



Analysis

Carbon Accounting and Offsetting

Neil Campbell



Neil Campbell
Senior Consultant
Red River Management

Biography

Neil Campbell is the Senior Consultant, Red River Management (<https://www.redrivermgt.co.uk>), a Fellow of the Institute of Chartered Accountants in England and Wales (ICAEW) and, since leaving the profession, has spent over 30 years leading finance and business transformation within blue chip financial services organizations.

For the last few years Neil has dedicated himself to the Environmental, Social and Governance (ESG) agenda and established the Red River Management Ltd consultancy with the sole aim of helping mid-sized and SME companies to simplifying ESG and Sustainability focussing on the opportunities provided by this new imperative and identifying and mitigating the existential risks of ignoring it.

Within the ICAEW, Neil is an active member of the sustainability community and has also joined their Ethics committee and become involved as an observer on their Sustainability and Corporate Governance committees, all of which provide responses to new and changing policy issued by government and financial bodies.

Naturally his hobbies include getting out into nature and he is an active cyclist, climber and scuba diver. He is also an avid football fan and has been a supporter of Manchester City since their title winning season in 1967/68.

Keywords Climate, Net-Zero, Environmental Social and Governance (ESG), Carbon Accounting, Offsets, Greenhouse gases (GHG), COP26

Paper type Research

Abstract

The 26th Conference of the Parties in November 2021, COP26, drew attention to the global climate crisis that is unfolding and attracted commitments from almost 200 countries who attended with pledges regarding phasing out coal, deforestation, and reduction of greenhouse gas emissions. In 2022, we have also witnessed some of the worst climate disasters in living memory across all continents culminating in August with a flood in Pakistan that has affected over a third of its population. The problem is vast and complex and involves concepts with which many are unfamiliar. However, there are some underlying causes and effects which need to be addressed. This article attempts to provide some hope and a layman's explanation of some of the terminology, the causes of climate change and the actions that every business can take and the easy steps that are available to address these seemingly insurmountable issues.

Introduction

We are experiencing the hottest temperatures on record which means our farmers are struggling to produce food; there is a war in Ukraine pushing energy prices sky-



Analysis

high, and inflation is at a level not seen since the 1970s. All these issues are prominent in the news and it is obvious that these events will have significant negative effects on business which could further add to inflation. But what is not being talked about is that the solution is in the hands of businesses who build resilience and risk management as fundamental underlying issues into their strategy.



Welcome to the Anthropocene

Officially, the current epoch is called the Holocene, which began 11,700 years ago after the last major ice age. However, unofficially, we're living in what is now known as the "Anthropocene" since around the mid-eighteenth century. The term coined in 2000 by biologist Eugene Stoermer and chemist Paul Crutzen¹ represents the most recent period in Earth's history when human activity started to have a significant impact on the planet's climate and ecosystems.

The planet has experienced the largest rate of extinctions in the earth's history which has been caused chiefly by habitat loss, over-exploitation and, most importantly, climate change. As well as ecosystems, the effects of climate change (and associated severe weather events) can affect businesses in many areas:

- supply due to disruption to, or availability of, the supply-chain;



- physical business risks to property and assets;
- significant shifts in attitudes and requirements of finance, suppliers and consumers;
- potential regulatory, legislative, and reporting changes if we fail to achieve significant progress;
- lack of funding due to pressure from regulators and investors;
- stranded assets due to climate change or regulatory changes.

Climate change is, therefore, the biggest issue facing not only the earth but the future of every business. It is being caused by the effects of greenhouse gases (GHGs) released into the atmosphere predominantly from burning fossil fuels. The excess of these gases forms a barrier in the atmosphere which traps the sun's rays (like a greenhouse) and thus temperatures rise. If we do not stop using fossil fuels and reduce the CO₂ in the atmosphere, we face catastrophic climate change beyond what is habitable for all creatures, including humans.



COP 26 and the moral imperative

In 1995 the first Conference of the Parties to the United Nations Framework Convention on Climate Change (COP) was held to discuss climate change, advance each nations climate commitments for CO₂ reductions and to commit funding to aid smaller nations. At the 21st meeting in Paris in 2015, commitments



Analysis

were agreed by all 180 participants to keep global temperatures within a maximum of 2°C, and preferably 1.5°C, above pre-industrial levels.

