomplish both imperatives: by supporting the U.S. Forest Services' (and our) efforts to make these hazardous forest waste materials eligible for RINs. We urge the FAA to reach out to the EPA to strongly support this initiative.
- Funding opportunity announcement topic areas should be broadened to support more creative technologies for providing bioproducts/biofuels.

- Much current funding narrowly defines the kinds of technologies that can be funded.
- Funding programs are often focused on capturing CO₂ emissions and then converting CO₂ into bioproducts/biofuels.
- An alternative is to capture and reuse the organics directly from the air. This is much more efficient than using algae or other means to convert CO₂ to a useful product.
- Example: I'm sure you are all familiar with the wonderful pine smell you smell of a Christmas tree. What you are smelling is turpentine. That's what you are smelling when you walk outside near pine trees. Today, when pine wood is dried to make products such as plywood or wood pellets, this wonderful turpentine you've smelled from pine trees, is volatilized off the wood and burned as a waste. We could instead capture it using activated carbon and provide it directly as a valuable sustainable bioproduct/biofuel.
- Greenhouse gas emissions mitigation technologies, such as this example, that provide bioproducts/biofuels by capturing them directly from gaseous process exhaust streams should be supported.

What airlines should be doing to advance SAF?

- Be willing to write long term, fixed price offtake agreements.
- Development capital for up to \$50 million per SAF applicant to complete FEL 1-3 studies for completing an EPC agreement and a working capital line to get to financial closing with a lender and project equity. FAA should support continuing Congressional appropriations annually for these funding programs and project equity for the manufacturing facilities.
- Executing long term offtake agreements—with 10-to-20-year initial terms to secure project financing.
- Airlines are actively seeking to increase SAF supply by signing long term offtakes and in some cases investing into producers and their facilities. They are seeking federal and state environmental incentives to manage the increased cost of SAF. Similarly, they are actively courting their climate conscious customers to pay a premium for SAF. They have had some success with corporate clients. Raising awareness with the broader public of the CO₂ footprint of flying and the ability to cost effectively decarbonize flying would be a logical next step to transfer the green premium to their clients.
- The number one regulatory hold back on faster adoption of Sustainable Aviation Fuels, is the lack of a SAF Tax Credit which leaves fuels producers at a disadvantage to produce SAF versus Renewable diesel. While not the purview of the FAA, this is the top priority for SAF stakeholders, including producers and airlines. The FAA could help facilitate the adoption of low carbon aviation fuels through continued support of research and development programs particularly supporting testing and pilot programs that can be cost

prohibitive for new technologies. Further, efforts that support expansion of the last mile infrastructure including blending tanks, pipelines would help reduce the cost of SAF.

- Airlines should not only do offtake agreements, but also become stakeholders in some form (debt, equity) in production facilities. Risks can be shared across the board to enable first-of-a-kind SAFs. Subsequent plants can be enabled by project financing, but early projects are risky and if the investment is kept reasonable. Airline's equity arm or loan arms can get involved besides LOI for offtakes.
- Airlines should be working more collectively as an industry to drive the introduction of SAF on a localized basis. Ideally, the effort should look to convert airports to SAF fuel apart from airlines so that the delivery of SAF can be less complicated and not to benefit a single airline. Current efforts are more driven by the interest of individual airlines in competition with each other.
- Supporting the SAF developer industry before Congress for enactment of a BTC or PTC--\$1.25 to \$1.75/gallon as in the Build Back Better bill to incent funding for SAF project operations and a 30% ITC to be used against CAPEX to incent tax equity funds for the construction of SAF projects, with an irrevocable election to use one or the other but not both by the same developer for the same manufacturing facility. Similarly, there should be an option for a Treasury pay in lieu of taking the BTC-PTC/ITC in the event that tax equity funding is not available or too difficult to secure. These incentives should be available for the next 10 years at a minimum to jump-start the SAF industry.
- Support for continuing and making better usable/available RINs and LCFS incentives.
- Support for keeping government funding programs funded annually in significant appropriations.
- Airlines should provide financially attractive long term off-take agreement for the SAF to advance SAF. Additionally, Airlines should proactively participate in providing development funds for the FEED study that defines and optimizes the bespoke SAF projects. How do we incentivize the airlines to become more proactive in supporting the Projects in development of the SAF industry? What steps can be taken by the government to get behind the airlines other than the 'Grand Challenge' that does not offer strong enough incentives to invest more heavily into the SAF industry immediately?
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Conclusion

AFCC and its member companies' SAF producers look forward to working with the Senate Appropriations Subcommittee on Transportation, Housing and Urban Development (THUD), and Related Agencies in finding solutions to climate change – including building and rebuilding America's energy, transportation, and manufacturing infrastructure to be cleaner and more resilient to climate impacts and offer an opportunity to propel the U.S. economy forward. Legislation targeting the use of *Forest Residuals* to produce ground transportation biofuels, SAF, renewable chemicals, biobased products, and at the same time mitigating wildfires by using hazardous fuels for high value applications.

Sincerely,



Rina Singh, PhD.
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Alternative Fuels & Chemicals Coalition