20 Carbon offsetting

Offsets and alternatives

Carbon offset schemes allow individuals and companies to invest in environmental projects around the world in order to balance out their own carbon footprints. The projects are usually based in developing countries and most commonly are designed to reduce future emissions. This might involve rolling out clean energy sources, distributing energy-saving devices like eco light bulbs, or purchasing and ripping up carbon credits (see p.34). Other schemes work by soaking up CO_2 directly from the air through the planting of trees.

Some people and organizations offset their entire carbon footprint while others aim to neutralize the impact of a specific activity, such as taking a flight. To do this, the holidaymaker or business person would visit an offset website, use the online tools to calculate the emissions of their trip, and then pay the offset company to reduce emissions elsewhere in the world by the same amount – thus making the flight "carbon neutral".

Offset schemes vary widely in terms of the cost, though a fairly typical fee

A typical carbon offset website, with tools to calculate the emissions and offset cost of various activities

would be around £8/$12 for each tonne of offset CO_2. At this price, a typical British citizen would pay £45 to neutralize a year's worth of gas and electricity, while a return flight from London to San Francisco would clock in at around £20 per ticket.

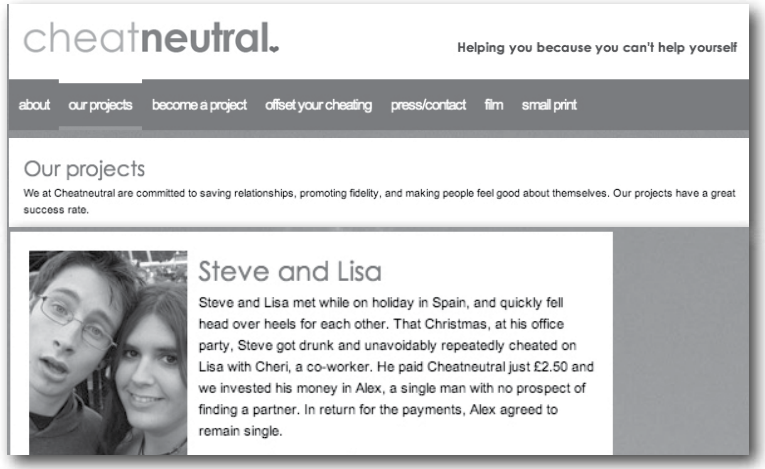
Increasingly, many products are also available with carbon neutrality included as part of the price. These range from books about environmental topics (such as *The Rough Guide to Climate Change*, whose paper, print and distribution were offset by the publisher) through to high-emission cars (Land Rover include offsets for a certain amount of mileage in the price of each new energy-inefficient car).

Over the past few years, carbon offsetting has become increasingly popular, but it's also become – for a mixture of legitimate and less legitimate reasons – increasingly controversial. This chapter takes a quick look at both sides of the argument.

Is the whole concept of offsetting a scam?

Ironically, perhaps, the most common criticisms of offsetting relate to the planting of trees. These concerns are perfectly valid (see box on p.310), but in truth most of the best-known carbon offset schemes have long-since switched from tree planting to clean-energy projects. For example, Climate Care distribute efficient cooking stoves to families in Mexico and Honduras. Energy-based projects such as these are designed to make quicker and more permanent savings than planting trees, and, as a bonus, to offer social benefits. Efficient cooking stoves, for instance, can help poor families save money on fuel and improve their household air quality – a very real benefit in many developing countries.

Even in the case of energy-based schemes, however, many people argue that offsetting is unhelpful – or even counterproductive – in the fight against climate change. One such person is environment journalist George Monbiot, who famously compared carbon offsets with the ancient Catholic Church's practice of selling indulgences: absolution from sins and reduced time in Purgatory in return for financial donations to the Church. Just as indulgences allowed the rich to feel better about sinful behaviour without actually changing their ways, carbon offsets allow us to "buy complacency, political apathy and self-satisfaction", Monbiot claims. "Our guilty consciences appeased, we continue to fill up our SUVs and fly round the world without the least concern about our impact on the planet … it's like pushing the food around on your plate to create the impression that you have eaten it."



A similar if more humorous point is made by the spoof website CheatNeutral.com, which parodies carbon neutrality by offering a similar service for infidelity. "When you cheat on your partner you add to the heartbreak, pain and jealousy in the atmosphere", the website explains. "CheatNeutral offsets your cheating by funding someone else to be faithful and not cheat. This neutralizes the pain and unhappy emotion and leaves you with a clear conscience."

