

# The Limits of SAF Implementation in Practice: the Case of Lufthansa

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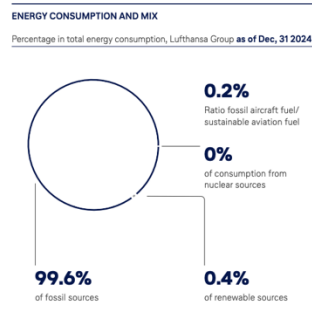
### Introduction of the issue:

Currently as of September 2025, on Lufthansa's website, one can access their "[Sustainability 2024 Factsheet](#)" whose aim is to "provide a collection of the Lufthansa Group's most significant non-financial performance indicators for the 2024 financial year," which "reflect[s] its commitment to sustainable practices and responsible management, and aim to provide stakeholders with a clear and transparent view of the Group's sustainability efforts." The report includes various facts and figures on environmental data such as resource consumption, CO2 emissions and, which is of particular interest, its energy usage in terms of fossil fuels and sustainable aviation fuels (SAF). A deep dive of the figures and stats showcase noteworthy findings. Of the total energy consumption and mix for the Group as of 31 December 2024, **only 0.4% of total fuel energy used came from renewable source**, with the group therefore relying upon 99.6% of its energy consumption on fossil fuel sources. This creates a ratio of fossil aircraft fuel to SAF of a mere 0.2%.

### Use of resources

Lufthansa Group develops its resource and waste management systems on a continuous basis, with a view to minimizing the environmental impacts of its business activities, improving the efficiency of its use of raw materials, and avoiding the use of non-recyclable materials across all areas of its operations.

The Company invests in a variety of technologies to support its transition to a sustainable economy – focusing in particular on improving its fuel efficiency, and reducing energy consumption and carbon emissions from aircraft operations. Primarily this includes actions on the fields of fleet modernization, the use of sustainable fuels and efficiency in flight operation.



The Lufthansa Group records and analyses its global energy consumption annually. The energy consumption figures are of high significance to the Lufthansa Group, since they serve as the basis for both calculating its carbon footprint and verifying the effectiveness of the energy reduction measures that have been implemented.

**Passenger Airlines**

The Passenger Airlines aim to end the use of single-use plastic and single-use aluminum by 2025\*

Number of single-use plastic or single-use aluminum items

- in use on board of Passenger Airlines in 2024: **721**
- of which replaced by more sustainable alternatives (e.g. by reusable items) in 2024: **263**

**Lufthansa Technik**

Lufthansa Technik aims to have a recycling rate of **75%** by 2025

- Recycling rate at Lufthansa Technik in 2024: **57%**

**Lufthansa Cargo**

Lufthansa Cargo aims to have a recycling rate at its hub in Frankfurt of **40%** by 2025

- Recycling rate at Lufthansa Cargo (Hub Frankfurt) in 2023: **38%**

### What's likely behind Lufthansa's weak sustainable energy consumption figure:

Several problems are currently present in the development of SAF for industrial use. The technology is simply not yet mature enough to be widely implemented and scaled due to limited available feedstock that would be needed at the required scale to meet consumer demands.

It is also expensive. There is a high green premium since SAF is typically 2-5 times higher in price when compared to fossil fuel sources such as Kerosene. <sup>1</sup>

The aviation industry is highly "safety" oriented and for this reason, various certifications are required to meet quality standards. Besides this taking time to achieve, there are currently

<sup>1</sup> Abhishek Sinha, *Sustainable Aviation Fuel: Not a Panacea, but Likely Helpful if Key Issues Are Resolved*, Institute for Energy Economics and Financial Analysis, pg 9. [https://ieefa.org/sites/default/files/2024-08/Sustainable%20Aviation%20Fuel\\_August%202024%20%281%29.pdf](https://ieefa.org/sites/default/files/2024-08/Sustainable%20Aviation%20Fuel_August%202024%20%281%29.pdf).

certification limits to how much blending can take place using conventional jet fuel and SAF (the CAP is often less than 50% SAF).<sup>2</sup>

It is currently very difficult to scale because airport infrastructures as we know them are not equipped to supply aircrafts with SAF since plants are rarely near major hubs. This creates logistics issues as well as extra costs and emissions.

Not to mention that from a global equity perspective, emerging markets and least developed countries must also be enabled in order to meet and align their technology and infrastructure to be able to implement the current renewable fuel ambitions in practice.

### **Why does this matter:**

There are ambitious targets set both at an EU and international level for the implementation and operationalization of SAF in the short-term.

ICAO's Long-Term Aspirational Goals (LTAG) adopted in 2022 for international aviation intends to achieve net-zero carbon emissions by 2050 with the most recent report showing that SAF has the greatest potential to reduce CO<sub>2</sub> emissions from International Aviation.<sup>3</sup> As part of ICAO's Global Framework for SAF, states agreed an interim target for aviation fuel in 2030 to be **5%** less carbon-intensive than today primarily via SAF.<sup>4</sup> This is a global vision, not a binding mandate. Likewise, in the EU, "ReFuelEU," whose legal basis stems from Regulation (EU) 2023/2405 (already in force with core obligations applying from 1 January 2025), requires minimum shares of SAF in all jet fuel supplied at EU airports (plus a sub-target for synthetic "e-SAF"). Key milestones enshrined in Annex I show that by 2030, there should be a minimum share of **6 %** of SAF, which gradually increases to **70%** in 2050.<sup>5</sup>

If one of the major aviation companies has only been able to use 0.4% of its total energy consumption from SAF, this presents a major problem for the path towards achieving such a target by 2030.

### **What can be done about it:**

ICAO itself has acknowledged that in order to permit the shift from current fuel types, which are fossil fuel based, to greener fuels alternatives like SAF, some investments from governments and industry will be required. This author argues that tax as a policy tool can be an effective means to fill the revenue gap for SAF development. Taxes have long been recognized as effective tools for shaping behaviour by altering cost structures and incentives.

Aviation fuel uplifted in one state and consumed in international operations is exempt from customs duty, excise, or similar taxation and therefore currently enjoys preferential tax

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<sup>2</sup> IATA, *SAF Handbook*, May 2024, pg. 6,

<https://www.iata.org/contentassets/d13875e9ed784f75bac90f000760e998/saf-handbook.pdf>.

<sup>3</sup> ICAO, *Sustainable Aviation Fuels (SAF)*, <https://www.icao.int/SAF>.

<sup>4</sup> ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies (Adopted by CAAF/3 on 24 November 2023), available here: [https://www.icao.int/sites/default/files/sp-files/environmental-protection/GFAAF/Documents/ICAO-Global-Framework-on-Aviation-Cleaner-Energies\\_24Nov2023.pdf](https://www.icao.int/sites/default/files/sp-files/environmental-protection/GFAAF/Documents/ICAO-Global-Framework-on-Aviation-Cleaner-Energies_24Nov2023.pdf).

<sup>5</sup> Regulation (EU) 2023/2405 of the European Parliament and of the Council of 18 October 2023 on ensuring a level playing field for sustainable air transport (ReFuelEU Aviation), Annex I.

treatment under the Chicago Convention. Imposing a tax on conventional aviation fuel, such as on that 99,6% figure noted by the Lufthansa Group for 2024, could be an avenue for revenue generation.