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SUSTAINABLE AVIATION FUELS

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Created from advanced biofuels and renewable electro-fuels, sustainable aviation fuels (SAFs) have the potential to significantly cut airline emissions.

They can be blended with kerosene and used in current aircraft without changes to the engine, making them a convenient way to decarbonise flights. But the high cost and limited supply of SAFs will need to be tackled for green jet fuels to truly take off.



Contents

.....

Aviation bosses embrace sustainable aviation fuels as path to green flying 4

EU considers applying green jet fuel mandate to all departing flights 7

It's not just about fuels: It's about the future: Why increasing Sustainable Aviation Fuel production and use is imperative 9

Aviation bosses embrace sustainable aviation fuels as path to green flying

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By Sean Goulding Carroll | EURACTIV.com



A Dassault Falcon 8X jet performs during the inauguration of the 53rd International Paris Air Show at Le Bourget Airport near Paris, France. [EPA-EFE/BENOIT TESSIER / POOL MAXPPP OUT]

Two of Europe's leading aviation companies have argued that scaling up sustainable aviation fuels (SAFs) is an essential step to decarbonise flying, as hydrogen is not yet ready to be adopted on a large scale.

"The problem is with its density,"

said Eric Trappier, chairman and CEO of Dassault Aviation, the French manufacturer of military and business jets.

"If we want to carry enough hydrogen in an aircraft, we have to compress it at very high pressures, or liquefy it at very low temperatures,"

Trappier said, adding: "The consensus is that hydrogen use may be limited to short and medium range flights."

Hydrogen can be a zero emission fuel source if made with renewable electricity.

In September, European aerospace

Continued on Page 5

Continued from Page 4

giant Airbus said it aimed to [develop a commercial airliner by 2035](#) that can be fuelled by hydrogen, potentially unlocking the prospect of zero-emission air travel.

But hydrogen requires considerably more space than kerosene for an equivalent journey, resulting in larger fuel tanks that leave less room for passengers.

“Experts are claiming that hydrogen is a more cost-effective, easier, and faster to certify than biofuels,” said David Paddock, the president of Jet Aviation, an industry leader in aviation services.

“However, despite research efforts in recent years, we believe it is unlikely that the aerospace market will adopt hydrogen in any material way for airplane operations given the lack of infrastructure, power plants, and investment relative to other alternatives,” he told EURACTIV.

EMBRACING SUSTAINABLE AVIATION FUELS

Both company leaders believe that SAFs are key to lowering aviation emissions, but say its usage is being held back by a lack of production and high cost.

“The aircraft industry has fully embraced SAFs. We want to use them. But we need the supply to be available,” said Trappier.

“Today, the problem [with SAF uptake] is not on the aircraft side, but on the supply side. While governments have given full priority to the development of biodiesel for road transportation, there is no similar support for the development of SAF production.

“As this is new technology, with no governmental incentives, it is much more expensive. I expect that rising production of SAF over the next ten years will lower the price and increase usage,” he added.

Paddock also sees a growing interest in SAF but argues that greater supply is needed to drive demand. “The challenge with SAF uptake remains the limited production, supply, and infrastructure, and a limited understanding, and compelling economic proposition, about the fuel.”

According to him, strong public-private partnerships are needed to make SAFs a success globally.

The EU’s upcoming ReFuelEU proposal, which is expected to set a legal requirement for a percentage of SAFs to be blended with kerosene, is welcomed by the company heads, but with a caveat.

“The key point for ReFuelEU is to establish a realistic pathway for a SAF production ramp-up. SAF blending mandates wouldn’t be useful if production is not sufficient in Europe,” said Paddock.

A “level playing field” is vital says Trappier, who stresses the need to establish “rules for fair cooperation among all the players.”

“It is inefficient to impose new taxes on one national operator when the traffic can be diverted to another neighbouring country where the taxes do not apply. We clearly need to think at the EU level, but action should also be taken at international level,” at the UN’s International Civil Aviation Organisation.

