Greenwashing Fact Sheet Series

"Greenwashing" is misinformation presented by an organisation in order to mislead others about the environmental impact of its current or future activities.

Globally, the aviation industry plans to triple in size by 2050. If this happens, we could see aviation fuel consumption and therefore greenhouse gas (GHG) emissions double by 2050. Governments, lobbied by the industry, use unrealistic distracting promises of technological solutions to greenwash this growth. They also use economic growth and job arguments to justify subsidies and tax breaks for airports, airlines, manufacturers and fossil fuel companies. In this series of Fact Sheets, we examine these claims and debunk common myths and misconceptions.

Fact Sheet 4 – Biofuels

Alternative jet fuels or so-called "Sustainable Aviation Fuels" (SAF) are liquid hydrocarbon fuels that can be used with existing aircraft in place of kerosene produced from fossil fuels. **The industry's premise of the sustainability** of these fuels is to create the fuel using CO_2 taken from the atmosphere, rather than using fossil fuels extracted from deep underground that will then emit additional CO_2 to the atmosphere when burned. The argument is that blending these fuels with fossil fuels would thereby reduce emissions.

Alternative jet fuel can be broadly categorised into two varieties:

- Biofuels - produced from biomass sources (explained below)
- Synthetic electro-fuels (e-fuels) - produced using elec-tricity (see Fact Sheet 5)

WHAT THE AVIATION INDUSTRY TELLS YOU

Aviation **will not use first generation biofuels from crops** but will instead use second generation biofuels from "sustainable waste" that will not compete with agriculture or cause adverse environmental or social impacts.

Aviation biofuels **could significantly reduce emissions** vs. fossil jet fuel.

Aviation biofuels could be **scaled up rapidly** to a significant percentage of jet fuel consumption.

Due to the significant extra cost, **governments should provide financial support for biofuels**, so that aviation industry growth is not affected.

Biofuel production can use various sources of biomass as an input. First generation biofuels use agricultural crops. Second generation biofuels **aspire to use** industrial, agricultural, municipal or household waste, such as: used cooking oil, fat, corn husks, forest resources, or food waste.

WHAT THEY ***DON'T*** TELL YOU

Aviation **does not rule out the use of first generation biofuels from crops**, which are proven to cause very serious environmental and social impacts such as biodiversity loss, rising food prices and water scarcity.
There is a **very limited quantity of "sustainable waste"** available globally for second generation biofuels. This could also **be used more efficiently to decarbonise other sectors**.

Biofuel use can still produce **significant CO_2 emissions**. Also non-CO_2 emissions which have a strong climate impact today, will only be partially eliminated by using biofuels.

Aviation biofuel scale up has been promised by the industry for more than a decade but currently **less than 0.01% of jet fuel is biofuel.** Second generation biofuels are likely to **only replace a small percentage** of fossil fuel use in the future.

Subsidies for biofuels risk **wasting public money on a false solution**. They would keep flying artificially cheap which would result in more air traffic and emissions than if the industry paid.

BIOFUEL USE IS SEVERELY CONSTRAINED BY THE SUSTAINABILITY AND AVAILABILITY OF BIOMASS

It is often claimed that aviation would use only second generation biofuels derived from "waste" sources, therefore avoiding any direct or indirect sustainability impacts. Yet the use of first generation biofuels from crops and even entire trees **has not been ruled out**. There are plans for huge "SAF" refineries in Paraguay using soybeans as a feedstock[1] and such fuels are permitted under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), which is the only internationally agreed policy and runs until 2035[2]. The threat of scaling up the use of commodities like soy or palm oil with **high risk of deforestation** is increasing as greater political emphasis is placed on the supposed benefits of "SAF".

The cultivation of energy crops in large monoculture fields increases the use of fertilisers, pesticides and herbicides; with **devastating environmental, biodiversity and health impacts**. The expansion of agriculture like soy and palm leads to CO_2 emissions from land use change which can be similar to, or greater, than fossil fuel emissions[3] (Fig. 1) It can also result in humanitarian impacts[4] like land conflicts, labour abuses, rising food prices, water scarcity and chronic disease in neighbouring communities from pollution.

