

How does the aviation industry impact the environment, and what can we do about it?

Questions/Key Points	Notes
<p>Although aviation emissions are significant, they don't actually represent a large portion of all emissions.</p>	<ul style="list-style-type: none"> ● Emissions <ul style="list-style-type: none"> ○ https://theicct.org/publications/co2-emissions-commercial-aviation-2020 ○ https://ourworldindata.org/co2-emissions-from-aviation ○ https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data ○ Aviation accounts for: <ul style="list-style-type: none"> ■ 2.5% of the world's CO2 emissions ■ 2% of the world's greenhouse gas emissions ■ 3.5% of global warming ○ Does this seem like a lot? ○ Globally, about 14% of greenhouse gas emissions come from all transportation industries ○ 2% is still statistically significant ○ Should we try to reduce emissions in aviation? Absolutely. But there are other sectors where you could do a lot more impact with less R&D ● Fuel <ul style="list-style-type: none"> ○ Most aviation fuels are petroleum based ○ Commercial aircraft run on Jet-A, which is kerosene ○ https://www.iea.org/commentaries/are-aviation-biofuels-ready-for-take-off ○ Aviation biofuels exist and are used at some airports (like LAX). Problem is that it's more expensive than Jet-A, which is a disadvantage to airlines ○ Biofuels don't produce much less emissions per se, but they aren't fossil fuels ○ Widespread aviation biofuel could be an issue for food security, as many of these fuels are made from crops like corn. ○ https://news.mit.edu/2016/unfriendly-skies-piston-engine-aircraft-pose-significant-health-threat-0826 ○ GA Aircraft operating using avgas (100LL) pose health risks because of the lead in the fuel ○ Hard to imagine what you could do about this since GA engines are so old. Some of them can run on mogas but most don't.
<p>The airline industry has received criticism for operating ghost flights for the sake of keeping airport slots.</p>	<ul style="list-style-type: none"> ● Repo flights/slot holding flights <ul style="list-style-type: none"> ○ Airlines often need to reposition airplanes - flights with no passengers, to have the aircraft in a different city for its next scheduled service ○ https://www.cnn.com/travel/article/airport-slots-ghost-flights/index.html ○ Major airports have landing and takeoff slots - esp. LHR, where they've been operating at capacity for a while ○ The airline buys slots at the airport. If it doesn't use them, they get sold to another airline ○ Sometimes, the airline needs to fly an empty flight into the airport just to keep the slot, since they're hard to get back if you lose them ○ Source of scrutiny esp. Bc of environmental concerns ● Other stuff <ul style="list-style-type: none"> ○ https://www.independent.co.uk/climate-change/news/greenpeace-france-plane-runway-climate-bill-b1812956.html ○ Greenpeace activists paint an AF 777 green <ul style="list-style-type: none"> ■ What exactly does this do?

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	<ul style="list-style-type: none"> ■ Are you reducing emissions by vandalizing aircraft? ■ Ok, it's about a new law but why like this? Using solvents to dissolve paint is super bad for the environment too ○ Aircraft manufacturers are looking for ways to create new environmentally friendly aircraft, as it is difficult to convert our existing aircraft to zero-E or alternative energy. ○ However, it takes several years for new aircraft to enter the market, and research and development takes a while ○ All-electric aircraft with similar capacity and range as our current aircraft is unlikely. It's difficult to produce significant amounts of thrust using only electric motors and batteries, especially when they are running for sustained periods of time.
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Summary

The aviation industry is necessary for our global economy and society, so trying to get people to stop flying is useless and even counterproductive. However, we should be finding ways to make aviation cleaner and reduce our dependence on fossil fuels before they run out. Research for alternatively powered aircraft needs to begin now, as they will take a very long time to come to market.