Blending mandates also must take into account the level of supply to be effective, says Paddock.

“Mandates should be scaled so that greater levels of SAF can be introduced while maintaining a balance in supply and demand. It is difficult to fix on a specific percentage for any mandates introduced but being carefully scaled is key,” he added.

BOOK AND CLAIM

Business jets touch down in a far greater number of locations than commercial airlines, which can make accessing SAFs difficult – small airports may not have green jet fuel available for refuelling. To solve this problem, the business aviation industry is pushing for the EU to embrace the ‘Book and Claim’ system.

“Under ‘Book and Claim’, business jet operators can purchase SAF at an airport where it is unavailable and receive credit for its supply and use at an airport where it is available. This offers a solution for locations where access to SAF is not feasible, or does not make environmental sense – for example, moving SAF across long distances,” explains Paddock.

“Our approach is to offer physical SAF where possible... and offer Book and Claim as our second solution where SAF is not accessible. This also ensures we can support all of our customers, regardless of which service they are using, anywhere in the world, anytime,” he added.

Trappier believes that Book and Claim certificates could be audited by an approved agency to prevent the recounting of SAF usage. These certificates would then act as proof of the CO2 saved by the aircraft.

Continued on Page 6

Continued from Page 5

“Such certificates should be recognised by carbon mechanisms such as the EU emission trading scheme or CORSIA,” an international aviation carbon offsetting scheme developed by the ICAO.

“This should be urgently put in place by the EU,” said Trappier.

CHARTING A MORE EFFICIENT PATH

Air travel may be able to avoid the twists and turns of road transport, but air journeys are still far from straight lines between two points. Often, planes are forced to take inefficient routes set by the national territory they are traversing.

The aviation industry has long argued that optimising these routes could lower emissions, reduce noise, and save money. “It has been suggested that an efficient air traffic control system could reduce fuel burn and therefore CO₂ output by as much as 10% without compromising safety,” said Paddock.

“Air traffic control support is needed,” agrees Trappier. “This is not the case yet, but significant CO₂ reductions are possible.”

EU considers applying green jet fuel mandate to all departing flights

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By Sean Goulding Carroll | EURACTIV.com



"We want to have maximum impact. Obviously, in order to do that, we should probably not limit ourselves to internal flights, but rather to all flights that depart from European airports," said Filip Cornelis, director of aviation with the European Commission's transport directorate. [EPA-EFE/MOURAD BALTI TOUATI]

The European Commission has confirmed that the upcoming ReFuelEU Aviation initiative will impose a sustainable aviation fuel (SAF) blending mandate, with the EU executive suggesting it will apply to all flights taking off from European airports, regardless of whether their destination is inside the bloc.

"We want to have maximum impact. Obviously, in order to do that, we should probably not limit ourselves to internal flights, but rather to all flights that depart from European airports," said Filip Cornelis, director of aviation with the European Commission's transport directorate.

Cornelis made the comments Tuesday (20 April) at the European Business Aviation SAF Summit, a forum to discuss the role of SAFs in decarbonising the private jet industry. SAFs can be blended to high percentages with kerosene without requiring changes to the aircraft engine, making them an attractive means to cut emissions.

The blending mandate will ensure "a level playing field" for operators working out of European airports, and rapidly boost the production of SAFs, according to Cornelis. The requirement will come in the form of a regulation, meaning it will

immediately apply across member states once adopted.

A source with knowledge of the upcoming proposal told EURACTIV that the EU is planning to gradually scale up the use of SAFs, with a starting point of 2% in 2025, moving to 5% in 2030, 20% in 2035, 32% in 2040, and 63% in 2050. The initiative is expected to be published before the summer.

Rather than placing a requirement on each airline, the regulation is expected to oblige EU airports to carry SAFs, meaning all tanking aircraft will use green jet fuel.

Continued from Page 7

“We’re hoping to create a very simple instrument, possibly without a take-up obligation on airlines individually. If we manage to secure the supply of those blends everywhere then we don’t actually need to check airline by airline how much is uplifted,” said Cornelis.

