CHAPTER 4

Offset Your Carbon Emissions (Yes, It Really Makes a Difference)

By Alyssa Schwartz

They're a lesser-known tool in our fight against climate change, but carbon offsets have the potential to do a world of good. Here's why.

Do carbon offsets really make a difference? (Spoiler alert: yes.)

Your sushi delivery. That new desk for your home office. A wine country getaway. Much of what we eat, buy and do in this modern world generates carbon dioxide and other greenhouse gases that contribute to climate change.

We know reduce, reuse and recycle as the main pillars of sustainability, but there's another important way to lessen your environmental impact. Meet carbon offsets.

In this chapter:

- 4.1 What are carbon offsets, anyway?
- **4.2** What kinds of carbon offset projects can you invest in?
- 4.3 Which carbon offset programs can you trust?
- **4.4** Who should be buying carbon offsets?
- 4.5 <u>How effective are carbon offsets as a climate</u> solution?



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4.1 What are carbon offsets, anyway?

In the fight against climate change, reducing carbon emissions is our best battle strategy. But the fact is, the essentials of life—like, eating food and living in a building—mean we can't help but produce greenhouse gases. And the realities of modern living (that's the cars, the planes and the factories) produce a lot of emissions that are impossible to erase overnight.

Put simply, carbon offsets are a means of balancing out the impact of the greenhouse gases you're responsible for by creating an equivalent reduction elsewhere. It's kind of like sleeping in after a late night out, or having a salad for dinner when you did three rounds at the lunch buffet. There's a huge variety of carbon offset projects, but they all have a few things in common. They use nature (think trees or wild grasslands) or technology (like alternative power sources) to reduce or <u>sequester greenhouse gas emissions</u>. And they need money to get the job done.

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Bonus: carbon offsets do more than just balance out emissions. Buying carbon offsets means supporting initiatives that promote sustainability, the proliferation of green energy instead of fossil fuels and other positive environmental and social changes. It's more than just a passive way to become carbon neutral. Joining team carbon offset means you're actually taking action to help make the world a greener place.



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A brief history of carbon offsetting

You've probably been hearing more about carbon offsets in the past few years, but the concept isn't exactly new. It dates back to the 1997 Kyoto Protocol, a global agreement that gave countries emissions targets.

Among (many) other things, the Kyoto Protocol allowed those countries that produced less than their allowed volume of greenhouse gases to sell their excess allowance to those that were over target.

This tool birthed the idea of "carbon markets," where carbon offsets could be bought, sold or traded. Doing this allowed individuals, businesses, even cities or countries to measure their output and then buy carbon offsets to balance out the effects of their actions.

(Side note: they're called *carbon* offsets because carbon dioxide is the most common greenhouse gas. But when you hear about carbon emissions and carbon offsetting, assume that people also mean other greenhouse gases like methane and nitrous oxide.)

Though the carbon market is complicated and sometimes a bit disorganized, reputable carbon offset programs have significant oversight, including requirements for third-party stamps of approval. This vetting can come from any of several organizations. In 2003, for instance, the World Wildlife Federation and a group of other nongovernmental organizations established the <u>Gold Standard</u> registry, a database that tracks, standardizes and certifies carbon-reduction projects. And in 2006, the <u>International Organization</u> for <u>Standardization</u> developed consistent rules for measuring and validating carbon offsets (more on this below).

In the years since, carbon offsets have gone from niche to near-ubiquitous, and there is an increasing number of places where you can buy offsets, from airline websites to eco-friendly clothing retailers. That's both good news and bad.

Taking steps to become carbon neutral has become easy and accessible. The catch is that it can be difficult to know exactly what you're buying, and whether your carbon offsets will have the impact you're aiming for. But don't despair—that's why we're here.

What do carbon offsets actually do?

Right off the bat: Carbon offsets don't actually reduce your carbon footprint. Instead, they balance out the emissions you generate with projects that reduce the amount of emissions in the atmosphere.

There's a wide array of projects you can buy into to offset your carbon emissions. You might be helping to fund a social initiative that maintains coastal mangrove forests, or contributing toward a wind power project aiming to reduce a region's reliance on coal.