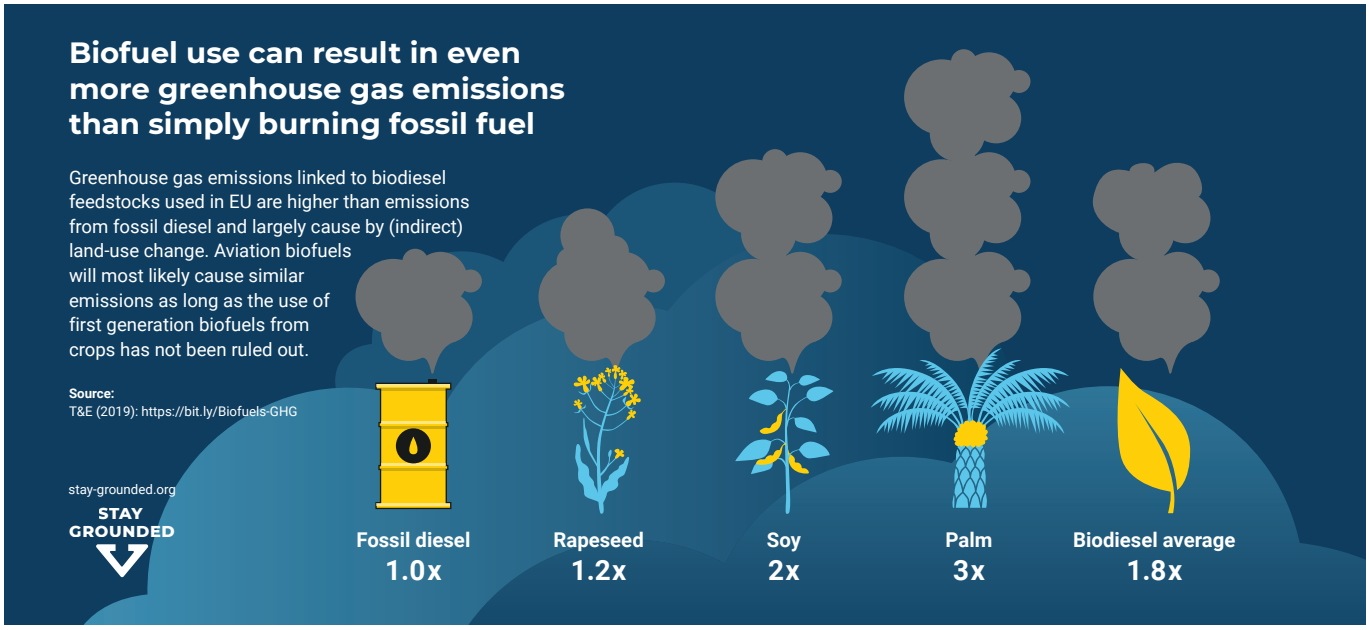
The only process currently able to produce second generation biofuels for aviation at a commercial scale uses "waste oils", due to its similarity to biodiesel, which is already produced at a limited commercial scale for the road sector. It has been found that when "waste oils" are used to produce large quantities of biodiesel, it displaces their use in other sectors; which then transition to other sources, such as palm oil[5]. This also creates the opportunity for **fraud**, for example: where fresh palm oil has been sold as "used cooking oil"[6]. Also palm oil or palm oil derivatives are often being used but being disguised by another term.[7] This indirectly causes an increase in crops for energy with their associated impacts.

BIOFUELS WOULD COMPETE WITH OTHER APPLICATIONS

The future quantity of any sustainable biomass "waste" available globally is **strictly limited** and without fuel production processes having been demonstrated at any significant commercial level. An EU report (contributed to by Airbus, Boeing, BP, Shell, and easyJet) in 2020 stated that *"biofuels' reliance on feedstock, changes in land use, high water use, and/or monoculture (i.e., the production of a single crop) means that the aviation industry will be competing with other interests that need the feedstock for other purposes"*[8].

Governments will need to use any biomass produced to feed a growing global population whilst also decarbonising the power, heating, agriculture (e.g. replacing fossil fuel fertilisers) and transport sectors.

