



# Fact Sheet

## Alternative Fuels

- Sustainable alternative aviation fuels will play an important role in meeting the industry's ambitious carbon emissions reduction goals
- Sustainable alternative fuels allow airlines to reduce their carbon footprint, ease their dependence on fossil fuels and enjoy benefits from increased energy supply diversification
- Lifecycle greenhouse gas emissions from alternative fuels can be up to 80% lower than traditional jet fuel
- Main requirements for sustainable alternative jet fuels:
  - Can be safely mixed with conventional jet fuel, can use the same supply infrastructure and do not require adaptation of aircraft or engines
  - Meet the same technical specifications as conventional jet fuel, in particular resistance to cold and high energy content (automotive bioethanol and biodiesel are different and are not suitable)
  - Meet sustainability criteria such as lifecycle carbon reductions, limited fresh water requirements, no competition with food production and no deforestation

### Alternative Fuels in Practice

- Currently there are five production pathways technically certified, 16 more certifications are in preparation
- Main milestones so far:
  - The first test flight with biojet fuel was performed in 2008 by Virgin Atlantic
  - Since 2011, 22 airlines have performed thousands of commercial passenger flights with blends of up to 50% sustainable aviation fuel from municipal solid waste, used cooking oil, jatropha, camelina and sugarcane
  - In January 2016, regular sustainable fuel supply through the common hydrant system started at Oslo Airport. Alternative fuel producer Neste and supplier SkyNRG as well as Air BP are involved. Stockholm Airport is also using sustainable aviation fuel in regular operations.
  - In March 2016, United Airlines commenced daily flights using sustainable alternative fuel from Los Angeles Airport (LAX), supplied by AltAir. United are the first airline in the world to have introduced alternative jet fuel into normal business operations.
- All over the world, multi-stakeholder groups (airlines, airports, aircraft manufacturers, governments, biomass and biofuel producers and suppliers) are working together on initiatives for the deployment of biojet fuels
- These include CAAFI (US), Ubrabio (Brazil), aireg (Germany), Bioqueroseno (Spain), Bioport Holland (The Netherlands), Plan de Vuelo (Mexico), AISAF (Australia), NISA (Nordic countries), BioFuelNet Canada, and further projects are taking place in China, the UAE, Qatar, Israel and Japan
- Several airlines have concluded long-term offtake agreements with biofuel suppliers, most of which are reported as price-competitive:

Airline	Supplier	Volume [t/yr]	Feedstock / product	Duration	Start delivery	Contract date
United	Altair	17 000	HEFA	3 years	2016	2013
Cathay	Fulcrum	100 000	Waste	10 years	2019	2014
FedEx + Southwest	Red Rock	10 000	Forest residues	8 years	2017	2014
United	Fulcrum	270 000+	Waste	10 years	2019	2015

JetBlue	SG Preston	100 000	HEFA	10 years	2019	2016
Lufthansa	Gevo	Up to 30 million litres	TBC	5 years		2016
Alaska Airlines	Hawaii Bioenergy	38 million litres	TBC	TBC	2018	2013
KLM	AltAir		HEFA	3 years		2016

## IATA Position on Sustainable Alternative Jet Fuel

- IATA recognizes that, contrary to the ground transport sector, which can use electric energy, aviation has no near-term alternative to liquid hydrocarbon fuels (although electric commercial aircraft are becoming more of a possibility)
- Sustainable alternative fuels will be the only energy solution to mitigate the emissions growth of the industry in the medium term
- IATA supports research, development and deployment of alternative fuels that meet environmental, societal and economic sustainability criteria. IATA is a member of the Roundtable on Sustainable Biomaterials (RSB), which has developed the most comprehensive sustainability standards for biofuels.

## IATA's Strategic Action Plan

- Industry actions
  - Developed an [industry roadmap \(2015\)](#) highlighting best practice for technology adoption, policy and regulation, economics, sustainability and accounting standards
  - Provide industry leadership on best practice concerning: sustainability standards, accounting procedures, logistics, communication, effective policy and business case development
  - Influence policy negotiations towards a level-playing field with road transport
- Role of governments
  - Adopt globally-recognized sustainability standards and work to harmonize global standards
  - Allow alternative fuel to compete on an equal basis with land transport through equivalent public incentives ("level the playing field")
  - Encourage user-friendly biofuel accounting methods and work to harmonize global standards
  - Support alternative fuel R&D and demonstration plants
  - Implement effective policy to de-risk investments into alternative fuel production plants
  - Engage in public-private partnerships for alternative fuel production and supply
  - Pursue a harmonized transport and energy policy
  - Commit to policy certainty or at a minimum policy timeframes that need to match investment timeframes

## Challenges and opportunities

- The main challenges to a wide deployment of alternative jet fuels are not technical, but commercial and political
- Currently, a number of alternative jet fuel production pathways are more expensive than fossil Jet A/A1
- Broad demand is low due to the competitive structure of aviation. This adds risk for investment in production infrastructure. Carefully designed policy is needed to foster investment and the development of biojet production capacity.
- In the United States, a combination of incentives according to the Renewable Fuel Standard (RFS), support for building up new-technology production plants and incentives for agriculture, under the right conditions, can open the possibility of price-competitive alternative jet fuel being available; see the table of long-term offtake agreements above.
- KLM, Schiphol Airport, the biojet fuel supplier SkyNRG, the Dutch government and other local partners are working together in the Bioport Holland project with the goal of starting a regular supply of a biofuel blend to the joint fuel distribution in Schiphol Airport in 2017. Similar initiatives have started at Montréal Airport and elsewhere.
- The Netherlands is the only EU Member State that recognizes the use of aviation biofuels as counting towards the EU renewable energy goals. The EU has recently published a draft revision of the Renewable Energy Directive, including proposals for a multiplier to apply to sustainable aviation fuels when counted

against the renewable energy share. With 1.2, the multiplier is, however, too small for having a significant effect.

- Indonesia has introduced an alternative jet fuel mandate of 2% commencing in 2018, rising to 5% by 2025
- The effectiveness of different policy mechanisms for commercially deploying meaningful quantities of sustainable alternative jet fuel is being studied by the ICAO Alternative Fuel Task Force (AFTF) during the CAEP/11 cycle (2016-2019).
- AFTF is also working on a global sustainability standard for alternative aviation fuels to give rise to a reduction of CORSIA obligations.