

CARBON OFFSETTING

A 5 Step Plan for the Cambridge Conservation Forum

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Cambridge Conservation Forum: 5 Step Plan for Carbon Offsetting

Here, I propose a simple 5 step plan with suggestions on how CCF can improve their carbon offsetting over the coming years.

- Step 1: Share Information
- Step 2: Calculate Offsets
- Step 3: Donate
- Step 4: Make the Changes
- Step 5: Monitor

Step 1: Encouragement Through Information Sharing

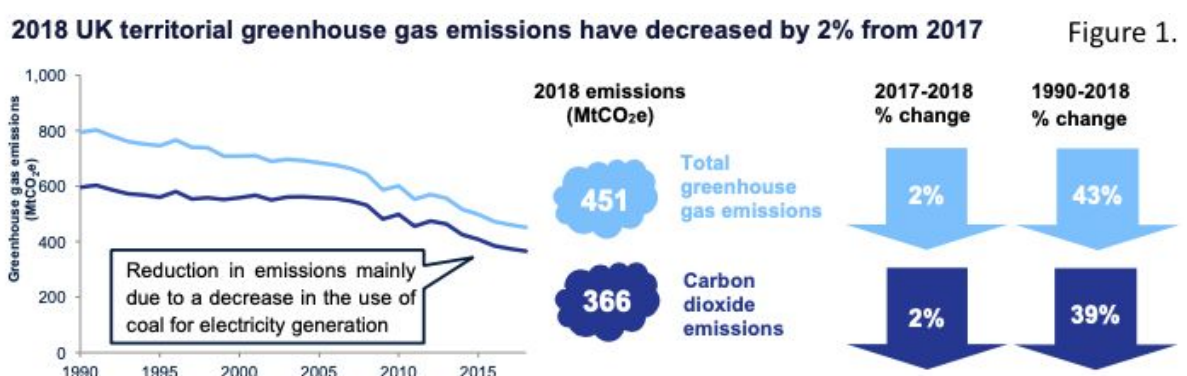
Step 1 consists of sharing information with CCF members about carbon-offsetting, the current state of carbon emissions and how CCF is trying to lower their carbon footprint. This can be used as a form of encouraging members to take interest in reading about carbon offsets, understanding its importance, and to commit to the simple changes proposed.

What is Carbon Offsetting?

“The principle of offsetting, is to compensate for emissions from a specific activity, for example flying to conferences or office energy consumption, by investing in a project usually carried out in a developing country. Through activities such as the replacement of fossil fuel by renewable energy use, reforestation or energy efficiency improvements, amongst other activities, the objective is to reduce emissions compared to “business as usual” circumstances.” - CCF Carbon Offsetting Review, 2008.

Current Carbon Dioxide Emissions

According to governmental statistics, between 1990-2018, 451 metric tonnes of greenhouse gases were emitted in the UK, of which transport, energy supply, and businesses contributed the most (28%, 23% and 18% consecutively). ~74.5% of these gases consisted of CO² emissions (Greenhouse Gas Emissions: Summary, 2018). Whilst emissions in the UK are decreasing (Fig. 1), the combined impact of greenhouse gases worldwide is having a severe negative impact on our climate, with temperatures expected to increase between 1.0-3.7°C over the next 80 years or so - a rise that would be disastrous for ecosystems and environments worldwide (Anderson *et al.*, 2016).



Unfortunately, the rise of CO² emissions is inevitable, as the global population is ever-increasing, and more land is being cultivated for agricultural or developmental purposes. However, as societies across the globe are gravitating towards more renewable resources, and are becoming more aware of their carbon footprints and carbon offsetting, there is hope of a greener future! And, CCF wants its members to be a part of this by encouraging simple lifestyle changes which can have a significant impact.

Figure 2.



Fig 2: average monthly estimates for countries across the world, using data from the World Bank estimates of CO² emissions per capita.

What is CCF doing to help?

In 2008, CCF produced a detailed carbon offsetting review, which outlined the importance of lowering the organisation's carbon footprint, and described several examples of carbon offsetting schemes. They also conducted research on their members through asking them to describe their offsetting strategies, concluding that many did not have policies in place for a variety of reasons. In the past, CCF has donated to the Great Fen Project, which is run by the Wildlife Trust, and focuses on helping to restore peat fen. They are now looking at ways of increasing their involvement in carbon offsetting, motivating their members to be part of a climate conscious organisation and to improve their corporate image.

Step 2: Calculating Carbon Offsets

Many carbon-offsetting websites suggest that organisations should follow a bottom-up approach, by encouraging individual projects and changes, rather than a company acting on its members behalf (Harangozo & Szigeti, 2017). This is because information at an individual level is more widely available and allows members to make positive changes that suit them, rather than complying with a company's regulations. These small changes can be read in further detail in step 4.

