

Designed to fail?

The concepts, practices and controversies behind carbon trading



Carbon trading has become the central pillar of international efforts to halt climate change. It is a term that most people will recognise, but far fewer will have a good understanding of what it means and how it is supposed to work. Fewer still will feel confident to judge whether it is a success or not.

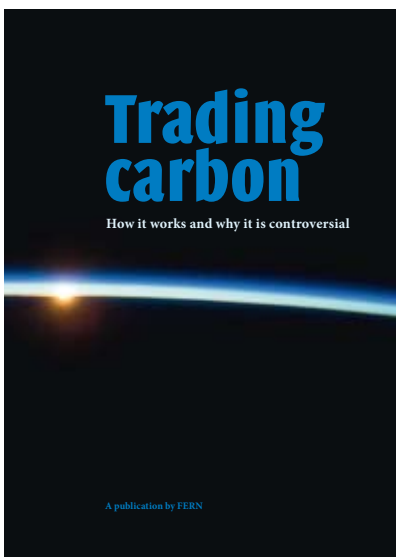
Summarised version by Austen Naughten



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FERN has published an accessible introduction to carbon trading: *Trading carbon: how it works and why it is controversial*.¹ This briefing paper provides a synopsis of the key points of that book. We would encourage readers to refer to the full version for references, more detailed explanations, examples and evidence.²



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- 1 Kill, Ozinga, Pavett and Wainwright: *Trading Carbon: How it works and why it is controversial*, FERN, UK, 2010. www.fern.org/tradingcarbon
- 2 For further reading, see also: Lohman (Ed.): *Carbon Trading. A critical Conversation about Climate Change, Privatisation*. <http://www.thecornerhouse.org.uk/resource/carbon-trading-0>; Gilbertson & Reyes: *Carbon Trading. How it works and why it fails*. www.carbontradewatch.org; Docena: *The CDM in the Philippines: Rewarding Polluters*. <http://focusweb.org/philippines/content/view/334/7/>



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Introduction

We are engaging the world in a vast, unprecedented experiment. By burning fossil fuels at industrial scales over the past 150 years, we have changed and are set to continue changing the composition of the atmosphere, transforming huge quantities of stored fossil carbon into carbon dioxide (CO₂), a greenhouse gas which absorbs and retains the sun's heat. The outcome of this experiment will be an increase in global average temperature, with a potentially irreversible impact on our climate and environment. Climatologists warn that unless we massively reduce our use of fossil fuels, starting immediately, these changes are likely to be catastrophic, posing a serious threat to the viability of human societies as we know them today.

The view of many scientists is that to avert the worst of this predicted climate change, global greenhouse gas emissions would have to peak by 2015 and then sharply decrease, so that they are reduced by 85 per cent by 2050. The aim policy makers at the UN climate negotiations have adopted is to try to stabilise carbon in the atmosphere at 450 parts-per-million (ppm) CO₂e.³ The figure is considered inadequate by many, who push for a maximum of 350 ppm, despite 2009 concentrations being around 385 ppm.⁴ Scientists believe that stabilising CO₂e at 450 ppm will give the world only a 50 per cent chance of keeping the global average temperature rise below 2°C.⁵ Beyond this figure, global warming is likely to create a 'feedback effect' whereby increased temperatures lead to increased carbon emissions, which in turn increase temperatures. This is known as 'runaway climate change'.

To stabilise CO₂e even at 450 ppm will require a seismic change in our economies: a paradigm shift in how we consume energy; where we source it; and how we price it. It will inevitably require a massive investment in new technologies and infrastructure. Some existing economic activities will be disrupted, perhaps even becoming unviable. There will inevitably be enormous costs and, as the much-cited Stern report points out, "delay would be dangerous and much more costly."⁶ The costliest decision is to do nothing.

Faced with such stark warnings, the governments of the world have negotiated a series of treaties, starting with the UN Framework Convention on Climate Change and the Kyoto Protocol, intended to initially halt the growth in CO₂e emissions, with the hope of eventually reducing and replacing our economies' reliance on fossil fuels before it is too late. From the many different approaches proposed, a free-trade, market-based system called 'cap and trade', more commonly known as *carbon trading*, became the central policy pillar to incentivise emission reductions.

This shortened version of Trading Carbon explains the mechanisms behind carbon trading and why they cannot work to deliver, or even trigger, the structural changes needed to wean our economies off fossil fuels, in the necessary timeframe.

3 The Kyoto Protocol covers six GHGs which affect the climate in different ways, to different degrees and for different time periods. In order that permits for each can all be traded on the same market, a 'carbon dioxide equivalent', CO₂e, is calculated for each. The six gases are CO₂, CH₄, N₂O, hydrofluorocarbons, perfluorocarbons, and SF₆.

4 http://cdiac.ornl.gov/pns/current_ghg.html

5 Dr Paul Baer with Dr Michael Mastrandrea: High Stakes Designing emissions pathways to reduce the risk of dangerous climate change

6 For every year the world delays reducing emissions significantly, the International Energy Agency says, the cost of keeping greenhouse gas concentrations in the atmosphere to 450 ppm rises from its original estimate of \$10,500 bn by another \$500 bn. IEA World Energy Outlook 2009.

