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 1 - Efficiency Improvements

Aircraft efficiency refers to the amount of fuel burned (and emissions produced) by an aircraft in order to transport its payload (passengers or cargo) a given distance (e.g. one kilometer). Efficiency improvements (i.e. reductions in fuel burn) are achieved by optimising the design of the aircraft, the engines, the airline operations (e.g. the flightpath) and by increasing the amount of passengers/cargo carried onboard the aircraft.
Efficiency = fuel/passenger-km. This is proportional to CO_2/passenger-km.

WHAT THE AVIATION INDUSTRY TELLS YOU

Flying can be decarbonised by improving aircraft efficiency.

Supporting aircraft technology development and air traffic optimisation will have a **beneficial environmental impact**.

Therefore: financial restrictions on airlines **such as increased pricing or fuel taxes shouldn't be imposed**, as this will reduce profit available to invest in new technologies and processes.

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

History shows us that "efficiency improvements" have always **been accompanied by increased emissions**! This is because efficiency improvements also reduce the cost of flying and contribute to air traffic growth, leading to emissions growth which far outpaces the emissions reductions of efficiency gains.

Emissions reductions through efficiency gains can also be cancelled out by airlines **upgrading the class of seats**, and by **flying further or faster**.

Therefore: we need further measures to limit emissions **such as increased pricing or fuel taxes to incentivise less fuel burned**. Such policies will actually **accelerate efficiency improvements**.

EFFICIENCY DOES NOT "DECARBONISE" AVIATION

A common industry misconception is that flying can be decarbonised by making aircraft more efficient every year, often expressed in misleading statements such as: "*since the advent of jet technology, carbon-dioxide emissions from aviation have reduced by 80%*".[1]

It's correct that these improvements have resulted in emissions reductions **per passenger-km** flown, but they've also reduced the cost of flying, which has accelerated the growth of air traffic and of CO_2 emissions.

As aircraft efficiency improves, some airlines simultaneously reduce their per seat efficiency by increasing the number of more profitable business or first class seats. They also fly further (ultra long-haul) which burns more fuel, even in efficient aircraft. A new generation of supersonic aircraft are also being developed[2] that would require up to nine times more energy per passenger-km than subsonic aircraft.[3] Private/business jet use has also been increasing; they are 5-14 times more polluting than commercial aircraft due to low passenger density or higher flight speeds.[4]

Lower costs for flying were enabled by efficiency gains and tax breaks, coupled with an increasing global population who can afford to fly. This has resulted in a rapid growth of air traffic (doubling every 15 years) that has far outstripped the efficiency savings. [see infographic]

Air traffic is growing faster than efficiency improves

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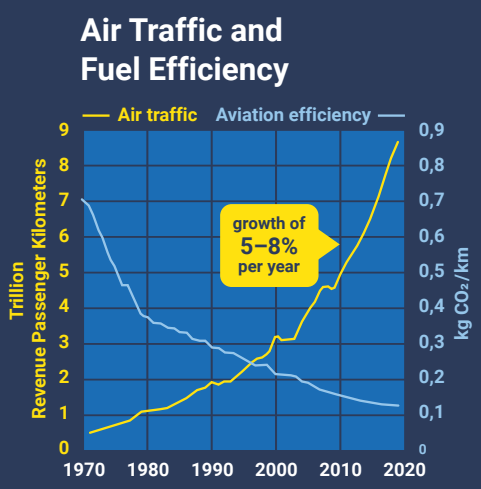
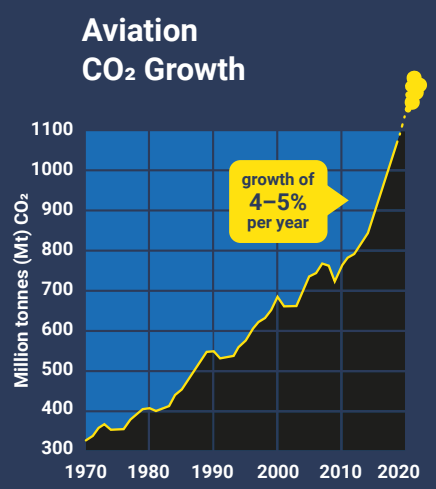
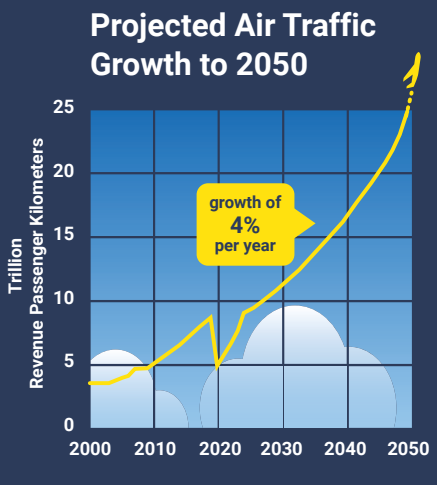
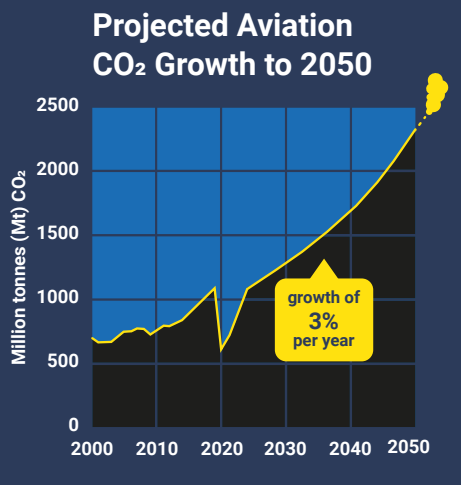
Historic fuel efficiency gains have been outpaced by the massive growth of air traffic and aviation emissions have constantly risen. The industry aims at getting back to pre-Covid level in 2024 and predicts future growth rates of up to 4.1%. The first graph shows how efficiency improvements have slowed down over time (blue curve), while growth rates remained very high. In the second graph we can see that aviation CO_2 emissions were constantly rising - in relation to traffic growth and despite efficiency gains. The third and fourth graph show a possible future scenario of air traffic and aviation CO_2 emissions growth to 2050, assuming an average of 1.3% efficiency improvements per year based on studies by ICAO. It becomes very clear that efficiency improvements alone cannot stop the growth of emissions.