“My hope would be that as an operator, you wouldn’t need to bother too much about the sourcing of any particular type of biofuel or sustainable e-fuel. You could just [refuel with] what is being offered at your airport.”

Some paperwork will still be necessary, Cornelis added, as a record of the amount of SAF used by each airline will be needed to obtain credits for the Emission Trading Scheme, the EU’s carbon market.

A “MODEST” INCREASE IN JET FUEL COST

During her keynote address, EU transport commissioner Adina Vălean acknowledged that industry “may end up paying a little more” for SAFs but said any increase in fuel costs “should be modest”.

“The cost for clean fuels must be shared as early as possible, just as the transition to sustainable fuels must be driven and endorsed by the entire aviation community,” said the commissioner.

“Targets will be binding on the one hand, but on the other hand, they must be realistic, initially modest, and then become more ambitious beyond 2030,” she added.

Commissioner Vălean also insisted on the need to “convince” the aviation industry outside of the EU that SAFs “are the right choice

to ensure aviation has a sustainable future”.

German MEP Jan-Christoph Oetjen called for immediate investment into the technology and infrastructure necessary for the wide-scale rollout of SAFs, which he labelled “one of the most promising technologies” to decarbonise aviation.

“Despite the severe situation faced by international aviation, the EU now has the opportunity to build a better, greener, and cleaner aviation business model,” said Oetjen.

While questions remain as to what type of fuels will qualify as SAFs, Cornelis announced that the general sustainability rules contained in the soon-to-be-revised Renewable Energy Directive will act as a guide.

He also stated that the EU is considering a sub-mandate for synthetic fuels, such as e-kerosene, to boost production in the sector.

Andrew Murphy, aviation director at green NGO Transport & Environment and a panelist at the event, insisted on choosing the right type of fuels for SAFs “from the get go”.

“It’s important to recognise that any fuel which comes from the land is going to be competing with forestry and food,” he said.

“There is a potentially limitless amount of renewable electricity in a way there isn’t an unlimited amount of municipal solid waste or an unlimited amount of land. And if the business aviation sector is wondering what’s the biggest impact it can have, it’s delivering demand and investment into fuel which can be scaled up.”

INDUSTRY WELCOMING OF SAF

Representatives of the business aviation industry welcomed the shift to SAFs, with many characterising it as an essential transition fuel while clean aircraft technology, such as hydrogen-powered and electric jets, come to maturity.

The high-price of SAF compared to fossil-fuels remains a barrier to wider uptake, but those in business aviation are better situated than commercial airlines thanks to a generally lower price sensitivity, the audience heard.

“Many operators are ready to take up the environmental responsibility. Many operators in business aviation and their clients are ready to actually pay a premium price,” said Juergen Wiese, head of BMW flight services.

Thierry Lamant of French aircraft manufacturer Dassault said that while improvements in efficiency may bring small percentage gains in lowering carbon emissions, SAFs offer a rapid leap forward: “The great benefit of SAF is really to bring us, now, immediately, a possible 80% improvement in terms of CO2 reduction.”

The close of the conference saw the launch of the [“European Business Aviation Vision for Sustainable Aviation Fuel”](#), a commitment from the sector to enhance the production and uptake of SAFs.

“The single-largest potential reduction in aviation’s greenhouse gas emissions — and key to reaching goals to reduce them — will come about through the broad adoption of SAF,” the business aviation coalition said in a statement.

PROMOTED CONTENT

DISCLAIMER: All opinions in this column reflect the views of the author(s), not of EURACTIV Media network.

It's not just about fuels: It's about the future: Why increasing Sustainable Aviation Fuel production and use is imperative

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By Juergen Wiese and Nicolas Chabbert | European Business Aviation Association (EBAA)



Róman Kok, EBAA.