The first step is to determine your greenhouse gas output using a <u>carbon offset calculator</u>. (For comparison's sake, the average American carbon footprint is around 18 tCO₂e.) You might work this out for a certain activity like a ski vacation, for a specific purchase like that sweet new Tesla in your garage, or for your day-to-day lifestyle overall. Then, you buy the equivalent amount in carbon offsets, effectively making your activity—or your whole life—carbon neutral.



Are carbon offsets the same thing as carbon taxes?

This is a common misconception. They're both necessary in our efforts to fight climate change, but their mechanics differ quite a bit.

Carbon taxes are run by governments. They're charged when you buy fossil fuels (like coal or gasoline).

Carbon taxes have a double purpose, though they're not just a money grab. They make it more costly to generate greenhouse gases (bad), and the proceeds help make it cheaper to use sustainable, environmentally friendly energy (good).

With offsets, you are funding a specific project that reduces the amount of carbon dioxide and other greenhouse gases in the atmosphere.

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How do I know how much carbon to offset?

Let's start with the bad news. Much of what you do and consume generates greenhouse gases, and the more you use, the bigger your carbon footprint. Long, hot, steamy showers feel great, but they're not exactly sustainable. Same with buying a new outfit you only wear once, or that weekly three-hour road trip to hit the beach in the summer.

The first step with carbon offsetting is to figure out the amount of greenhouse gases you generate. Whether it's your total carbon footprint or the emissions from specific activities like that recent flight to Honolulu, a carbon footprint calculator will do the math. Flip back to Chapter 2 for more on how carbon footprints work.

That's the easy part. Finding the best way to offset those greenhouse gases is where it gets slightly more complicated.



What kinds of carbon offset projects can you invest in?

Carbon offset projects exist all over the world. And good news for shopaholics: there's huge variety in the price of offsets, the types of projects you can fund with your offset purchase, and even the traceability and credibility of sellers. That means it's easy to find a project you can feel good about contributing to, and even connected to on a personal level.

There are many ways to categorize carbon offset projects, and as of yet industry insiders haven't come up with a consistent system. But to help you get a handle on the terminology, we've broken things down into six major categories.

1. Energy efficiency

It's simple: the less fuel we burn, the fewer emissions end up in the atmosphere. So some energyefficiency offset projects are designed to reduce how much fuel people need to use. Examples include distributing fuel-efficient stoves or replacing incandescent lighting with LED.

In Madagascar, where diesel is a common source of electricity, one smart initiative has <u>replaced</u> <u>more than half a million incandescent light bulbs</u>. The switch to energy-efficient bulbs is expected to reduce emissions by 52,000 tCO₂e over seven years.

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2. Renewable energy

You're likely up to speed on this one already. Renewable energy projects develop and promote sources of energy like solar, hydro and wind power. They have huge benefits, as building this kind of infrastructure reduces future carbon emissions from the old-school electricity generation (i.e., coal) it replaces.

One example is <u>a wind power development</u> in Turkey that's saving 66,000 tCO₂e per year as it replaces less sustainable power sources. That's enough to power 7,616 American homes for a year.

A cool thing to know about renewable energy is that it's actually become a less common type of carbon offset project. Not because it doesn't work, but because clean power is now profitable enough that it doesn't need the funding from offset programs. That's all thanks to early investment from believers like you.

3. Methane abatement and capture

Methane gas is shockingly potent (and we don't just mean the smell). Emitted by farm animals, landfills and other waste generators, it's estimated to be <u>25</u> <u>times more potent</u> than carbon dioxide at warming the Earth. Methane abatement projects contain and convert this gas, keeping it out of the atmosphere so it can't contribute to the greenhouse effect.

One project in China, for instance, is <u>recovering</u> <u>methane from a landfill</u> and converting it into electricity, which both reduces methane emissions and lessens the need to produce electricity by burning fossil fuels. Now that's a win-win.

The estimated result over 10 years will be a greenhouse gas reduction of approximately 420,000 tCO₂e. That's equivalent to the annual carbon footprint of about 25,000 average Americans.

4. Industrial gases and pollutants

In the quest to develop new technologies, we haven't always been on top of the negative side effects. And it turns out many industrial processes use or produce harmful greenhouse gases. Offset projects in this area work to capture and destroy these gases, or to upgrade how things work so the super-harmful gases are no longer emitted at all.

