**SUSTAINABLE AVIATION FUEL (SAF)**

**What is SAF?**

Sustainable aviation fuel (SAF) is the main term used by the aviation industry to describe a non-conventional (fossil derived) aviation fuel.

The chemical and physical characteristics of SAF are almost identical to those of conventional jet fuel and they can be safely mixed with the latter to varying degrees, use the same supply infrastructure and do not require the adaptation of aircraft or engines. Fuels with these properties are called “drop-in fuels” (i.e. fuels that can be automatically incorporated into existing airport fuelling systems).

To validly use the term “sustainable” they must meet sustainability criteria such as lifecycle carbon emissions reduction, limited fresh-water requirements, no competition with needed food production and no deforestation.

Sustainable aviation fuel consists of three key elements *(and each must be verified by the appropriate certification body)*:

1. Sustainable
2. Alternate feedstock to crude oil
3. Fuel

**History:**

- 2008 – The first test flight with SAF was performed by Virgin Atlantic.
- Between 2011 and 2015 – 22 airlines performed over 2,500 commercial passenger flights with blends of up to 50% SAF from feedstock including used cooking oil, jatropha, camelina, algae and sugarcane.
- January 2016 – Regular sustainable fuel supply through the common hydrant system started at Oslo Airport. SAF producer Neste and supplier SkyNRG as well as Air BP are involved.
- March 2016 – United became the first airline to introduce SAF into normal business operations by commencing daily flights from Los Angeles Airport (LAX), supplied by AltAir (now World Energy).
- January 2020 – A number of expansion projects or new production facilities are being developed. This will increase available SAF by 50-100 times current volumes, expected to be available by the early 2020s.

**Why is SAF critical for the aviation industry?**

- 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.
- All assessed scenarios under the ATAG Waypoint 2050 research require substantial amounts of SAF to meet the 2050 emissions reduction goal.
- SAF will be an eligible option for aircraft operators to meet their obligations under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).
Key Statistics:

**SAF: Fact check**

- **240,000 flights**

- **40+ million litres per annum**
  - Continuous production since 2016. Production capacity being expanded globally.

- **< 1% SAF system penetration**
  - 2% by 2025 possible with policy support that incentivizes fuel for aviation over ground transport.

- **7 approved technical pathways**

- **50%-100% CO₂ reduction**
  - Emission reductions must be verified by an appropriate sustainability verification scheme. An 80% emission reduction factor (relative to conventional) is targeted.

- **$6 billion in forward purchase agreements**
  - From using dormant refineries to negative cost feedstocks to adapting and expanding existing renewable diesel production or targeting geographies with positive policy.

**Economics:**

In general, SAF production costs are higher than convention jet fuel. There are numerous economic models for establishing a SAF production facility (such as the use of different feedstocks / technology pathways / offtake structures etc), however, as a rule of thumb, SAF is around 1.5x-2.5x more expensive than conventional jet fuel. This underpins the requirement for government support to help the industry negotiate the valley of death and mature from demonstration sized production facilities to more optimised n-th size production plants. IATA believes an economic tipping point can be achieved at around 2% market penetration (circa 7 billion litres).

**IATA Advocacy:**

- Provide industry leadership and publicly available guidance material on best practice concerning sustainability standards, accounting procedures, logistics, communication, effective policy and business case development
- Ensure governments understand the social opportunity to apply post COVID fiscal stimulus to advance the commercial development of sustainable aviation fuel supply
- Influence policy negotiations to ensure aviation can opt-in to existing ground transport policies and in some cases have aviation preferentially incentivized to use SAF

**IATA calls on governments to:**

- Implement policies that de-risk investments into sustainable aviation fuel production plants
- Commit government funds to invest in and develop through public-private partnerships, sustainable aviation fuel production and supply
– Commit to policy certainty ensuring that policy timeframes that match investment timeframes
– Adopt globally-recognized sustainability standards and work to harmonize global standards
– Ensure existing policy incentive frameworks designed for ground transport, also include aviation and apply 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