Current government policies will not result in combustion engines being completely phased out of cars, trucks, or ships until after 2040. This means aviation will **compete with ground transport** for limited quantities of sustainable biofuel over the next few decades and it is recognised that high targets for aviation biofuels may only incentivise the diversion of resources from existing use in the road sector[9]. The UK Government notes that when production facilities produce more aviation biofuel than road biodiesel, their overall efficiency decreases and production costs increase; making *"economy-wide decarbonisation more expensive"*[10]. Therefore, the only result would be to shift an emissions saving from one sector to another, whilst decreasing the total emissions saving achieved and increasing costs.
There are also dangerous plans to rely heavily on biomass for negative emissions via Bioenergy Carbon Capture & Storage (BECCS) facilities, which is an **unproven technology** and would **increase pressure on scarce global resources** and amplify the risk of all the impacts detailed above.



BIOFUELS WOULD ONLY PARTIALLY REDUCE AVIATION CLIMATE IMPACT VS. FOSSIL FUEL

The industry claims that *"SAF can reduce emissions by up to 80% during its full life cycle"*[11]. However, GHG savings of only 60% have been proposed at national levels as a threshold for "SAF"[12] and fuels eligible under the international CORSIA scheme can have savings as low as 10%.[13] In addition, aviation also produces non-CO_2 emissions such as contrails which are estimated to cause a greater global warming effect than aviation CO_2 today[14]. Recent studies have shown that while biofuels can contribute to reducing non-CO_2 emissions, **they will only be partially reduced**[15]. So even if fossil fuel were entirely replaced by biofuels, significant emissions would still be generated.

GOVERNMENTS SHOULD NOT SUBSIDISE AVIATION BIOFUELS: THE POLLUTER SHOULD PAY

Even if scaled up further, aviation biofuels will still cost far more than kerosene. Biofuel from "waste oil" is the most cost competitive but still costs double the price and *"other conversion processes cost as much as eight times the price"*[16]. These increased costs would undermine the expansion plans of the industry. The only way the aviation industry can continue to grow whilst using larger quantities of alternative jet fuels such as biofuel, would be to obtain large government subsidies for their production. According to a 2019 study by the International Civil Aviation Organisation (ICAO), 328 new large bio-refineries would need to be built every year by 2035, at an approximate capital cost of US$29-115 billion a year to generate enough biofuel for international aviation only[17]. However, investing in bio-refineries would pose a huge risk to public finances as it is

Alternative fuels' potential to mitigate the climate impact of aviation is less than 5% of its total impact in 2030