Some of these projects are extremely niche—yet very effective. For example, one automotive parts manufacturer working in the U.S. and Canada has historically used sulfur hexafluoride (SF_6) —which, if you didn't know, is a greenhouse gas with a global warming potential 22,800 times that of CO₂—in its casting process. By <u>using a new gas</u> instead, they aim to reduce emissions by 196,000 tCO₂e. That's like taking more than 42,000 cars <u>off the road</u> for a year.

5. Reforestation and nature preservation

These projects are probably the first thing that springs to mind when you hear about carbon offsetting. They reduce greenhouse gases by protecting and proliferating carbon-sequestering greenery. This means forests, yes, but also <u>grasslands</u> and even <u>giant seaweed</u>. (And if you didn't know,



WHY COMPOSTING > LANDFILLS

Landfills aren't just malodorous eyesores that supply garbage to the ocean. All that trash is contributing to climate change, too: globally, it released a massive 800 million tCO_2e in 2010 alone.

Specifically, organic waste in landfills (read: orange peels, yard waste and well-intentioned bunches of kale) produces methane, a potent greenhouse gas. Projects to capture and use this gas are in progress. But the biggest opportunity is simply to reduce our waste and to compost what we do discard rather than sending it to the dump. With both strategies in place, this is one climate change problem where a solution is in sight. scientists say nature-based solutions are a hugely potent low-cost tool to help limit global warming.)

Look at Colombia, for example. A project there is reforesting more than 400 acres of degraded grazing land with native and endangered tree species, and protecting an additonal 108 acres of forest. Not only is this initiative a win for conservation, it's creating permanent jobs.

6. Fuel switching

Like slipping lentils into your pasta sauce in place of ground beef, these are projects that substitute cleaner fuels for those that create more carbon emissions.

One example in India <u>has distributed 60,000 solar</u> <u>water heaters</u>, reducing electricity use and saving 150,000 tCO₂e per year. That's the equivalent of driving from Miami to Anchorage and back about 37,500 times.

Offsets with benefits

Another thing to keep in mind: many carbon offset projects support social and sustainability goals in other ways, too.

Take the <u>Kenyan Energy Efficient Stove Project</u>, which supplies brick stoves to households in rural Kenya.

The new stoves made possible by carbon offsets cut the amount of firewood needed for cooking in half, which is helping to lower the global carbon footprint.

But in addition to reducing the amount of carbon that traditional stoves generate, the reduced demand for firewood means local forests have a chance to recover, *and* locals have more time to put toward economic development, jobs and education.





1. The <u>Verified Ca</u>

4.3 Which carbon offset programs can you trust?

Most people are averse to following hard-and-fast rules, but when it comes to carbon offsets, having stringent standards works for the greater good.

Why? Well, in a perfect world, it would be nice to fund projects that you could personally oversee, giving you the confidence that your money was being put to good use. Since that's virtually impossible from a time, energy and location perspective, we must accept a world where there's a common set of standards for projects to follow (if they want to be approved by certification boards).

Even still, vetting carbon offset providers would require sourcing and digesting so much information that you'd feel like quitting before you'd even started.

The shortcut to choosing legit carbon offsetting projects is to outsource the leg work to a trusted third-party organization like the three listed below. They crunch the numbers and check the facts before handing out an official seal of approval to projects that make the grade.

On top of that, the latter two offer browsing and shopping tools, so you can review and even fund projects right from their websites. Just pick your favorite and go. . The Verified Carbon Standard, or VCS, is a rigorous set of rules and regulations upon which Verified Carbon Units (VCUs) are established. Each VCU represents one metric ton of CO₂e that is reduced or removed as the result of carbon offsetting, and each must be confirmed and entered to the Verra Registry. And fun fact: the CEO of the Verra carbon program says they always try to build in social benefits to their offset projects to help create an even bigger impact.

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- 2. The <u>Gold Standard</u> is another recognized body that certifies emission reduction projects, with a registry and marketplace of offset products measured in Gold Standard Verified Emission Reductions (VERs), each of which represents one metric ton of emissions.
- The United Nations carbon offset platform <u>Carbon Neutral Now</u> was launched in 2015. It includes projects in developing countries that have been verified by its <u>Clean Development</u> <u>Mechanism</u> program.