CCF is hoping to offset carbon emissions produced from its members travelling to conferences and meetings. Several members are required to travel long distances, by plane,

car or public transport to these meetings, which increases the organisation's, and individual's carbon footprints. There are carbon-footprint calculators widely available online that can help put these plans in motion. Below is a figure that highlights how different aspects of an organisation are linked to their carbon footprint (Fig 3.)

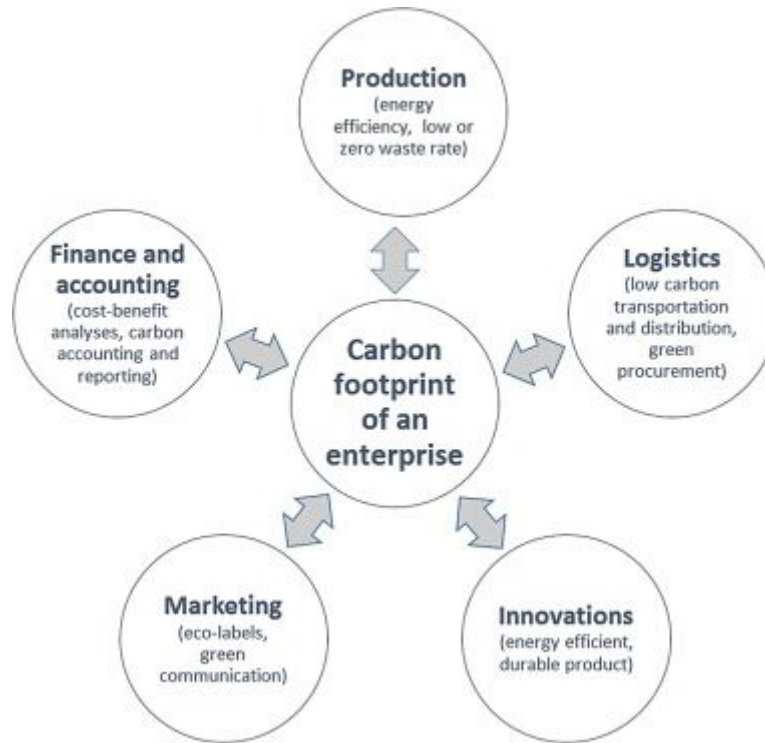


Fig 3: relevance of the carbon footprint concept to some corporate functional fields (Harangozo & Szigeti, 2017)

If CCF were to ask each member attending the meeting to input their travel information into the relevant calculators (flight, train, bus, car) online, and then compile this data, they could determine the total carbon that needs to be offset per meeting or conference. Using this data, they can then donate to the carbon-offset project of their choice. Relevant projects will be linked in the next section; step 3. Listed in the table on page 4 (Table 1), are the different input and output variables that are used by carbon-offset calculators, that need to be considered when compiling information (Harangozo & Szigeti, 2017):

Table 1:

Input Characteristics	Output Characteristics
Number of employees	Carbon emissions per employee
Buildings (energy consumption)	Carbon emissions per building area
Flights	Carbon emissions by input
Cars & lorries (brand, fuel, mileage)	Carbon emissions by input
Public transport (journey length)	Carbon emissions by input
Facilities (consumption, waste & recycling rate)	Carbon emissions by input
Events (travel, transfers, hotels, paper)	Carbon emissions by input
Products (paper, furniture, equipment, cosmetics, food & drink services)	Carbon emissions by input
Other systems (e.g. air conditioning/heating)	Carbon emissions by input

To ensure that CCF is complying with the highest standards, they can use systems such as the Greenhouse Gas Protocol, which supplies the world’s most widely used greenhouse gas accounting standards, and provides reliable tools to monitor and report progress. Their website compiles resources that cover a wide range of sectors, whether needed for specific or broad applications. Their protocol also divides emissions into 3 separate scopes; direct emissions, indirect electricity emissions and other indirect emissions, to help organisations identify their needs when working at a corporate level (Fig. 4). This system also works to ensure that all emissions are accounted for and that indirect emissions aren’t disregarded or missed (Harangozo & Szigeti, 2017).