This became known as the Paris Climate Accord or Paris Agreement. These results were to be achieved by continually reducing each nation's CO₂ emissions within Nationally Determined Contributions to CO₂ reductions (NDCs). However, reaching agreement on reductions and achieving the previously agreed NDCs has been a problem for nearly all nations.

In November 2021 all news channels were full of reports and updates coming out of COP 26. This COP was seen as the most important following issuance of the latest report the Inter-governmental Panel on Climate Change (IPCC) and the UN Secretary-General announcing it as a “code red for humanity².”



The current climate position

Although many of its findings were shocking, what the IPCC report actually stated was that: “We have not yet reached a tipping point of irreversible damage due to climate change but only if we all act now.” This was a stark warning to everyone on the planet and difficult hurdles still remain:

- Pledges for CO₂ reductions were made by every government at COP26 but, when combined, these are still insufficient and are estimated to only keep global warming to a minimum 1.8°C increase.



- The planet's average temperature increase is already at 1.2°C with spikes above 1.5°C.
- It is thought that, in the event of an increase between 1.5-2.0°C, the ice-shelves and much of the permafrost will melt releasing billions of tonnes of captured CO₂. Estimates of just one ice-shelf melting could potentially raise temperatures by a further 1°C (Scientists Warning Europe).

However, it is not all doom and gloom and significant progress is being made in many areas especially in the US, one of the world's biggest emitters of GHGs. US president Biden has just had a budget approved of \$737 billion over ten years of which \$369 billion is to be invested in energy security and climate change to halve emissions by 2030. Recently, California, the bellwether state with a growing economy equal to that of the UK, has introduced legislation to ban sales of fossil fuel cars by 2035 giving a clear indicator to the industry about the future direction.

Responsibility

A recent poll identified that 75% of people in the UK are concerned about climate change, possibly driven in part by the recent deadly heat-waves. Collectively, households emit around 15% of UK carbon emissions but the biggest area to address is within industry and transport. Therefore, the message is clear that everyone needs to carry their personal concerns with them into the workplace. All businesses and individuals have a responsibility to do whatever they can to help reduce GHGs further.





Analysis

According to the Federation of Small Businesses (FSB) SMEs comprise over 99% of UK companies by number, around 60% of employees and 50% of turnover. In the fight against climate change, size really doesn't matter. Some industry sectors are more polluting by their nature, but every business can participate in the "Journey to Net Zero".

What exactly is Net Zero?

Several terms are currently being used to describe CO₂ reductions and this has led to some confusion as to what a company should be targeting. The following are useful to properly understand how an organization should be looking at GHG reductions:

- **Net Zero Carbon** – this is the true target and means that no CO₂ is emitted at all by an organization. Unfortunately, this isn't fully possible with current technology.
- **Net Zero** – is reached when the amount of CO₂ emitted is matched by the quantity of CO₂ removed although this cannot be achieved by using offsets.
- **Carbon Neutral** – balancing GHG emissions by "offsetting" (removal from the atmosphere) an equivalent amount of carbon for the amount produced.
- **SBTi** – the Science-based Targets initiative. A target based on what is required to maintain temperature increase within 1.5°C of pre-industrial levels. This organization will sign off a company's planned reductions as being in-line with the SBTi. It allows a final 10% of emissions to be offset.

What exactly is an Offset – a popular view

An offset is a term used for a mitigation for the CO₂ that an organization is producing. When asked whether he thought it was right to fly around the world in a private jet to competitions, a prominent golfer replied, "I'll just plant a few more trees!"

It is a popular misconception that if we plant enough trees, we will sufficiently reduce the CO₂ currently in the atmosphere.