As you come across carbon offset projects, consider accreditation from these groups to be proof that the offsets you're buying are reliable.

Carbon Offset Programs				
Company	Description	Founded	Headquartered	Fun fact
VERRA	Verra is a global leader helping to tackle the world's most intractable environmental and social challenges by developing and managing standards that help the private sector, countries, and civil society achieve ambitious sustainable development and climate action goals.	2005	Washington, DC	The CEO of the Verra carbon program says they always try to build in social benefits to their offset projects to help create an even bigger impact.
	The United Nations carbon offset platform Carbon Neutral Now features UNFCCC certified projects that reduce, avoid or remove greenhouse gas emissions from the atmosphere. It includes projects in developing countries that have been verified by its Clean Development Mechanism program.	2015	New York, NY	In 2020, the platform reached the 2 Million CERs Milestone. (CERs are emission reductions units emanating from projects located in developing countries under UN Climate Change's Clean Development Mechanism (CDM).)
Gold Standard [®]	Another recognized body that certifies emission reduction projects, with a registry and marketplace of offset products measured in Gold Standard Verified Emission Reductions (VERs), each of which represents one metric ton of emissions.	2003	Geneva, Switzerland	Gold Standard was established by WWF and other international NGOs to ensure projects that reduced carbon emissions featured the highest levels of environmental integrity and also contributed to sustainable development.

Go your own way: How to evaluate carbon offset projects

Let's say you want to do your own research anyway, or you want to know how these groups assess carbon offset initiatives, and what makes a project worthy of your hard-earned assets. Your first question might be, "What's the difference between planting a tree and seeding a renewable energy corp, anyway?"

While there are many projects that reduce carbon dioxide in the environment in meaningful and traceable ways, there are also those that would exist despite the outside funding. Plus—sad to say—as in any industry, there are scammers trying to capitalize, literally, on people's good intentions.

Digging into how carbon offset projects are evaluated can help you get a sense of the impact that one initiative might have over another. Here are some of the criteria experts use to evaluate them.

Additionality: Is it really new?

Would the reduction in greenhouse gas emissions have happened even without the carbon offset project?

The goal of carbon offsetting is to create new or additional reductions in greenhouse gases that would not otherwise exist. It's important to find initiatives that aren't part of the regular course of business. Instead, look for those that are additional: they contribute to reductions in greenhouse gases beyond what's legally required, or they couldn't be implemented without the funds generated through offsetting.

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Quantification: Can we measure it?

Can the results of the initiative be turned into a fancy yet meaningful graph based on actual reduction numbers? If it's all buzzwords and no math, the project isn't quantifiable and won't be approved.



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Unique ownership: Is it truly yours?

Imagine you went to pick up the pizza you ordered for dinner (a veggie-lovers' one, of course) and it was gone—they'd sold it a second time to someone else. A similar thing sometimes happens on the shady side of the carbon offset world.

Let's say a clean energy project is responsible for a total 100,000 tCO₂e reduction in emissions. That means they can only sell offsets that add up to 100,000 tCO₂e. If they try to sell more, that's violating the unique ownership rule. That's why in the non-shady world, carbon offset projects are registered, and then all the offsets get retired once they've been sold.

Leakage: Does the project have negative effects elsewhere?

What we're trying to do is reduce carbon emissions overall, across the whole wide world. It doesn't help things if a carbon offset project in one place results in an increase in emissions elsewhere. One example that's easy to understand is logging. Let's say one region or country decides to protect a certain forest, and lumber output goes down. That's great—until the timber companies just go elsewhere to cut down the same amount of wood. A feelgood story in one place becomes a total downer somewhere else, and ultimately, there's no benefit for the planet as a whole.

A quality carbon offset project will take leakage into account in its calculations and define plans to avoid it.

Verification: Are they doing what they say they're doing?

Sadly, we can't just trust what people write in their reports. So to make sure carbon offset projects are doing what they say they are, you want them to be verifiable by independent and credible third parties.

Permanence: Are the reductions for good?

Greenhouse gases stay in the atmosphere for a long, long time. A project that reduces emissions for only a few years—or even, you know, just a century or two isn't offsetting, it's just delaying.

