Sustainable Aviation Fuel
CAAFI CBGM’22

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Driven by our purpose

We are 4,833 dedicated professionals committed to our purpose.

We are 4th most sustainable company in the world (Global 100 Index 2021, Corporate Knights).

We produce 34 Million gallons per year of SAF.

By 2023 our production of SAF expands to 515 Million gpy.
Available drop-in solution
- Compatible with existing jet engines and fuel supply infrastructure
- Commercially available and in use
- Used in blends up to 50%

Greenhouse gas emission reduction
- In neat form, reducing GHG emissions up to 80% compared to fossil fuels over the lifecycle
- Produced 100% from renewable wastes and residues raw materials
- Direct in-sector emission reduction, unlike offsets

Reduction of non-CO\textsubscript{2} effects
- Burns clean, reducing local emissions
- Additional climate benefits through reduced particulate emissions (non-CO\textsubscript{2} effects of aviation may have equal or higher climate impact than carbon emissions\textsuperscript{1})

\textsuperscript{1} EASA Final Report: Updated analysis of the non-CO\textsubscript{2} climate impacts of aviation and potential policy measures pursuant to the EU Emissions Trading System Directive Article 30(4), November 2020
Following start of commercial sales in 2019, Neste’s SAF is in use on a commercial basis across the world.
Building a global platform for access to available waste and residue feedstock
Near term Sustainable Aviation Fuel capacity is almost all HEFA, dependent on lipid feedstocks

Demand certainty for SAF can drive new investments for additional capacity in addition to pipeline in place

Global SAF production capacity outlook (Mt)

- Announced HEFA SAF production
- Additional potential for HEFA SAF (based on 46% yield assumption)
- Alcohol-to-jet SAF
- Gasification/FT SAF
- Total

Sufficient bio-feedstock potential for substituting fossil jet fuel

Power-to-liquids will bring unlimited additional potential as the technology matures.

Immediately available HEFA technology based on zero ILUC lipids can replace 20% of jet fuel.

In mid 2020’s, Gasification+synthesis and ATJ technologies will mature. Together with HEFA, they have the potential of substituting all fossil jet fuel.

Starting around 2030, industrial volumes of PtL can become available.

Estimated SAF potential 490 Mt in total in 2030.

Up to 120% of estimated global jet fuel demand of 410 Mt in 2030.

Practical feedstock availability in 2030, Mt/year:

- Power-to-Liquids (CO2): Unlimited

Existing infrastructure without major modifications can be used to supply SAF
Regulatory support is key in driving SAF use & supply

Incentives in place in many markets to bridge the price gap to fossil fuel. Supply mandates are also being introduced.

**NORDICS**
- SAF mandate rising to 30% target for 2030

**UK & NL**
- Incentives in place, SAF mandate to be introduced

**FRANCE**
- SAF mandate: 1% in 2022; 5% in 2030

**EU**
- SAF mandate from 2025 consultation on-going

**CALIFORNIA**
- LCFS INCENTIVE

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Neste’s SAF capacity will grow to 1.5 million tonnes (0.5 bn gallons) in 2023
And will continue to expand with new technologies

1 Up to 10% of global jet fuel use (35 Mton)

2 Potential exceeds global jet fuel use

3 Technical potential “unlimited”

Power-to-liquids (CO₂ capture)

Technologies close to commercialization
(municipal solid waste, lignocellulosic, etc.)

1 HEFA¹ (waste and residue oils and fats as raw materials)

Neste SAF scale up
• Current: 100 kton/a in Porvoo
• 2023: 1 Mton/a in Singapore (under construction)
• 2023: 450 kton/a in Rotterdam (feasibility study on-going)
• SAF capacity included in future renewable refineries

Source: WorldSource: Neste estimates. 1 HEFA = Hydroprocessed Esters and Fatty Acids