



Fact Sheet

Sustainable Aviation Fuels

- Sustainable Aviation Fuels (SAF) are being produced and used in commercial flights every day. Current volumes produced are low (<1% of total jet fuel demand) however, these volumes can be substantially increased with coordinated support including effective policy frameworks.
- Contrary to the ground transport sector, which can use electric energy, aviation has no near-term alternative to liquid hydrocarbon fuels (electric commercial aircraft are unlikely before 2040)
- In the medium term, SAF will be the only energy solution to mitigate the emissions growth of the industry.
- SAF will be an eligible alternative for aircraft operators to meet their obligations under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA)
- IATA supports research, development and deployment of SAF 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 standard for biofuels and biomaterials.
- At the 73rd IATA AGM in Cancun, 2017, IATA members unanimously agreed a [resolution](#) on the deployment of SAF, including calling for constructive government policies, and committing to only use fuels which conserve ecological balance and avoid depletion of natural resources.
- Sustainable Aviation 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 SAF can be up to 80% lower than traditional jet fuel
- Main requirements for SAF:
 - 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 equivalent or higher technical specifications as conventional jet fuel
 - Meet sustainability criteria such as lifecycle carbon reductions, conserve ecological balance and avoid depletion of natural resources

Sustainable Aviation Fuels in Practice

- Numerous multi-stakeholder initiatives exist aiming to advance the deployment of sustainable aviation fuels
- Some of these include CAAFI (US), Sustainable Aviation (UK), Ubrabio (Brazil), aireg (Germany), Bioqueroseno (Spain), Bioport Holland (The Netherlands), Plan de Vuelo (Mexico), NISA (Nordic countries), BioFuelNet Canada, with further projects taking place in China, the UAE, Israel and Japan.
Currently there are five production pathways technically certified for use in commercial aviation, with a number more in the process of certification.
- **Main milestones so far:**
 - **2008** – The first test flight with biojet fuel was performed by Virgin Atlantic
 - **Between 2011 and 2015** – 22 airlines performed over 2,500 commercial passenger flights with blends of up to 50% biojet fuel from feedstock including used cooking oil, jatropha, camelina, algae and sugarcane



- **Jan. 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
 - **Mar. 2016** – United commenced daily flights using sustainable alternative fuel from Los Angeles Airport (LAX), supplied by AltAir. United is the first airline in the world to have introduced SAF into normal business operations.
 - **June 2018** – More than 130,000 commercial flights using SAF have been performed
- Several airlines have concluded long-term offtake agreements with SAF suppliers, most of which are reported as commercially competitive. A number of airports have agreed to supply SAF through their hydrant system.

Airline/Airport	Supplier	Volume [t/yr]	Conversion technology	Duration	Start delivery	Contract date
United	Altair	17 000	HEFA	3 years	2016	2013
Cathay	Fulcrum	100 000	FT/Municipal waste	10 years	2019	2014
FedEx/Southwest	Red Rock	10 000	FT/Forest residues	8 years	2017	2014
United	Fulcrum	270 000+	FT Municipal waste	10 years	2019	2015
JetBlue	SG Preston	100 000	HEFA	10 years	2019	2016
Qantas	SG Preston	80 000	HEFA	10 years	2020	2017
Oslo Airport	Neste / Alt Air	250	HEFA	1 Year	2016	2016
Virgin Australia / Qld Government (at Brisbane Airport)	GEVO	80	AtJ	2 years	2018	2017
Toronto Airport	Alt Air	200	HEFA	1 year	2017	2016
Geneva Airport	TBD	1%	TBD	5 years	2018	2017

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 incentive playing field with road transport
- **Role of governments**
 - Adopt globally-recognized sustainability standards and work to harmonize global standards



- Ensure existing policy incentive frameworks designed for ground transport, also include aviation and consider higher incentives for aviation over ground transport which has other energy alternatives
- Encourage user-friendly sustainable aviation fuel accounting methods and work to harmonize global standards
- Support sustainable aviation fuel R&D and demonstration plants
- Implement effective policy to de-risk investments into sustainable aviation fuel production plants
- Engage in public-private partnerships for sustainable aviation fuel production and supply
- Commit to policy certainty or at a minimum policy timeframes that match investment timeframes

Challenges and opportunities – both political and commercial

- Due to issues of scale and yet to be optimized processes, some sustainable aviation fuel production pathways are more expensive than fossil Jet A/A1.
- Risks for investment in production infrastructure can be mitigated by carefully designed policy to encourage the development of SAF 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 for price-competitive sustainable aviation fuel being available.
- In Europe, the revision of the Renewable Energy Directive (2020-2030) (RED II) will apply a multiplier (1.2x) for producers making SAF rather than ground transport fuel. This has the potential to increase the supply of SAF available in Europe.
- Some countries are considering country-wide plans for ending the use of fossil fuels. This implies material strategic considerations for aviation.
- 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 during the CAEP/11 cycle (2016-2019).