As we stand at the eve of what many argue should be the “green recovery” of the economy, Business Aviation is advancing tangible emission reductions. Here is what you need to know about Business Aviation and sustainability, and why increasing

the production and deployment of Sustainable Aviation Fuel (SAF) should be a priority for the EU institutions.

Nicolas Chabbert is the Chairman of the Board of Directors at GAMA and Juergen Wiese is the Chairman of the

Board of Governors at EBAA.

For those who are curious about Business Aviation, the sector plays a crucial role in European connectivity and is a substantial contributor to the European economy. Our industry is known by many names: unscheduled

Continued on Page 10

Continued from Page 9

aviation, private jets, corporate flying and general aviation. One thing is for sure, Business Aviation is an industry that provides a solution when time matters most, serving as a lifeline for communities, be it for medical transport or as a tool to help governments and businesses generate local economic development and has a strong history of assisting in times of crisis.

TOO QUIET FOR TOO LONG

The Business Aviation community has long been committed to reducing the environmental impact of its products and operations. In fact, in many ways, it has been ahead of the curve in mitigating its impact on climate change.

In 2009, six years before the world-renowned Paris Agreement, the sector resolved to do more. Business Aviation stakeholders jointly developed an aggressive programme entitled the Business Aviation Commitment on Climate Change, also known as the BACCC. To this end, the community committed to specific targets: carbon-neutral growth from 2020; an improvement in fuel efficiency of an average of 2% per year from its publication until 2020; and a reduction in its total CO₂ emissions by 50% by 2050 relative to 2005.

As a forward-looking industry, Business Aviation has been too quiet for too long about its proven track record of improved aircraft performance thanks to advanced airframe design and cutting-edge propulsion systems technology. Constant product evolution driven by research and development explains why our sector is the

catalyst for innovation in aviation and a leader in decarbonising the aviation sector.

THE CASE FOR SUSTAINABLE AVIATION FUEL (SAF)

Here in Europe, we know that achieving our sector's ambitions and working towards the European Green Deal objectives, means decoupling Business Aviation growth from emissions output, and committing to tangible solutions that we can implement today. One of these solutions is SAF. Increased use of SAF by Business Aviation as soon as it becomes widely available will result in a reduction in carbon dioxide (CO₂) emissions. In fact, "neat" SAF (pure and unblended) can deliver a reduction in net life-cycle greenhouse gas (GHG) emissions of up to 80% versus petroleum-derived jet fuel.

With a technology that can bring clear and immediate reductions in GHG emissions, it becomes clear to anyone that SAF production should be ramped up swiftly and its use widely adopted. That is why the Business Aviation community organised the first-ever [European Business Aviation Summit on SAF](#) on 20 April 2021. Organised by the Business Aviation Coalition for Sustainable Aviation Fuel (SAF), the Summit brought together stakeholders and policymakers from Europe and around the globe ahead of the highly anticipated publication of the European Commission's ReFuelEU Aviation Initiative. The Summit provided an important platform to exchange views on how best to accelerate the production, distribution and use of SAF across Europe and globally.

At the conclusion of the Summit, in our role as key stakeholders in the Business Aviation Coalition for Sustainable Aviation Fuel, the European Business Aviation Association (EBAA) and the General Aviation Manufacturers Association (GAMA), delivered a [European Business Aviation Vision for SAF](#) to all EU stakeholders to support the delivery of the EU's and our Commitment's climate targets.

TAKING ACTION

SAF will play an instrumental role in reducing aviation emissions alongside other technologies such as power-to-liquids (future versions of SAF), electric, hybrid and hydrogen. It is important that we act now. With immediate prioritisation of advanced biofuels and increasing shares of synthetic fuels over time, SAF will become more economically competitive relative to conventional kerosene. Time is of the essence, and so is cooperation between industry and the European institutions. Together, we can achieve our climate objectives of at pace. Sustainable Aviation Fuel is key to unlocking emission reductions in the short, medium and long term – and everyone involved should want to ramp up its production, distribution and use as soon as possible.



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