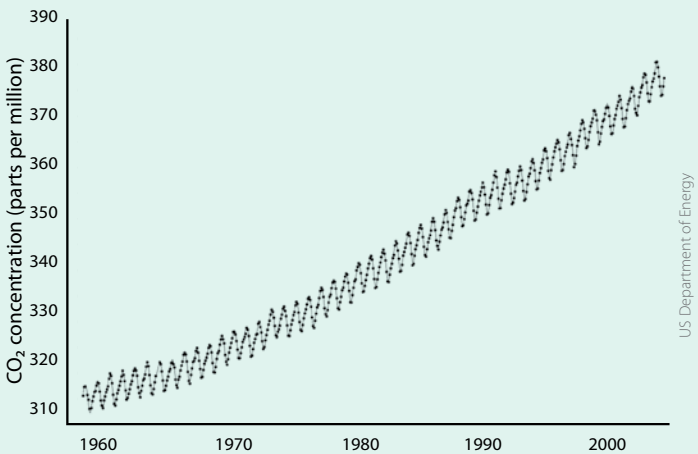
CheatNeutral may be tongue-in-cheek but the indulgence and cheating analogies have both become defacto arguments against carbon offsetting. But do the comparisons stand up? Not according to David Roberts, staff writer at Grist. "If there really were such a thing as sin, and there was a finite amount of it in the world, and it was the aggregate amount of sin that mattered rather than any individual's contribution, and indulgences really did reduce aggregate sin, then indulgences would have been a perfectly sensible idea", Roberts argues. "The comparison is a weak and transparent smear, which makes me wonder why critics rely so heavily on it."

And what about the claim that people use offsetting as a way to avoid changing their eco-unfriendly ways? This is nonsense, too, according to the offset schemes, which claim that most of their customers are also taking steps to reduce their emissions directly. A report from Britain's National Consumer Council and Sustainable Development Commission agreed with this perspective: "a positive approach to offsetting could have public resonance well beyond the CO_2 offset, and would help to build awareness of the need for other measures."

Planting trees: does it help?

Ronald Reagan said a good many baffling things during his eight-year presidency, but none quite matches his 1981 claim that "trees cause more pollution than automobiles". It doesn't take an environmental science degree to detect that there might be something wrong with that statement. That said, over the years, and especially since the emergence of carbon offsetting, the environmental benefits of trees – and in particular the planting of new ones – have been challenged and debated. So what's the truth? Will planting a tree in your garden, or paying companies to plant saplings on your behalf, help tackle climate change?

The fact that trees breathe in CO_2 is not in question. They need the carbon to grow (they're largely made of the stuff), and you can observe the effect playing out in the world's atmosphere each year. As the graph shows, even as the level of CO_2 in the air continues its upward climb due to fossil fuel burning, the precise concentration actually falls a bit each year during the growing season of the northern hemisphere, where most of the world's trees and vegetation exists.



That basic science aside, there are two frequently cited downsides to using trees to soak up carbon. First, trees can take a relatively long time to grow, so it's not a very rapid solution. Second, and more fundamentally, trees eventually die, at which point they rot – or get burned – allowing much of their stored carbon back into the air. For this reason, contrary to popular belief, a stable forest doesn't actually absorb a huge amount of carbon each year: for each tree growing and sucking in CO_2 another is rotting and returning much of its carbon to the atmosphere.

Of course, planting trees in areas where there weren't any previously *will* soak up CO_2, though the benefit won't be permanent unless each tree that dies is replaced by another. This would be hard enough to guarantee over decades or centuries even if the climate were stable. But if, as most experts expect, global warming increases temperatures by a few degrees over the coming century, then climate change could, somewhat ironically, kill those very trees planted to offset the emissions that helped cause the climate change in the first place. In this case, the carbon would be released back into the atmosphere, removing any climate benefit that the trees offered while living.

Furthermore, although trees absorb CO_2 as they grow, that doesn't necessarily mean they always reduce global warming overall. Scientists now think, for example, that in northern temperate and arctic areas, some trees have an overall warming effect because their dark colour tends to absorb more sunlight and reflect less back into space than lighter surfaces such as snow would do. (It's the same phenomenon as the extra heat you feel when wearing dark clothes in summer.) By contrast, tropical rainforests cool the air by trapping water and letting it slowly evaporate.

Planting trees in the tropics, then, is the most effective option. This is doubly true because tropical trees tend to grow fast and therefore absorb carbon fairly quickly. On the other hand, most tropical regions are in developing countries, and some critics have described schemes by Westerners to plant trees there as a type of "green colonialism". It's wrong, such commentators argue, for Western organizations to determine how land is used overseas.

Another, totally separate, tree-planting controversy sprung up in early 2006 when a team of scientists led by Frank Keppler of the Max Planck Institute made the surprise discovery that trees and other plants emit small quantities of methane, a greenhouse gas that's shorter lived but much more powerful than CO_2. The scientists estimated that plants might account for 10–30% of current methane emissions. If true, that's a huge overall impact but the methane emitted from a single tree doesn't begin to outweigh the CO_2 it soaks up – it just "reduces the overall benefit … by a fraction", according to Yadvinder Malhi of Oxford University.