There are many issues wrong with the statement and the underlying perception:

- the requirement is to stop producing as much CO₂, not to carry on as we are and somehow sequester all the CO₂ we are producing;
- although dependent on the type of tree, current accepted CO₂ absorption rates are about 22 kg CO₂ per tree each year (about a tonne over 100 years) – in order to absorb the 40 billion tonnes of CO₂ produced annually, we simply don't have the capability or the space to achieve it; and
- unfortunately, more detailed studies estimate absorption at about 10kg per year and, coupled with the fact that, until fully grown, trees absorb significantly less when first planted.



The economic position on carbon offsets and trading

International governments have identified that companies can use offsetting to reduce their officially reported CO₂ emissions and agreements and carbon markets have developed to support these target reductions. There are two types of offsets available, Mandatory and Voluntary, and markets exist within both areas.

Mandatory offset schemes

Also known either as Cap and Trade Schemes or Emissions Trading Schemes (ETS). A government will set limits for specific GHG emissions for the companies within certain industries which a company cannot exceed. These caps are reduced over time annually in line with the government's GHG reduction targets.

A company will receive or buy an emissions permit which represents their allowed emissions for the year (allowances). Some companies will find that they are able to control or reduce their emissions more easily than others and may find they do not require their full allowance. They are then able to trade allowances with each other, or via a market, to another company that might be finding it more difficult to control their own emissions. If a company reduces its emissions below their allowance, and doesn't sell the excess, they may be retained for future years.

At the end of each year, companies must provide sufficient total allowances, either permitted or purchased, to cover their actual reported emissions. Failure to do so may incur heavy fines.

Such schemes are operating in the EU (the biggest in the world including a third of total EU CO₂ emissions), UK, Australia, Brazil, China and several states in the US. Unfortunately, these schemes are not linked although markets and cross-border trading mechanisms do exist.

Voluntary offset schemes

These are completely independent of mandatory schemes and cannot be used to meet targets under a mandated cap. They are also referred to either as baseline-and-credit mechanisms or carbon credit schemes.

These follow the same principle as outlined by the flippant sportsman. They are created by projects that either avoid, reduce, or remove GHG gases, for example: planting trees, restoring wetlands, or creating sources of renewable energy. The credits can then be bought voluntarily by a company to better, or proactively, manage their carbon reductions.

Prices are based on a rate per tonne of CO₂ although increased interest for reducing carbon footprint and demand for these schemes will significantly increase the price per tonne. This will make using such schemes unsustainable for many smaller organizations and the focus once again will revert to the real issue at hand, reducing the amount of CO₂ produced.

Whilst carbon offsets are useful for companies to manage their own emissions and targets in the near-term, they do little to reduce the amount of carbon being produced which is the target of all governments NDCs. As the demand grows for



Analysis

offsets, there is also the issues of physical limits to what is possible, and this will further increase prices as demand outstrips the limited supply. This will make the option of using carbon offsets practical for fewer and fewer large companies and is not ultimately sustainable.

Offset markets

Unfortunately, the regulations governing carbon offsets have taken a long time to catch up with the markets themselves, there was a significant increase before COP26 as countries wanted to show leadership in this area. However, there are no global standards or regulations with countries setting their own frameworks leading to fluctuations in prices and differences for specific GHGs but there are efforts to bring the markets together and introduce standard pricing.

A world of acronyms

The area of climate change and support for the environment has generated a language of its own with some cross-over and confusion arising between all the difference terms, frameworks and organisations. Now might be the time to outline what a few of these terms mean:

- **Carbon Accounting** – measuring and reporting the Greenhouse Gas (GHG) emissions of a company.
- **UN SDGs** – the United Nations Sustainable Development Goals were established in 2015 as “a shared blueprint for peace and prosperity for people and the planet, now and into the future.” All other frameworks can be aligned to one or more of these goals.
- **ESG** – Environment, Social and (corporate) Governance – the concept of corporate responsibility has been growing since the 1970s and in 2004 the UN Global Compact called on companies to incorporate ESG into their reporting and it has now become formalised in various frameworks around the world.
- **TCFD** – Taskforce for Climate-related Financial Disclosures. Issued in 2017 by the Financial Stability Board (FSB) to establish a framework to provide consistent climate-related reporting. It consists of four pillars within which there are 11 standard reporting requirements.
- **CSRD** – Corporate Sustainability Reporting Directive – the EU equivalent of the TCFD and closely aligned although wider in coverage and includes mandatory assurance of any reported information.
- **ISSB** – International Sustainability Standards Board was established in 2021 by the IFRS Foundation to approve internationally accepted Sustainability Disclosure Standards.