Sources:
Lee et al. (2021): https://bit.ly/Aviation-climate-forcing
Klöwer et al (2021): https://bit.ly/quantifying-aviation-emissions
UNEP (2020): https://bit.ly/UNEP-EmGap2020

Prior to the COVID-19 pandemic, Airbus had projected that air traffic would double again by the mid-2030s and then again by 2050. This would amount to an **8-times increase** from year 2000 levels,[5] i.e. an average growth of 4.2% per year. Despite the slump in air traffic due to COVID-19, the industry still predicts growth rates of about 4% per year beyond 2024 until 2038.[6]

The earth's atmosphere isn't affected by emissions per passenger-km, but instead by total emissions produced. This has been rapidly increasing, rather than decreasing.

In a **poorly-regulated** industry, efficiency improvements may facilitate market growth and increase total emissions, not reduce them. This is known as Jevon's Paradox.[7] Thus, efficiency gains alone cannot be relied upon to decarbonise the industry - **we also need regulations to limit air traffic.**

A method of limiting aviation emissions would be to increase the cost of jet fuel in order to incentivise reduced consumption. Additionally, a frequent flyer levy or air miles levy could incentivise people to fly less.[8] There are historic examples of jet fuel price increases: e.g. the OPEC oil crisis in the 1970s-80s, during which it was seen that aircraft technology development actually *accelerated*, as there was a larger incentive to reduce fuel burn (e.g. flight testing of "Open Rotor" concepts). These designs were shelved when the oil price decreased again in the 1990s and are yet to re-emerge due to low fuel prices.[9] This example demonstrates that reality does not match the narrative presented to us by airlines and the aviation industry.[10] Financial restrictions on airlines such as increased pricing or fuel taxes wouldn't reduce spending on new technologies and processes as claimed by airlines[11]; rather, they would increase the industry's desire to chase greater efficiency improvements.

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[12] report, we lay out how a set of measures could lead to a just reduction of aviation. In our Just Transition[13] paper, we present the idea of how a conversion of the aviation industry can guarantee security for the livelihood of workers.

END NOTES & LITERATURE

[1] The Engineer (2019): https://bit.ly/interview-newby
[2] BBC (2021): https://bit.ly/bbc-supersonic
[3] Kharina, A et al. (2018): https://bit.ly/icct-supersonic
[4] Murphy, A et al. (2021): https://bit.ly/TE-PrivateJets
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[6] ATAG (2020): https://bit.ly/atag-report
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[8] Stay Grounded (2018): https://bit.ly/FFL-AML
[9] Wikipedia (2021): https://bit.ly/Propfan
[10] Further reading: Peeters, P et al. (2016): https://bit.ly/myths-tech
[11] Flightglobal (2020): https://bit.ly/KLM-tax-claim
[12] Stay Grounded (2019): http://bit.ly/DegAvR
[13] Stay Grounded (2021): https://bit.ly/JustTransitionAviation

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