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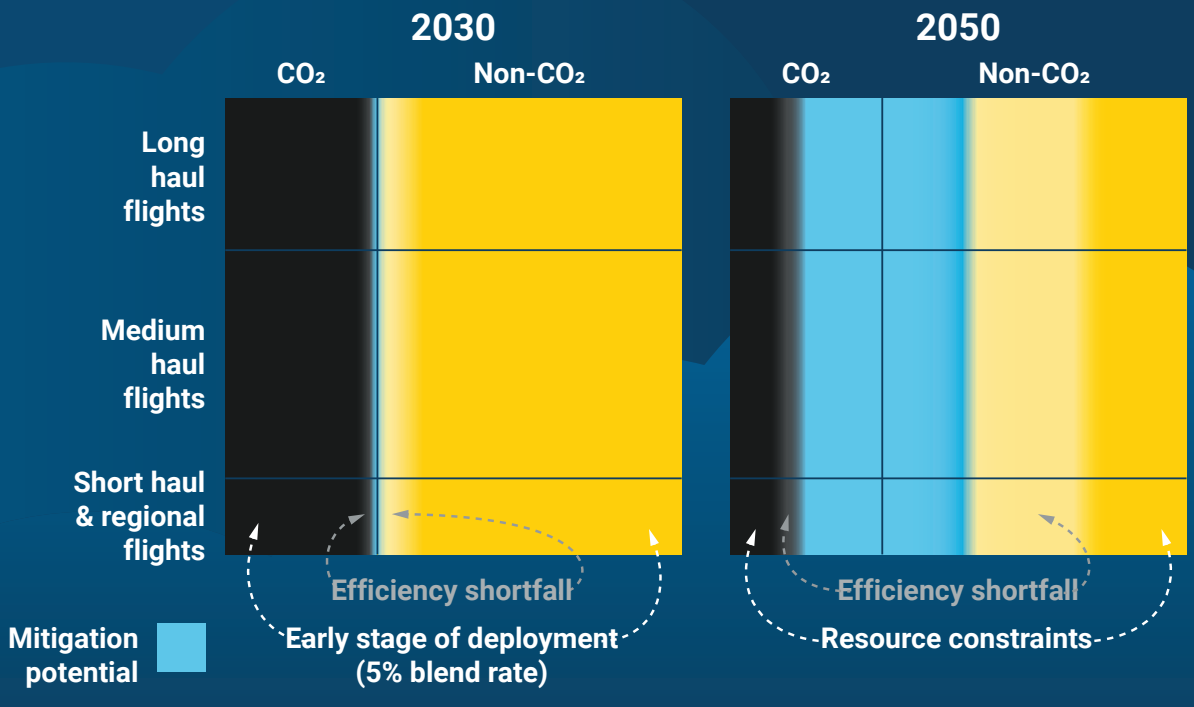
It will most probably not exceed 40% in 2050 (in the EU). In the short term, the development of this quite new sector will be slow and not accelerate before the 30s. In the longer term, the reduction of the impact of alternative jet fuels will be constrained by their limited efficiency at reducing non-CO_2 impacts like contrail cirrus and the limited availability of resources (feedstock for biofuels and renewable electricity for e-fuels).

Sources:
Stay Grounded (2020): https://bit.ly/factsheetClimateImpact
CleanSky2&FCH (2020): https://bit.ly/report-hydrogen, p. 16
EU "Fit for 55" roadmap (2021): https://bit.ly/EU-Fit-for-55



unlikely, for the reasons given here, that aviation biofuels can ever be viewed as "sustainable". This would result in facilities that are likely to turn into "stranded assets" with a large loss of investment. In the end taxpayers, most of whom never or rarely fly, should not be paying for that.

BIOFUELS CANNOT BE SCALED UP RAPIDLY ENOUGH AND NEITHER SHOULD THIS BE THE GOAL

Biofuel scale up has been promised by the aviation industry for more than a decade but this has not materialised. Targets have been routinely missed by significant margins and then ambition ratcheted down across successive years. For example, in 2009, the International Air Transport Organisation (IATA) was aiming for 10% biofuels by 2017[18] and in 2011, Air Transport Action Group (ATAG) stated: *"We are striving to practically replace 6% of our fuel in 2020 with biofuel. We hope this figure can be higher"*[19]. However, as of 2021, only less than 0.01% of jet fuel is biofuel[20].

Even if we were to accept the industry's most optimistic future projections of aviation biofuel use, they **still do not** expect that such fuels will provide a large percentage of total fuel consumption over the next few decades, given their plans for huge growth in air traffic and fuel consumption. For example, the EU has presented plans that will only put them on track to deliver 5% alternative jet fuel (mostly biofuel) by 2030[21]. With limited quantities of biomass available and thus limited biofuel potential, the only way to deliver a greater overall percentage within meaningful timescales would be to **decrease total fuel consumption**. However, as stated above: even those limited quantities would compete with other applications and bring danger of human rights violations, emissions through land-use change and biodiversity loss. This makes biofuels **a false solution** on many different levels and a clear threat to meeting climate targets in a just manner.

While the development of new technologies and fuels may be helpful, it cannot be an excuse to delay emissions reductions that are needed NOW to mitigate the climate crisis. The only way to effectively reduce aviation emissions is to reduce air travel. To achieve this, we need effective regulations to limit air traffic.

In our Degrowth of Aviation[22] report, we lay out how a set of measures could lead to a just reduction of aviation. In our Just Transition[23] paper, we present the idea of how a conversion of the aviation industry can guarantee security for the livelihood of workers.

END NOTES & LITERATURE

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