The triple bottom line

Within all these standards many companies have accepted the underlying concept that there now has to be a different business operating model based on corporate social responsibility with a wider focus of stakeholders. In fact, a 2017 Companies Act White Paper expanded the definition of stakeholder to include the environment



and community. It is often discussed in the context of a “triple bottom line” of Profit, People, Planet and the company changing its culture and purpose for the benefit of all stakeholders.

ESG is not just about climate change though. It also requires focus on Social and Corporate Governance, with reputational risks associated with the S & G elements, as one prominent on-line clothing company discovered when their complicit involvement in the use of modern slavery was exposed. However, realistically, the real risks are associated with GHGs and climate. Except for the larger companies, it is unlikely that many companies will suffer should their gender equality or LGBT policies not be sufficiently progressive and, not surprisingly, Social or Governance will not yet feature highly in their risk management.

Reporting requirements and how that will affect wider business

Under the TCFD in the UK and CSRD in the EU, there are only requirements for financial services organizations and listed companies to report climate-related disclosures with no reporting requirements for companies outside of this. So why is this important for all businesses?

The regulations are based on four thematic areas: governance, strategy, risk management and targets and metrics. However, there is also a core requirement to disclose the GHGs for which an organization is responsible and a reduction plan. This comprises all the GHGs arising from the company’s activities and is split as follows:

1. **Scope 1** – direct emissions arising from the operation of all facilities and vehicles.
2. **Scope 2** – indirect purchase of electricity, heating and cooling for own use.
3. **Scope 3** – emissions arising out of the entire value chain both upstream and downstream.

Scope 1 and 2 are relatively easy to calculate whereas Scope 3 is by far the most complex but also normally accounts for the largest proportion of total GHGs, up to 80% in some cases. It is crucial that all organizations start to measure and report their GHGs as soon as they can.

Although Scope 3 can be a daunting prospect for many organizations, especially smaller companies, the task can be made much simpler with the use of IT tools many of which are initially free, and the government is expecting to have its own GHG calculator later in 2022.

Initially expenditure figures from the financial statements can be used as a rough proxy to give an initial figure for Scope 1 and 2 emissions. Whilst this is not ideal it gives a starting point which can be refined over time. Although it will be necessary to eventually grasp the nettle of Scope 3 emissions, it does not need to be a blocker to action. Nobody expects reporting to be accurate or detailed at the first attempt,



Analysis

but it should not stop companies from immediately identifying their vision of the type of company they want to be and initiating a programme of activity to reduce emissions.

The business need for action

There are huge benefits to a business from starting an ESG initiative or, at least, identifying and addressing their material impact on the environment and the material risks of climate change on the company, a concept called double materiality.

Many executives identify that they are in survival mode due to inflationary pressure on costs but a review of expenditure on major items such as energy use will show huge potential for savings. If the target is to reduce GHGs, then energy use is a good place to start and the more energy savings a company can identify, the lower the emissions but also lower the cost. Reduction is the watchword of climate change and initiatives to reducing carbon footprint invariably lead to significant cost savings.

All larger organizations are required to disclose their ESG activity and performance. This includes their GHGs and involvement with both the upstream and downstream value chain. All government and local authority contracts already require such information for inclusion on tenders over £5 million and it is likely that this level will reduce. This trickle down into the wider value chain is going to change engagement with stakeholders from a purely financial relationship to one where they require confirmation of climate action from all suppliers and customers along the entire value chain. This is also a requirement for all financial services organizations with the aim to ensure the use of capital is informed and thus directed towards solving ESG issues.

By measuring the GHGs and identifying a carbon reduction plan, an organization will differentiate itself above the competition and be ready to provide information for tenders, suppliers and customers to enable them to continue with their existing relationships along the value chain. Obviously, the opposite is also true, a company that ignores climate change will very soon find themselves excluded from tenders or under significant pressure to act.

