

Aviation takes baby steps toward sustainable fuels

12 February 2017, by Marc Braibant



An Airbus A321 aircraft using Biojet A-1 Total/Amyris, a biofuel produced from an innovative sugar-processing technology, seen at Le Bourget airport near Paris

The air transportation sector is turning slowly toward sustainable fuels as part of the global fight against climate change.

But adoption has been delayed due to a lack of incentives and low oil prices.

"It's very urgent to develop these alternative fuels," said Michel Wachenheim of the International Coordinating Council of Aerospace Industries Associations (ICCAIA).

"There is no reason to be satisfied with the situation."

Despite an expected increase in airline traffic, the aviation industry is the first commercial sector to commit itself to limiting carbon emissions within 20 years, through a binding mechanism.

But to achieve that goal, the industry must look at a variety of options.

Even partially replacing [jet fuel](#) with sustainable biofuels can make an impact. That is one of the four options favored by the International Civil Aviation Organization (ICAO), which convened a panel of experts on Wednesday and Thursday in Montreal to address the dilemma.

Lighter, more fuel-efficient aircraft, optimized flight plans, or turning off jet engines while on the tarmac also would help to cut emissions.

But meeting the 20-year commitment will require widespread adoption of alternative fuels that produce less [carbon emissions](#) over their life cycle than jet fuel produced from petroleum.

The ultimate goal is to make a fuel-equivalent to jet fuel, but those processes still are under development or at an early stage of industrial production.

Hydro-treated oils, a process of converting gases into hydrocarbons, or fermentation processes such as the one being done by biotech Amyris with French oil firm Total, produce sustainable biofuels, according to the experts gathered at the ICAO.

Starches and sugars

These fuels are made from biomass such as starches, sugars, oils and lignocellulose—in other words, plants. The use of seaweed is still in the research stage.

Nate Brown, in charge of the US Federal Aviation Administration's alternative jet fuel initiative, said more work needs to be done before reaching large-scale production.

In addition to coming up with alternative fuels with "equivalent safety-performance," the costs must be comparable to that of conventional fuel, he said.

A reliable supply is crucial for airlines, and proven

environmental benefits also are key, he said.

With prices for conventional fuel remaining low over the past three years, due to low crude oil prices, energy companies do not have an incentive to invest billions of dollars in new technologies.

But even so, this year 25 airlines will operate more than 5,000 flights using jet fuel mixed with sustainable alternative fuels—up to 50 percent in the case of hydro-treated oils—on a trial basis.

Industry officials say there also will to be a need for stronger political will world wide to encourage the use of [alternative fuels](#).

Gerard Ostheimer a scientist with Sustainable Energy For All (Se4all), launched by the United Nations, a higher price per tonne of carbon could be one of the levers that would push development of these biofuels.

In addition, "We must put in place policies that reward (using) fuels with reduced carbon intensity."

At their last triennial assembly, the 191 ICAO member states adopted a global mechanism for offsetting emissions from international aviation and the objective by 2035 of, at worst, maintaining emissions at 2019 or 2020 levels.

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APA citation: Aviation takes baby steps toward sustainable fuels (2017, February 12) retrieved 26 September 2020 from <https://phys.org/news/2017-02-aviation-baby-sustainable-fuels.html>

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