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.

6 – Net Zero & Carbon Neutrality

Reaching *"net zero"* targets is currently the central goal set in nearly every climate strategy - be it industry or government. For its part, **the aviation sector has committed to reach net zero CO_2 emissions by 2050**.

According to the IPCC[1], *net zero CO_2 emissions* are achieved when any remaining anthropogenic CO_2 emissions are balanced **globally** by anthropogenic CO_2 removals. This means with the *net zero* concept, some "hard-to-abate" emissions are still allowed, provided that equivalent quantities of CO_2 are removed from the atmosphere. *Net zero CO_2 emissions* are also referred to as *carbon neutrality*. When **all** greenhouse gases are taken into account, this is referred to as *net zero emissions*.

Balancing residual emissions is promised via *Carbon Dioxide Removal*; this is a range of processes that remove CO_2 from the atmosphere in addition to the removal via natural carbon cycle processes. It can be achieved either by increasing biological or geochemical sinks of CO_2 or by using industrial processes to capture CO_2. *Carbon Dioxide Removal* is one of two types of carbon offsets[2] besides credits for *'avoided' emissions*.

WHAT THE AVIATION SECTOR TELLS YOU

Reaching *net zero* will prevent climate breakdown. If we balance CO_2 emissions to *net zero* by 2050, then we'll align with the Paris Agreement goal for global heating not to exceed 1.5 °C.

We have the technology. There are a range of technological options that can be relied upon to provide credible emission pathways towards net zero whilst still allowing air traffic to grow.

Resorting to CO_2 removal will be necessary. We'll not be able to reduce all aviation CO_2 emissions by 2050 and therefore will need to resort to CO_2 removal to reach *net zero*.

Non-CO_2: Not enough data, no action. Effects of non-CO_2 emissions are not well enough understood and quantified to be included in *net zero* plans.

We are addressing the issue. Net zero plans are a means of taking responsibility for climate impacts and mitigation.

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

Too slow, too late. All that matters is the cumulative emissions in the atmosphere. So *net zero by 2050* will be irrelevant if aviation's fair share of the global carbon budget for 1.5 °C is exceeded long before 2050.

Technology is unproven and resource intensive. We cannot wait: we need to reduce emissions now, which means decreasing air traffic.

Appropriation of CO_2 removal by aviation would not be equitable. One sector cannot appropriate the limited potential of CO_2 removal to offset its own remaining emissions, thus buying its way out. What we need instead is a fair, global allocation of the remaining carbon budget.

Non-CO_2: Too large to be ignored. The precautionary principle therefore requires that they are also included and reduced.

Our children will pay the price. Corporations and governments use the net zero by 2050 goal to diminish the sense of urgency, disguise inaction today and evade responsibility.

REACHING *NET ZERO* BY 2050 WILL NOT PREVENT CLIMATE BREAKDOWN: IT'S FAR TOO LATE

After an initial unambitious commitment in 2009 to halve its CO_2 emissions in 2050 compared to 2005, the International Air Transport Association (IATA) stepped up its target in October 2021[3], announcing that it was aiming to achieve 'carbon neutrality' by 2050. It claimed it would align aviation with the Paris Agreement's goal of limiting global heating to 1.5 °C and unveiled its plans. As we shall see, this new target remains largely insufficient and only postpones efforts to reduce emissions that should be made much earlier and more massively.

Indeed, **what matters in order to achieve the Paris Agreement objective is not the level of emissions in 2050, but rather the cumulative quantity of greenhouse gases that will be released into the atmosphere over the next 30 years.** The only equitable way to meet the Paris Agreement target is to allocate a fair share of the global carbon budget to aviation, i.e. a fair share of the amount of CO_2 that can still be emitted before the 1.5 °C heating threshold is exceeded and to adjust air traffic to fit within this budget. As this study shows[4], aviation's carbon budget will be exceeded well before 2050 if air traffic does not begin to decline. Technologies proposed to make aviation greener are still uncertain and will take too long to develop and deploy if they ever can be.