All in all, despite the controversies, planting a tree where there wasn't one before *is* likely to help fight climate change – at least in the short and medium terms. So schemes to add trees in cities, parks, gardens and elsewhere should be welcomed. But trying to offset the emissions of a flight or anything else by planting trees is not necessarily legitimate, especially if they're being planted in a cold country.

Perhaps a more important question is how we protect the trees that are already standing – and in particular the world's tropical rainforests. As mentioned in chapter one, the destruction of rainforests accounts for nearly a fifth of recent man-made greenhouse emissions: more than the US or China or the EU. One way to help reduce deforestation is to join a charity such as Cool Earth, described on p.315.

CARBON OFFSETTING

Ultimately, the question of whether the concept of offsetting is valid must come down to the individual. If you offset to assuage guilt and to make yourself feel better about high carbon activities such as flying, that can't be good. If you offset as part of cutting your footprint, or to incentivize yourself to be greener (after all, the less you emit, the less it will cost you to go carbon neutral) then that can't be bad – especially if the offset projects offer extra benefits such as poverty reduction in the developing world.

Do offset projects actually deliver the carbon benefits they promise?

Arguments about guilty consciences aside, the key issue for anyone who does want to offset is whether the scheme you're funding actually achieves the carbon savings promised. This boils down not just to the effectiveness of the project at zapping CO_2 or avoiding future emissions. Effectiveness is important but not enough. You also need to be sure that the carbon savings are additional to any savings which might have happened anyway.

Take the example of an offset project that distributes low-energy light bulbs in a developing country, thereby reducing energy consumption over the coming years. The carbon savings would only be classified as additional if the project managers could demonstrate that, for the period in which the carbon savings of the new light bulbs were being counted, the recipients *wouldn't* have acquired low-energy bulbs by some other means.

The problem is that it's almost impossible to prove additionality with absolute certainly, as no one can be sure what will happen in the future, or what would have happened if the project had never existed. For instance, in the case of the light-bulb project, the local government might start distributing low-energy bulbs to help reduce pressure on the electricity grid. If that happened, the bulbs distributed by the offset company would cease to be additional, since the energy savings would have happened even if the offset project had never happened.

Partly because of the difficulty of ensuring additionality, many offset providers guarantee their emissions savings. This way, if the emissions savings don't come through or they turn out to be "non-additional" (in the case of the government giving out low-energy light bulbs), then the provider promises to make up the loss via another project.

As the offset market grows, some offset companies have enough capital to invest in projects speculatively: they fund an offset project and then sell

the carbon savings once the cuts have actually been made. This avoids the difficulty of predicting the future – and also avoids the claim that a carbon cut made some years in the future is worth less than a cut made now.

These kinds of guarantees and policies provide some reassurances, but do they mean anything in the real world? Without actually visiting the offset projects ourselves, how can individuals be sure that the projects are functioning as they should?

To try and answer these questions, the voluntary offset market has developed various standards, which are a bit like the certification systems used for fairly traded or organic food. Industry insiders generally say that the best of these schemes are the Voluntary Gold Standard (VGS) and the Voluntary Carbon Standard (VCS). VGS-certified offsets are audited according to the rules laid out in the Kyoto Protocol and must also show social benefits for local communities. The VCS, meanwhile, aims to be just as rigorous but without being too expensive or bureaucratic to set up, thereby allowing a greater range of innovative small-scale projects.

Offsets with these standards offer extra credibility, but that still doesn't make them watertight. Heather Rogers, author of *Made in the Shade*, visited a number of offset schemes in India and found all kinds of irregularities with the projects there. One VGS-certified biomass power plant refused to allow her around, though staff there reported a number of concerns such as trees being chopped down and sold to the plant, which was designed to run on agricultural wastes.

Even if offset projects *do* work as advertised, some environmentalists argue that they're still a bad idea. If we're to tackle climate change, they

The price of offsetting

Many people are confused by the low prices of carbon offsets. If it's so bad for the environment to fly, can a few pounds really be enough to counteract the impact? The answer is that, at present, there are all kinds of ways to reduce emissions very inexpensively. After all, a single low-energy light bulb, available for just £1, can save 250kg of CO_2 emissions over its lifetime – equivalent to flying return from London to Berlin. That's not to say that offsetting is valid, or that plugging in a low-energy light bulb makes up for flying to Berlin. The point is simply that the world *is* full of inexpensive ways to reduce emissions. In theory, if enough people started offsetting, or if governments started acting seriously to tackle global warming, then the price of offsets would gradually rise, as the low-hanging fruit of emissions savings – the easiest and cheapest "quick wins" – would get used up.

argue, the projects being rolled out by offset companies should be happening anyway, funded by governments around the world, while companies and individuals reduce their carbon footprints directly. Only in this way – by doing everything possible to make reductions everywhere, rather than polluting in one place and "offsetting" in another – does the world have a good chance of avoiding runaway climate change.