Figure 4

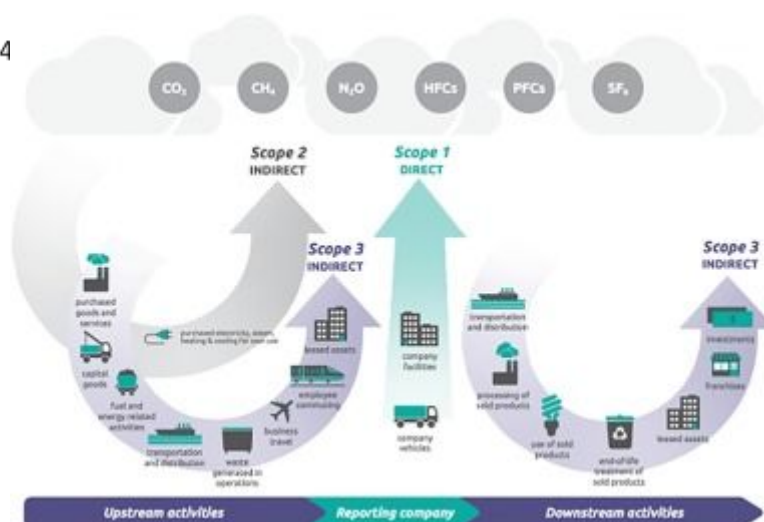


Fig 4: Elements of the corporate carbon footprint based on the scopes of the GHG Protocol (Harangozo & Szigeti, 2017)

Additionally, in 2015 they released an up-to-date guidance report in accordance with information covered by the Kyoto Protocol, to help companies credibly measure and report their emissions. This can be accessed in full through the link below:

<https://ghgprotocol.org/corporate-standard>

Calculator links:

Greenhouse Gas Protocol: <https://ghgprotocol.org/calculation-tools>

My Climate: <https://www.myclimate.org/carbon-offset>

Carbon Footprint: <https://calculator.carbonfootprint.com/calculator.aspx?tab=6>

Individual Offsetting

Whilst companies make an effort to reduce their carbon emissions, it's important that this effort is replicated at an individual level as well. Again, there are many calculators online which can help determine what someone's personal carbon footprint equates to. There is then the option to offset these costs, or take any suggestions on how to reduce personal emissions. This information could also be used by CCF, by asking members to submit their carbon footprint results and analysing this data to create targets and encourage change.

Calculator link:

WWF Footprint: <https://footprint.wwf.org.uk/#/>

Successful Design & Implementation

With the concept of carbon offsetting growing in trend worldwide, access to calculators, carbon-offsetting websites and other resources are growing in popularity. But, as resources become more widely available, their reliability and validity can become compromised. Unfortunately, this can then lead to companies investing in offsets that could have the opposite of the intended effect, causing negative opinions and impacts on carbon-offsetting schemes. Here, I will briefly discuss some potential barriers to effective offsetting to highlight the importance of avoiding these scenarios.

Deficiencies in carbon markets: this relates to ensuring that offset organisations (e.g. forest offsets) are verifiably reducing net emissions. Carbon offsetting is a complex, multifaceted process that requires the consideration of integrated approaches that work on a broad, dynamic scale (Hamrick & Goldstein, 2016). This is reviewed slightly further in the next step.

Economic uncertainty: the cost of carbon is constantly fluctuating, which creates an unstable market for carbon offsetting. For example, when carbon prices are low, carbon offsetting donations also fall, which makes implementation costs prohibitive. This can also lead to unfinished projects if funds fall short, or if economical returns are too low (e.g. plantations with slow growing trees can take years to generate monetary returns)(Dominy *et al.* 2010). Therefore, it is paramount that funds are secured before investing in offsetting programmes.

Uncertain socio-economic benefits: whilst some offset programmes have been shown to provide benefits to local communities, there are concerns that unequal benefit-sharing could lead to inequalities in wealth and power within communities and cause green-grabbing, where local authorities mitigate land cultivation at the expense of their citizens (Peskest, 2011). There are also uncertainties in the environmental benefits with some projects, such as fast-growing tree plantations (Lindenmayar *et al.* 2012). So, researching offset programmes is key to ensuring that these are avoided.

Negative public opinions: due to the limitations mentioned above, controversies in effectiveness and oppositions from certain industries, carbon offsetting doesn't always appear morally correct in the public eye (Blasch & Farsi, 2012). Some have even described carbon offsetting as 'providing the right to pollute'. Furthermore, the lack of understanding and knowledge of carbon offsetting also contributes to negative perceptions of the subject (St-Laurent *et al.* 2017). So, it is extremely important that carbon offsetting is executed carefully, using only certified programmes, and that it is morally sound to ensure that there is little-to-no backlash from the public.

Targets

By creating annual or decadal targets, CCF can track their progress in reducing their carbon footprint and offsetting efforts. These targets can be detained from governmental advice and compared with similarly sized companies.