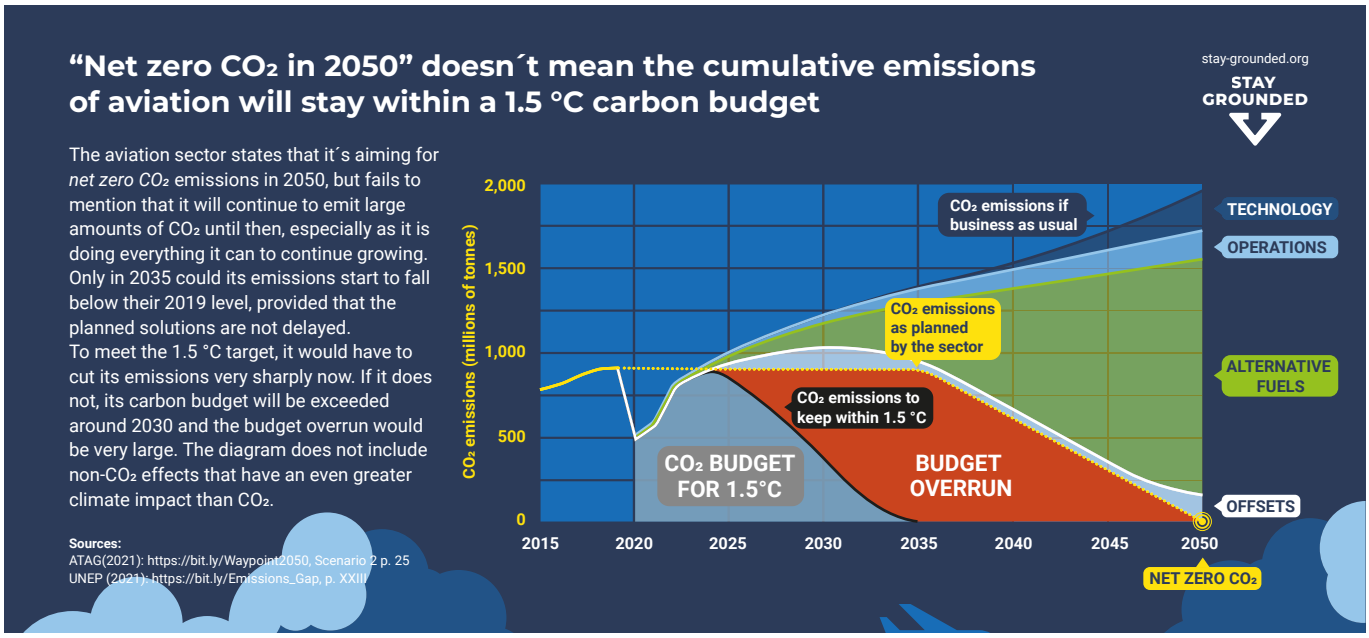
Reaching *net zero* in 2050 may temper the rise in temperature, but cannot keep global heating under the 1.5 °C or even the 2 °C threshold. It would then no longer be enough to aim for net zero, but require negative net emissions and removal of much larger quantities of CO_2 to attempt to salvage a livable climate.

THE TECHNOLOGICAL PROMISES WILL NOT BE KEPT. THEY ARE UNPROVEN AND TOO RESOURCE-INTENSIVE

The sector's strategy is largely based on the promise of technological solutions and it uses these to justify its continued growth. It has a variety of so-called 'sustainability' strategies: improving aircraft and operational efficiency; using alternative fuels with reduced CO_2 emissions; and developing alternative propulsion systems (electric and hydrogen). As we demonstrate in other fact sheets (Fact sheets 1-5), "efficiency improvements" have always resulted in increased emissions and alternative fuels pose too many resource problems to be deployed quickly in the massive quantities required. As for hydrogen and electric aircraft, they are not feasible before 2050 for medium and long-haul flights, which currently account for the majority of aviation (CO_2 and non-CO_2) emissions. So **it's very likely that there will be far more remaining emissions than projected by the sector.**
We cannot therefore rely on technology to respond to the climate emergency. **The only solution to rapidly reduce aviation emissions is to reduce air traffic.**

ONE SECTOR CANNOT APPROPRIATE THE MEANS TO REMOVE CO_2 FROM THE ATMOSPHERE, ESPECIALLY SINCE THEY ARE NOT AVAILABLE OR PROVEN AT SCALE

Despite plans to use alternative fuels and technological innovation, airlines are predicting that they will not be able to completely eliminate CO_2 emissions by 2050 and will need to resort to a variety of means to remove previously emitted CO_2 from the atmosphere. IATA estimates that 19% of the remaining emissions will need to be offset, i.e. 342 million tonnes (Mt)[3]. In addition to the current methods of offsetting, which are mainly based on capturing CO_2 through biomass, there would also be a need to capture CO_2 from the air using industrial processes (Direct Air Carbon Capture and Storage: DACCS).