Offsetting companies

If you do choose to offset, it also makes sense to at least opt for providers which are respected in the field. To help confused consumers, an organization called Clean Air Cool Planet (cleanair-coolplanet.org) assessed thirty providers against a wide range of criteria in December 2006 and named the following eight companies as "top performers".

AgCert drivinggreen.com
Atmosfair atmosfair.de
CarbonNeutral Company carbonneutral.com
Climate Care jpmorganclimatecare.com
Climate Trust climatetrust.org
CO2Balance co2balance.com
NativeEnergy nativeenergy.com
MyClimate my-climate.com

Offsetting for countries

The concept of offsetting and additionality have their roots in the Clean Development Mechanism (CDM), the carbon-trading system built into the Kyoto Protocol. The CDM allows developed countries to pay for carbon cuts in developing countries instead of making more expensive emissions reductions at home. A rich country struggling with its Kyoto targets might, for example, fund a hydroelectric station in China or India.

As with small-scale offsetting, the CDM has been a source of much controversy over the years. Though some projects have worked well, the additionality of others has been questioned, and some have been shown to be almost laughably expensive for the carbon savings delivered.

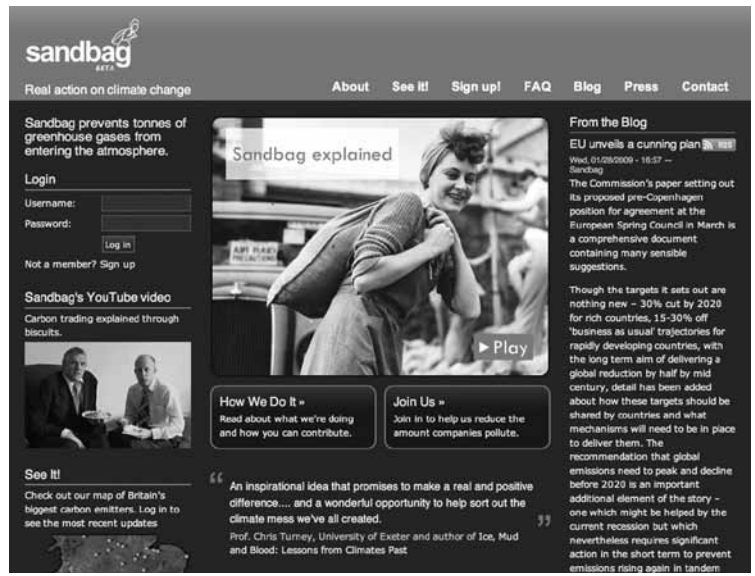
It remains to be seen how big a role nation-to-nation offsetting will be given in the global climate deal due to follow on from Kyoto in 2012. Green groups tend to argue that rich countries should make all their emissions reductions at home – not by paying other countries.

Alternatives to offsets

The debate about the validity of offsetting is bound to run and run. In the meantime, some companies and individuals are switching from traditional offsets to alternative charity-like schemes that promise big environmental benefits rather than carbon neutrality. These include the following.

Sandbag www.sandbag.co.uk

This small London-based charity aims to interact with the EU's emissions trading system which allocates tradable CO_2 permits to carbon-intensive industries. Sandbag uses supporters' money to buy these permits and tear them up, hence reducing the amount of CO_2 that companies are legally allowed to produce. Sandbag also acts as a campaign group, lobbying companies that have been allocated more CO_2 permits than they need to surrender them rather than sell them, thereby reducing the amount of CO_2 entering the atmosphere.



Cool Earth www.coolearth.org

While people debate the exact carbon benefits of planting new trees, everyone agrees that it's critical that the world stops the destruction of existing forests. Cool Earth takes donations and uses them to protect critically endangered rainforest. In some cases, the charity buys the land and donates it to a local trust, with local people employed as forest stewards; in other cases, when forest-owning tribes have been offered money for logging rights in their land, the charity offers a similar amount in return for forest protection. Cool Earth doesn't see itself as an offset scheme but

points out that protecting a single acre – at a cost of around £75 – can avoid more than two hundred tonnes of CO_2 emissions. The same money spent via a traditional offset scheme would save something closer to ten tonnes.

The Converging World www.theconvergingworld.org

Rather than offering offsets, this charity accepts "money being given in acknowledgement of a carbon impact" and uses it to fund renewable energy projects in India. The cash generated from these schemes – typically "more than twice what is put in" – is used to fund development projects.