Forestry projects, for instance, aren't helping matters if the trees are just going to be cut down 20 years from now. <u>Permanence</u> means the offsets are more or less forever. Which is what we're going for, right? Greenhouse gases stay in the atmosphere for a long, long time. A project that reduces emissions for only a few years—or even, you know, just a century or two—isn't offsetting, it's just delaying.



NATURE'S CARBON SINKS

Nature-based solutions could provide a third of the GHG reductions we need to succeed in limiting global warming, and it's all thanks to the power of plants. During photosynthesis, they take in CO_2 from the air and use the carbon to make food and build up their bodies and root systems.

As long as those plants are alive, most of the carbon stays there—which is why long-living trees are such a powerful carbon-storage tool. When they die, some of the carbon is released during decomposition, but much of it remains in the soil.

That's why shifts in agriculture like the no-till movement, and conservation methods that leave natural spaces intact, are so important in the fight against climate change. Undisturbed soil is carbon-rich soil—which means less carbon in the atmosphere.



Photo by Lukasz Szmigiel on Unsplash

4.4 Who should be buying carbon offsets?

Since the idea of carbon offsetting was drawn up, it's become easier and more accessible to support projects to neutralize your carbon footprint. Companies, and even governments, use offsets, too. Here's what carbon offsetting looks like in action.

Carbon neutrality for individuals

We don't know for sure (yet!) how many individuals are buying carbon offsets, or even know they exist. But consumer attitudes suggest the appeal is real, and increasing.

One in seven people <u>would choose</u> a lower-carbon form of transportation even if it were more expensive or less convenient, says a global study by Ipsos conducted on behalf of the World Economic Forum. Here in the U.S., 12 percent of respondents in a 2018 Ipsos study said they <u>had purchased carbon offsets</u>, and more than half were interested in doing so to offset future activities. That's something.

There's a celebrity element to the growing trend, too. Like when Prince Harry and Meghan Markle <u>visited</u> <u>Sir Elton John</u> in Nice in 2019. The singer, bless his carbon-busting heart, offset the couple's private flight to France. Eco-loving posterboy Leonardo DiCaprio also buys carbon offsets to counter his jetsetting lifestyle.

If you're rolling your eyes at the idea of offsetting the extremely big carbon footprint of the rich and famous, we get it. It does emphasize the fact that the most effective way to go carbon neutral is to start by reducing your footprint—for example, by ditching the private jet. But these high-profile examples can also inspire people to explore ways of offsetting smaller, everyday activities. And that's where regular folks can make a real difference.

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Corporate carbon offsetting

In addition to purchasing carbon offsets yourself, you can also help neutralize some of your carbon footprint by being a discerning shopper. More and more companies are signing up for carbon offsetting with the goal of significantly decreasing their carbon footprints—and yours as a consumer.

L'Oréal, for example, <u>has committed</u> to making all of its sites carbon neutral by 2025. Some of the reductions are coming from using renewable energy and improving energy efficiency for all its plants and distribution centers. But the cosmetics powerhouse <u>has also invested in</u> renewable natural gas development, a technology that captures and cleans landfill gases so they can be converted into usable energy. It also set itself a "<u>zero deforestation</u>" target for the end of 2020.



And then there's <u>Allbirds</u>. As you might expect, the shoe company knows a lot about footprints. Allbirds publishes extensive details about the carbon impact of its products, highlighting the importance of transparency. Its website includes details on how it measures its carbon footprint as well as the steps it is taking to first reduce emissions and then offset.

Many energy companies are making moves to reduce their carbon footprints, too, through mechanisms like investing in wind farms and developing solar energy and other renewable fuel sources.

Seeking out and supporting brands going carbon neutral is an effective way to let corporations know that you care about their environmental practices. Supporting these companies also means you'll have a lower footprint to offset yourself.

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Carbon neutral cities, states and countries

Governments of all levels are working to achieve carbon neutrality through a mix of their own reductions and offsets.