NET ZERO OR REAL ZERO? OUR ECOSYSTEM IS NOT JUST MATHS

The concept and logic of *net zero* or *carbon neutrality* is in itself problematic and needs a closer look. Particularly from indigenous communities, we see strong resistance against this concept because it supports the scientifically false illusion that it is easily possible to restore the lost balance between the climate and ecosystem through compensation and so-called "nature-based solutions" (NBS). As industrial processes like DACCS have their own problems[6] and are unproven at scale, most net-zero promises still heavily rely on NBS. But while fossil carbon is the result of millions of years of sequestration, the carbon stored in living ecosystems cycles much quicker and cannot be counted as permanent sink to equate to the emissions from fossil carbon. The carbon emitted by a flight will affect the climate for thousands of years. A forest planted as compensation could burn down in 20 years and release the stored carbon. *Net zero* promises are leading to a growth in demand for offsets which leads to further commodification of nature. The diversity of our planet's ecosystems is turned into tradable carbon, often including land grabbing from Indigenous Peoples in the Global South[8]. The NGO CLARA has developed a short guide and indicators to read net zero pledges and unveil the negative impacts and false assumptions behind them[9].

This 342 Mt value is still a lot and very unlikely to be feasible, since the potential for CO_2 removal is limited and will have to be shared with other sectors. Moreover, the very idea that one sector would appropriate (by paying more than others) part of the limited means available to compensate for the emissions it doesn't want to reduce is contrary to the concept of *carbon neutrality*, which can only apply at a global scale[1].

In any case, the land managed by humans is today a net global emitter of carbon, due in particular to deforestation and forest fires. This will remain so for many years before the situation is reversed and biomass becomes a net carbon absorber[5]. Actions to restore or increase biomass must first compensate for its continuing destruction. As for industrial processes, they are only at the demonstration stage and have not yet been proven to be deployable on a large scale. Furthermore, DACCS is a very inefficient use of scarce renewable energy, which can provide far greater emissions reductions if used to power the grid, road transport or heat buildings[6].
Net zero CO_2 by 2050 is an illusion. Too far away from meeting the requirements of the climate emergency and giving the false impression that it's as easy to remove CO_2 from the atmosphere as it is to dump it. This is thermodynamically absurd[7].

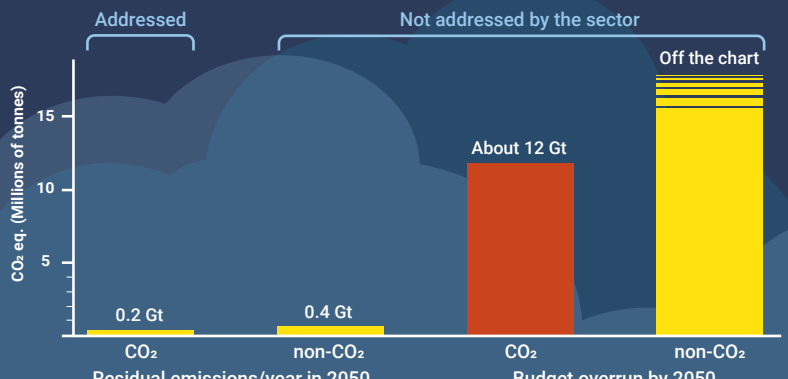
CURRENT AVIATION NET ZERO ROADMAPS ONLY INCLUDE CO_2; THEY MUST ALSO INCLUDE NON-CO_2 IMPACTS

Aircraft generate emissions other than CO_2, mainly NOx and condensation trails (contrails) which, when transformed in the atmosphere, have a climate impact best-estimated to be twice as large as that of CO_2. The total emissions impact of air transport is therefore most likely three times greater than that of CO_2 alone[10].
The aviation sector is using the uncertainty surrounding the quantification of these impacts as a pretext to oppose any regulation, even though promising simple measures are in sight[9]. Furthermore, they are deliberately distracting people from the fact that implementing these measures – as well as reducing air traffic – would massively and rapidly reduce aviation caused heating because non-CO_2 emissions

The sectors' plans for CO_2 removal hugely exceed the potential of biomass or Direct Air Capture

stay-grounded.org
STAY GROUNDED

The amount of CO_2 that the aviation sector plans to remove from the atmosphere would only compensate for the CO_2 emissions that would remain in 2050 (because it would not have taken the means to fully eliminate them). This amount is already quite significant compared to the limited potential of CO_2 removal, which would have to be shared with other sectors. Even worse, this amount is far from enough if we add all the CO_2 that the sector will have emitted before 2050 in excess of its carbon budget, as well as the effects of non-CO_2 emissions.