Concerns about climate change are starting to influence people to vote with their feet and actively seek out those companies who are communicating their vision, plan, and action to address their impact on the planet.

Those companies that initiate an ESG initiative sooner will be identified and sought out by suppliers and customers and will ensure they are able to retain existing and target possible new markets. The same is true of funding and all financial arrangement with banks and investors.

Another risk of climate change is stranded assets. These are assets for which their value, or useful life, is curtailed due to climate concerns or risk scenarios. One extreme example of this is oil itself. The oil industry has not produced a plan to phase out oil and scientists estimate currently production is far above what is



required to keep the increase in temperatures within 1.5°C. The value of the oil that is required to be left in the ground is valued on the balance sheets of oil companies in the trillions of dollars and, at present, there has been no proposed solution. This is an example of the thinking that companies will need to adopt in their view of the future of their business. Will they have a business in 3 to 5, or even 20, years' time?



What can be done

All individuals and businesses have a responsibility to act now to reduce GHGs to avoid catastrophic climate increase.

The most important thing for any organization is to make a start. The adage is true about the best time to plant a tree being 20 years ago, but the next best time is today. Any ESG or climate initiative starts with sustainability which, most importantly, means a company being profitable and includes being able to take advantage of new opportunities and resilient against any threats to that business, including that from climate change.

Initiatives do not necessarily mean investing in expensive solutions. They start with a vision of culture and purpose. Initially, the only thing that needs to change is to incorporate the more responsible culture of the organization into business decisions and this costs nothing. The next step is to identify the easy targets for actions such



Analysis

as energy usage, waste policy or employee commuting. Communication with stakeholders is key to inform suppliers, customers, employees, financiers, and government of the direction of the organization. This will improve engagement, especially with employees and supply chains and will improve relationships and collaboration.

Although the TCFD is directed at risks associated with climate change, it provides an excellent framework to ensure governance, strategy, risk management and operational targets and metrics are all fully aligned. This is the next stage for an ESG initiative and represents formally establishing programmes, projects, data collection (which can be significant), and embedding the processes into business as usual.

The over-arching principle is that this becomes a new company ethos and approach to business and engagement with stakeholders on an open and transparent basis.

Risks and implications of green-washing

One note of caution and an area that needs care is the issue of green-washing. This is making claims which are knowingly over-optimistic or false. Care is needed because this can also happen accidentally especially at the start when data and understanding is in its infancy. To quote Warren Buffett, “It takes 20 years to build a reputation but five minutes to ruin it.” The principle for all reporting must be transparency and honesty outlining any limitations to data or information as well as the targets and savings themselves. It goes without saying that rigorous review should be applied to any reported information. If in doubt, leave it out (or simplify).





Conclusions

Climate change has given rise to new expression “climate anxiety”, especially in the younger generation and the outlook is often painted as being very bleak. However, the messages of “Action Now” and the ease with which people can get involved and make a real difference is spreading and becoming the mainstream and climate change denial the minority, especially in the UK.

There is a huge willingness around the world to make sure that we protect the earth and biodiversity for our future generations and national budgets are being dedicated towards this goal. Every business can make a significant difference and there is a genuine and widespread will to become involved with colleagues and business partners to join on the Journey to Net Zero. However, what is more important is that it is not only easy but necessary for all businesses if they are to successfully build a business that is not only profitable but resilient and has a culture to operate for the good of the planet and the community.

Reducing carbon by using less and saving money and working towards a more sustainable economy is becoming the norm. However, the use of carbon offsets may appear to be a simple answer but is not realistically part of the solution. It's a red herring which most organizations should not consider when forming their climate strategy. Real action is required and flippant comments about planting some more trees can only detract from this.

Reference

- ¹ Stoermer, E. and Crutzen, P. (2013). The 'Anthropocene'. IGBP Newsletter, v.41, 17-18 (2000).
- ² United Nations (9 August 2021), Secretary-General Calls Latest IPCC Climate Report 'Code Red for Humanity', Stressing 'Irrefutable' Evidence of Human Influence. United Nations. Available at: <https://press.un.org/en/2021/sgsm20847.doc.htm>