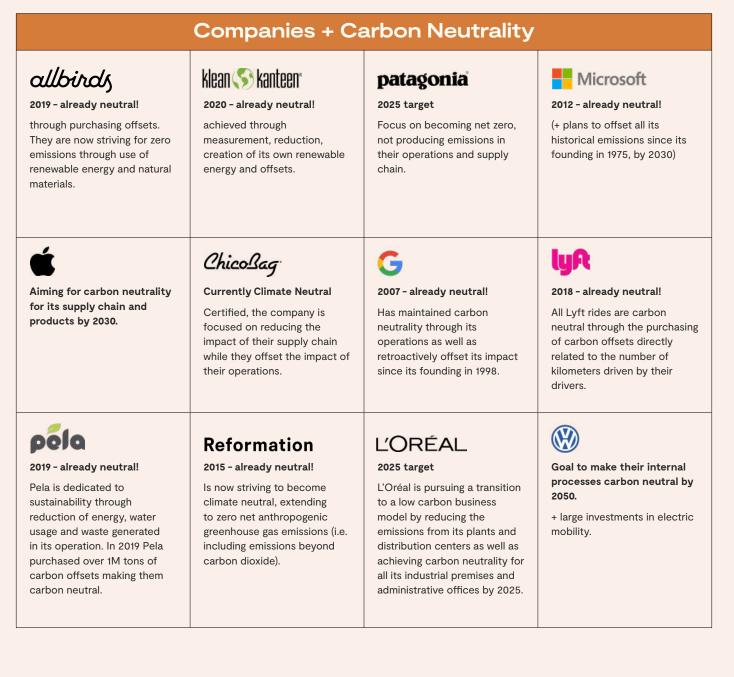
For example, 10 years ago, the Canadian province of British Columbia became the first province, state or territory in North America to <u>achieve carbon</u> <u>neutrality</u> for its public sector organizations. In any given year, the province has between <u>13</u> and <u>25 offset projects</u> on the go to mitigate the emissions they cannot reduce, including projects like electrification, forest conservation and landfill gas collection.



Also in Canada, the town of Eden Mills, Ontario, is at least three-quarters of the way to achieving its goal of <u>becoming the first carbon-neutral community</u> in North America. Efforts have included an energyefficiency overhaul of the town's community hall and carbon sequestration from planting new greenery.

Across the U.S. and the world, numerous towns and cities also have ambitions to become carbon neutral.

At the country level, just two nations so far <u>have</u> <u>achieved</u> carbon-neutral status: Bhutan and <u>Suriname</u>. Runners-up? The more than 110 countries worldwide <u>who've pledged</u> to hit net-zero carbon emissions by 2050.



After all this, you might be wondering: Can carbon offsets really save the planet? And are there any reasons to be skeptical?

Are there any downsides to carbon offsetting?

Well, in a perfect world, no. But here's the thing. Buying carbon offsets won't actually erase the greenhouse gases you're creating. The best way to reduce your carbon footprint and make a difference in the fight against climate change is to actually decrease the volume of emissions you produce.

Another caveat: with so many carbon offset projects on the market, it's extra important to make sure your offset dollars are working for good. (Even the Vatican <u>fell for a fraudulent scam</u>.) Sticking to accredited organizations like the Verified Carbon Standard and the Gold Standard is one way you can make offsetting choices that are legit.

Plus, because carbon offsets offer an easy way to mitigate (and, tbh, feel better about) your carbon footprint, critics worry that the very idea may encourage people to slack off on the reduction front.

Our stance? It's basically impossible to live a carbonneutral existence in this day and age, and carbon offsetting is a very effective way to help create the change we want to see in the world. That doesn't mean we're off the hook on reducing our carbon footprints. But we are supporting projects that will help make the future less scary.

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The bottom line: Why carbon offsets are part of the solution

The problem of climate change can seem overwhelming when you look at the numbers. America's carbon footprint, for instance, is so supersized, we need to be reducing it by a massive 90 percent to hit Paris Agreement targets to limit global warming. And other developed countries have a similarly large mountain to scale.

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The good news is, there are so many easy wins in sight to get our emissions down. Shifting to a workfrom-home schedule, wearing last year's winter coat instead of buying a new one, hanging your towels on the clothesline to dry, ordering in tofu and vegetable fried rice instead of your usual ginger beef... all of these are totally doable steps that make a huge difference when they all add up.

But even that is likely not enough. And that's where offsets show up to save the day. Whether it's funding new industrial technologies or paying farmers to let some of their land stay wild, carbon offset projects are an essential component of our collective effort to fight climate change. Because you're not just buying them to balance out your own behavior you're helping to build a greener future.