Sources:
ATAG (2021): https://bit.ly/Waypoint2050, Scenario 2 p. 25. ATAG predicts that aviation will still emit 155 Mt CO_2 in 2050 that will need to be offset, which is lower than the 342 Mt predicted by IATA, but in any case, it's only a small part of the future climate debt of aviation.
UNEP (2021): https://bit.ly/Emissions_Gap, p. XXIII
Stay Grounded (2022): https://bit.ly/factsheetClimateImpact

have a higher global warming potential (GWP) and a much shorter lifetime than CO_2.
Instead of denial, the precautionary principle should be applied, which would mean that the sector should be eliminating both CO_2 and non-CO_2 emissions.

FAR FROM TAKING RESPONSIBILITY, THE AVIATION SECTOR IS USING *NET ZERO* CO_2 AS A WAY TO CONTINUE ITS GROWTH AND POSTPONE ACTION

Even if net zero CO_2 is achieved by 2050, the sector will have emitted far more than it should have in order to avoid exceeding 1.5 °C. It will be leaving all ecosystems and both present and future human generations with a 'carbon debt' that will need to be paid off (if eventually possible) by removing massive amounts of carbon from the atmosphere, while having to cope with increasingly difficult climatic conditions and reduced resources to survive. It's also notable that aviation emissions aren't currently being priced to set aside future money for this debt. Rather, air travellers can effectively emit for free today, and somebody else (future taxpayers) will have to deal with the consequences tomorrow.

According to UN projections[11], **keeping global heating below 1.5 °C would require a 55% reduction in emissions by 2030 and *net zero emissions by 2050*. While the 2030 and 2050 targets are inseparable, the aviation sector is only committed to the more distant one because it refuses to reduce air traffic now,** which is the only way to achieve the 2030 target. It is deceptively buying itself time by suggesting that it still has time to continue business as usual. It doesn't.

THE FAKE CARBON NEUTRALITY OF AIRPORTS

Some airports claim carbon neutrality but this is a fallacy because it only concerns a very small part of their emissions. The emissions included are confined to Scope 1 (emissions from airport controlled sources, e.g. buildings) and Scope 2 (emissions from energy purchased by the airport).

88 airports around the world claim to be *carbon neutral*. This label has been awarded to them by ACA[12], an organisation belonging to the Airports Council International (ACI). It means that these airports have taken steps to reduce and/or offset (by purchasing carbon credits) the emissions over which they consider themselves to have control. Some are for example building solar farms on their premises or planting trees and presenting that as an offset. They see no obligation to reduce (or offset) Scope 3 'indirect' emissions, because they are considered not under the airport's direct control, although they account for more than 99% of total emissions related to airports[13,14]. Most of these emissions are from flights and from ground transport used by passengers and airport workers travelling to/from an airport.

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[15] report, we lay out how a set of measures could lead to a just reduction of aviation. In our Just Transition[16] 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] IPCC glossary: https://bit.ly/ipccglo
[2] Stay Grounded (2017): https://bit.ly/GreenFlyR, p. 9-10
[3] IATA (2021): https://bit.ly/IATA2021
[4] ISAE-SupAero (2022): https://bit.ly/ISAE2022, p. 158-159
[5] IPCC AR6 WG3 SPM (2021): https://bit.ly/IPCC_AR6WG3, p. 6
[6] The CCC (2020): https://bit.ly/CCCELEC, p. 11
[7] Recharge (2021): https://bit.ly/Recharge_DAC
[8] FoE International (2021): https://bit.ly/chasing_unicorns, p. 18
[9] CLARA (2022): https://bit.ly/CLARA_NetZero
[10] Stay Grounded (2022): https://bit.ly/factsheetClimateImpact
[11] UNEP (2021): https://bit.ly/Emissions_Gap, p. XXIII
[12] ACA: https://bit.ly/ACA_neutrality. 88 airports had achieved the Neutrality, Transformation or Transition level in September 2022.
[13] ADP (2018): https://bit.ly/ADP_ACA, p. 22-30
[14] DGAC (2020): https://bit.ly/DGAC_2019, p. 7, 9
[15] Stay Grounded (2019): http://bit.ly/DegAvR
[16] Stay Grounded (2021): https://bit.ly/JustTransitionAviation

Neustiftgasse 36
1070 Vienna, Austria
www.stay-grounded.org
info@stay-grounded.org

For donations please visit:
stay-grounded.org/donation/

STAY GROUNDED