

You could opt to pay extra on your next flight to help the planet. But is it a waste of money?

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For people trying to lower their carbon footprint in the world, flying is a conundrum.

It's wonderful to visit family and see new places, but air travel is also a contributor to the [carbon dioxide emissions](#) that cause global warming.

Commercial airplanes and large business jets make up about 10% of US transportation emissions, accounting for 3% of the nation's total greenhouse gas production, according to the latest numbers from the Environmental Protection Agency.

So climate-conscious travelers may be tempted to buy an add-on to their ticket that claims to reduce the environmental impact of their flights. Several major U.S. airlines offer to let passengers buy these offsets through their websites. And multiple other companies and non-profits also sell [carbon](#) offsets.

What's the would-be green traveler to do? Well, it's complicated...

How bad is flying for climate change?

Flying takes a lot of energy, which means releasing [carbon dioxide](#) into the atmosphere. Creating the thrust necessary to push a 300,000 pound airplane 35,000 feet above the Earth, keep it there for a couple of hours and then bring it down safely takes a lot of jet fuel. And jet fuel is basically kerosene.

If you want to know just how much greenhouse gas your [flight](#) is putting into the atmosphere, use this carbon calculator from the United Nations' International Civil Aviation Organization (be sure to change it from kilograms to pounds). It estimates a flight from Los Angeles to New York uses 623 pounds of carbon dioxide per passenger.

While estimates vary, on average Americans individually emit between 16 and 20 tons of CO₂ each year. For people who fly a lot, air travel can be a significant part of their [carbon footprint](#).

What are carbon offsets and how do they help?

A carbon offset theoretically allows a person to fund an action that would make up for a certain amount of carbon being put into the atmosphere. You can pay to offset your flights, your household energy use, your commute—anything you do that burns fossil fuels and produces greenhouse gasses.

Typically offsets are credits purchased in a project designed to reduce CO₂ emissions somewhere in the world. That might be planting a forest or protecting a wetland or investing in a low-carbon cement production system.

There are multiple companies and non-profits that sell carbon offsets. Typically these cost somewhere between \$10 and \$20 per ton of CO₂.

Do carbon offsets really work?

It depends on the offset. And who you ask.

"It's like with mechanics, there are good, reliable mechanics and then there are not so reliable ones," said Peter Miller, a clean energy expert at the Natural Resources Defense Council who has blogged about carbon offsets. "But a lot of them have a real, beneficial impact."

Still, offsets are not a "get out of jail free" card. Carbon is being emitted by the plane, notes Daniele Rao, an expert on the decarbonization of aviation at the non-profit Carbon Market Watch. He's generally skeptical of offsets but is willing to say they're "probably" better than nothing.

"It's OK to purchase offsets. But you have to know that you're not reducing your emission, you're still having an impact," he said.

How do I know which offset programs are good?

None of the environmentalists U.S. TODAY interviewed were willing to give a list of offset programs they endorsed, because they hadn't done all the research to thoroughly vet them.

In general, said Miller, you want to look for programs that have been around for a few years, are transparent about what they do, provide detailed information about the projects they fund and work with an independent third party to verify that the projects really happened.

What about airline carbon offset programs?

Multiple airlines have their own carbon offset programs, including Delta, Southwest and American. Sometimes when buying a ticket, customers are offered the option of paying a few dollars more to make up for the CO₂ pollution their flight will create.

In general, these don't offer consumers a lot of transparency about what they're doing, said Rao, who is unconvinced they're very useful but acknowledges that "sometimes it's the only thing the customer can do."

Some airlines, such as United, don't offer offsets at all, instead putting the money into work on what are known as SAFs, or sustainable aviation fuels. These are considered the gold standard for what will, someday, make aviation carbon-neutral. However, they're still in the early, and very expensive, stage of development.

"We are investing in cutting-edge companies creating technology that will decarbonize our airplanes. Those investments include electric aircraft and air taxis, hydrogen-powered engines, as well as more sustainable aviation fuel," United said in a statement to U.S. TODAY.

Each carrier has its own practices for carbon-offsets, and not all airlines offer them. U.S. TODAY reached out to the four largest airlines in the U.S.—American, Delta, United and Southwest—about their policies.

Statements from multiple airlines indicate that [carbon offsets](#) are just one part of their attempts to lower their carbon footprint.

Is there anyone who checks out carbon offset programs?

Several organizations are working to do thorough investigations of these programs, but so far no one has published a deeply-researched list. "I haven't seen anything that's really successful yet. Watch this space, maybe in the next six months or so, some of those will really emerge and be seen as credible," said Miller.

So what do climate activists do?

Climate investor and author Ramez Naam has gotten his flight advice down to this: "Fly less. If you have to fly, buy offsets. They're not perfect but something is better than nothing. But try to fly less."

He was also the one person U.S. TODAY spoke to who'd name an offset program he likes. "I use [Nori.com](#), they're very transparent."

What else can I do to help the planet when flying?

First, if you only fly a few times a year, don't feel too guilty.

"The people going home for Thanksgiving or Christmas, flying maybe twice a year, they're not really the problem. It's those people who are flying almost every week, or using private jets," said Rao.

If you want to minimize the carbon your flights produce, here are a few tips:

- Nonstop is best, because it's the most fuel-efficient.
- Take a train, bus or car for trips that are 600 miles or less—especially if multiple people are going.
- Don't fly business or first class. The amount of energy required to fly a plane is divided among the people flying. Coach is the most energy efficient.
- Use a program like Google flights to see the actual carbon footprint of a given flight, so you can compare. Newer aircraft and more dense seating arrangements mean fewer pounds of carbon dioxide per passenger.

Is flying going to get any better for the planet?

Better solutions should be available in the next few years, said Sola Zheng, an aviation researcher with the International Council on Clean Transportation.

The availability of sustainable aviation fuels is slowly increasing and eventually, passengers will be able to pay extra to use more of them. That will help grow the market for them so they can be produced more cheaply.

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