Step 3: Donate

It is extremely important that any projects chosen are researched appropriately before donating, as many programmes have failed to conclusively demonstrate that they have had any substantial climate benefits (Cullenward & Wara, 2014). Some research warns of the ineffectiveness or detrimental effects of tree planting in relation to carbon offsetting. There have been cases of indigenous people being violently evicted from areas to make way for new plantations, and other cases where unsuitable tree species have been planted and damaged native forests (Steffen & Siddhartha, 2009). Additionally, there have been scenarios where the emissions released, through the trees being planted, have outweighed the original carbon that needed to be offset - having a net negative impact (Murray *et al.* 2006).

This does not mean that every plantation is detrimental, but instead reinforces the importance of researching projects first. This can be done by utilising the Verified Carbon Standard (VCS) website, which authenticates the effectiveness of carbon offset programmes (Lederer, 2012). Some suggest that donations should be directed at projects which aim to protect and regenerate existing forests, that prevent deforestation and degradation, or that support reforestation within the UK (A Short Guide to Carbon Offsets, 2017).

Using the data calculated through completing step 2, and the VCS website for authentication, carbon offset costs can be donated to projects listed on Gold Standard, a website that is specifically set up for carbon-offsetting donations.

<https://www.goldstandard.org/take-action/offset-your-emissions#scroll>
<https://registry.goldstandard.org/projects?q=&page=1>

There are over 1,500 projects listed by Gold Standard, covering a variety of causes, including; renewable energy development, biodiversity promotion, biodiverse forest planting, clean water access and healthy home promotion across a range of developing countries.

Another worthy cause for donations is the Vanga Blue Forest conservation project, which supports the plantation of mangroves along the Kenyan, Tanzanian border. This project has already seen over 56,000 saplings planted, 117 hectares conserved and nearly 10,000 metric tonnes of CO² stored.

<https://www.aces-org.co.uk/>

Step 4: Make the Change

As mentioned earlier, perhaps the most effective way of reducing carbon footprints is by individual efforts to make change. In this step, I have listed several simple and easy options that make minimal change to your daily lifestyle, but can cause significant reductions to your carbon footprint. The idea is; if everyone makes one or two of these small changes, it could make a huge positive impact.

1. Give yourself, family and friends simple targets to meet
2. Walk/cycle or take public transport to work once a week
3. Have a 'meatless day' or one meal a week without meat
4. Try buying locally grown and/or seasonal produce
5. Try to avoid imported groceries where possible
6. Turn appliances off standby (TVs, laptops, computers, lights etc.)
7. Switch to renewable resources if you're able to (e.g. solar panels are popular)
8. Use a hydro flask for water, to help reduce the demand for plastic bottles
9. Reduce your water consumption by not overfilling the kettle and turning taps off
10. Switch to energy efficient bulbs - they last longer and use less energy
11. Create a home-compost bin to reduce food waste going into landfill
12. Support local farmers for meat and milk, rather than buying mass-produced products
13. Support local fisheries that comply with regulations, rather than buying imported fish
14. Try to cook more at home and lessen your takeaway consumption
15. Invest in eco-friendly reusable products like bamboo coffee cups, tupperware and straws (this will lower waste and plastic production)

From CCF's point of view:

1. Arrange discounts for members using public transport to travel to meetings/conferences
2. Do online/virtual meetings whenever possible
3. Set a maximum radius of travel for meetings (if they're too far away, they can join the meeting virtually to avoid long travel distances)
4. Switch to eco-friendly resources like carbon-neutral paper, or just print less!
<https://www.worldlandtrust.org/get-involved/carbon-balanced-paper/>

Public Events

If CCF manages to gain some positive offsetting statistics, it would be great to host a public event that shows these successes and encourages the visitors to do the same. The event could:

- Boast how offsetting is helping the environment
- Describe how they can help by introducing the small changes listed above
- Emphasise the importance of carbon offsetting
- Create a green event: ensure any food provided is seasonal and locally produced and have stalls selling carbon-neutral products
- Present information about the projects being supported by offsetting costs and how the public can get involved

Step 5: Monitor

Perhaps one of the most important steps in this plan is to monitor how effective the plan itself is. Monitoring is paramount to ensure that targets are being met and that members are taking part. It also gives the opportunity to evaluate whether the steps being taken are effective and to adapt where necessary. This can be done simply by sending out annual questionnaires to members and comparing the results with previous years, or by asking the members to use the carbon calculators mentioned in step 2 to measure whether their carbon footprint has reduced.

Celebrate Success

If the efforts being made are having positive outcomes, it's important to celebrate that success. This could be done by congratulating and thanking members who have made a significant effort to change their lifestyle, or even by rewarding those members with a certification to increase incentive.

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