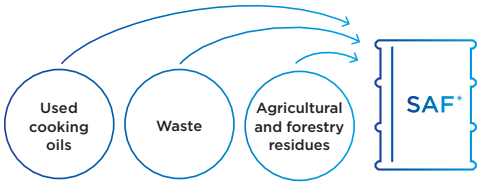
AIRFRANCE KLM GROUP

# SUSTAINABLE AVIATION FUEL
# A KEY DRIVER OF AIR TRANSPORT DECARBONIZATION

**Sustainable aviation fuel (SAF) is already a reality and will be increasingly used in the years to come. SAF is set to become the leading driver of decarbonization in air transport.**

The SAF currently available on the market is mainly **biofuel** obtained by hydrotreating waste oil and fats (HEFA [Hydroprocessed Esters and Fatty Acids] technology).

Another, more complex process of gasification of agricultural and forestry residues is expected to gradually emerge as this industrial sector grows. In the medium term, a process based on capturing $CO_2$ in the air is also getting off the ground (so-called "synthetic" sustainable aviation fuel).

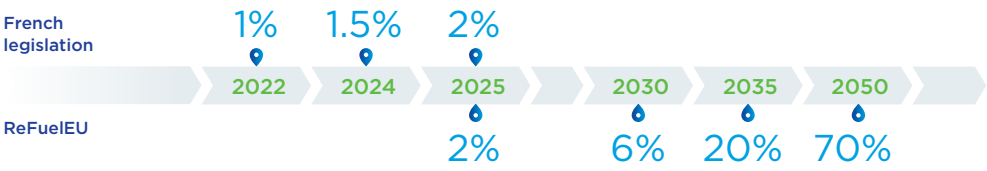



SAF generates **up to 80% fewer $CO_2$** emissions than conventional kerosene over the fuel life cycle. SAF can be blended with conventional kerosene (currently by up to 50%) without having to adapt aircraft, engines or refuelling infrastructures.

*Sustainable aviation fuel is the name given to fuel of non-fossil origin that is certified sustainable and can be used in commercial aviation. The term covers technologies arising from various manufacturing methods (hydrotreatment, gasification, electrolysis, etc.) that for the most part rely on bio-organic raw materials (used oils, animal fats, agroforestry waste, etc.) and carbon-free energy sources (electricity, hydrogen).

## Regulations around sustainable aviation fuels

SAF incorporation timeline set by French legislation and the European ReFuelEU Regulation (flights departing from Europe).




In addition, **a specific proportion of the fuel blend must include synthetic fuels** (1.2% in 2030, 2% in 2032 and 5% in 2035, to gradually reach **35% by 2050**).

## SAF at the heart of sustainable development strategy

### DECARBONIZATION

Main decarbonization objective:

30%

**drop in $CO_2$ emissions** per tonne-kilometre transported by 2030 as compared to 2019.

By 2030, **1 million tonnes of SAF per year** will be required to cover the needs of the Air France-KLM Group, half of which will be for Air France.

### SAF INCORPORATION

SAF incorporation objective: **at least**

10%

**SAF** on all flights by 2030.

To achieve this, Air France-KLM has signed strategic agreements with Neste and DG Fuels to secure a supply of **1.6 million tonnes of SAF between 2023 and 2036.** This represents 4.7 million fewer tonnes of $CO_2$ than if fossil fuels were being used, over the entire fuel life cycle. In 2023, Air France-KLM purchased 16% of global SAF production, even though the group only represented 3% of global aviation fuel consumption. The Air France-KLM Group is the world's leading user of SAF.

In 2023, Air France-KLM signed a number of **memorandums of understanding with SAF producers** around the world in view of obtaining the volumes necessary to achieve the group's 2030 objectives. Memorandums of understanding (MoUs) have been signed with ENGIE (KerEAUzen project, France), EDF (Take Kair project, France), Elyse Energy (BioTfuel project, France), TotalEnergies (France), OMV (Austria), Raven (United States) and SAF+ International Group (Canada).



## A strict procurement policy

The Group is committed to only purchasing SAF that:

- is **not produced** from **palm oil**
- reduces $CO_2$ emissions **by at least 75%** over the entire fuel life cycle
- is certified by **RSB** (Roundtable on Sustainable Biomaterials) or **ISCC** (International Sustainability & Carbon Certification)

### WHY NOT USE 100% SAF TODAY?

By 2030, global demand for SAF is expected to reach 20 to 30 million tonnes. Production is estimated at 10 to 15 million tonnes by that same date. There is clearly a yawning gap between supply and demand.

Prices are four to eight times higher than they are for conventional fuel.

Certain technologies are currently not mature enough to reach the industrial stage.

SAF is currently certified in blends of up to 50% without having to modify engines. Engine manufacturers are currently working on engine certification for completely safe 100% SAF capability.*

*By 2030 (source: Airbus).