

Researchers suggest airlines could halve emissions by 2050 by making cost-effective adjustments

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Boeing 737-700 jet airliner. Credit: Wikipedia/Arcturu

(Phys.org)—A small team of researchers from University College London, the University of California, and MIT, is suggesting that U.S.

airlines could cut their emissions in half over the next thirty five years by making changes that would actually save them money. In their paper published in the journal *Nature Climate Change*, the team describes their research and the changes they believe could be made and the reductions and savings that could result if the major airlines would take their advice.

To better understand what [airlines](#) could do to reduce [carbon dioxide emissions](#) (which amount to approximately 2 to 3 percent of the global total) the researchers looked at information from airline industry sources, papers written by academics and other studies that have been done on the topic. They found that concentrating on narrow-body aircraft made the most sense as they accounted for nearly 75 percent of gas usage. After analyzing all the information, they came up with 14 things airlines could do to cut emissions.

One of the ideas was to keep planes at the gate until their turn comes to take off instead of making them idle on the runway, others included using fewer engines when taxiing or better yet, electric motors, cleaning engines more often, or reducing weight by lowering the amounts of contingency fuel used, or replacing seats with those made from lighter materials. They also suggest flying with more passengers, retiring older planes, replacing brakes with those made from lighter materials and adding blended winglets (those little upturns on the ends of wings). Other ways to reduce emissions could include making changes in the air, such as updating flight paths so that planes could fly more direct routes and adjusting altitude and speed to avoid turbulence that causes drag. There is also the possibility of switching to synthetic fuels if it becomes feasible.

The researchers note that their ideas are based on the current price of jet fuel, if prices rise, airlines could benefit more by making changes, whereas they may be stifled by dropping prices. They also acknowledge that many airlines are already making some of the changes they have

suggested, which bodes well for passengers, because it could mean shorter flights, less waiting on the ground, and perhaps even lower ticket prices.

More information: Andreas W. Schäfer, Antony D. Evans, Tom G. Reynolds & Lynnette Dray, Costs of mitigating CO2 emissions from passenger aircraft, *Nature Climate Change*, [nature.com/articles/doi:10.1038/nclimate2865](https://doi.org/10.1038/nclimate2865)

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