A brief history of carbon trading

Carbon trading has its origins in economic theories, first formulated in the 1960s, that seek to attach a production cost to pollution. The theory held that if pollution had a price, market forces would eventually deter businesses from polluting the environment because it would become less cost effective for them to do so.

In the 1990s, emissions trading went from economic theory to practice, with the controversial sulphur trading scheme, which saw the USA using a trading approach while other countries simply brought in anti-pollution regulation. It was the USA who pushed for carbon trading to be a key element of United Nations discussions about how to deal with climate change and, although the USA never ratified the Kyoto Protocol, carbon trading became the central pillar of international climate policy.

Between then and the first years of the new millennium, the idea of carbon trading caught on in boardrooms, banks, governments, and some NGOs. In climate discussions it was seen as a cost-effective way to meet carbon-emission quotas; less likely to cause disruption to or face opposition from industry than carbon taxes, and thus necessary to ensure 'buy in' to the climate change agenda; a more sophisticated mechanism than a simple carbon tax or a regulation; and an incentive to investment in renewable technologies.

Defenders of the carbon-trading system will often accept that it has problems, but say that such a new market must be given time to mature, and problems will be ironed out in due course.

Carbon trading - the model

Put simply, carbon trading is the process of buying and selling permissions to pollute. In current schemes, these permissions take two forms: *permits* and *credits*. We will address each of these in turn.

The model used in all current carbon trading schemes is called 'cap and trade'. In a 'cap and trade' scheme, a government or intergovernmental body sets an overall legal limit on emissions (the cap) over a specific period of time, and grants a fixed number of permits to those releasing the emissions. A polluter must hold enough permits to cover the emissions it releases. Each permit in the existing carbon trading schemes is considered equivalent to one tonne of carbon dioxide equivalent (CO₂e). In the theoretical model, (but rarely in practice) permits are to be sold – usually by auction – so that from the outset, polluters are forced to put a price on their emissions, and are incentivised to reduce to a bare minimum the permits they seek.

If one polluter does not use all its permits, it can trade them with another that has already used up all its permits and needs more to continue emitting beyond its legal limit. The theory holds that polluters are punished because they have to pay for more permits, and those who invest in more efficient energy consumption are rewarded financially, because they can sell their spare permits. The economy at large benefits because the energy savings are not made industry-by-industry, but where they cost least. The environment benefits because the overall level of emissions is reduced.

In any discussion of carbon trading, it is important to remember that **it is only the cap that leads to emission reductions**. The trading and associated offsetting only exist to make compliance with the cap less costly (often only in the short-term) for those participating.

A simplified example of 'cap and trade' theory

Company A and Company B emit three units of carbon, each.



Regulation caps their emissions at two units each

Company A finds a way of reducing emissions at a cost of five Euros per unit. Company B finds it far more expensive to reduce their emissions, at 11 Euros per unit.



If company A and B independently reduce their emissions by one unit, the total cost is 16 Euros.

But if company A reduces its emissions by two units and sells the spare permit to company B for ten Euros, everyone is a winner.

Company A spends $2 \times 5 = 10$ Euros reducing its emissions, but recoups all that money through the permit sale.

Company B has reduced the cost of complying with the cap to ten Euros, so saving one Euro.



Total emissions have still been reduced by two units.

And the total extra cost of meeting the cap is ten Euros – a saving of six Euros.

The two key carbon trading schemes in operation to date are the Kyoto Protocol and the European Union Emission Trading Scheme (EU ETS). The Kyoto Protocol sets emission caps for each of the industrialised countries, covering six greenhouse gases, but did not set limits for developing countries with the argument that the main responsibility for initial reductions lies with the historically large polluters – the industrialised countries. Under the EU ETS, each EU Member State passes on a portion of the permits granted under the Kyoto Protocol to its major polluting industries. Other, smaller regional trading schemes are in existence, or proposed.

Setting the Cap

Under the Kyoto Protocol, a cap was set at 95 per cent of industrialised countries' 1990 carbon emission levels. There was intense lobbying by countries to maximise their allowances and some countries received allowances greater than their actual use, because historically their emissions had been higher, or because they argued they were less industrialised than others or that capping their industries at current levels gave them an unfair disadvantage.

Pricing the permits

'Cap and trade' theory usually assumes that permits will be auctioned: that industries will bid for the permission to pollute, and that the price of each tonne of CO₂e will therefore be set by demand. However, in practice, all existing 'cap and trade' schemes have initially distributed permits free of charge, on a company-by-company (or, in the case of the Kyoto Protocol, country-by-country) basis, based on what they claim to be their existing levels of pollution. This policy is known as *grandfathering*.

Monitoring and enforcement

Once a cap is set and permits have been allocated,

emissions must be measured to ensure the cap is being complied with. Financial and other penalties exist for enterprises or countries that exceed their limits.

Emissions can be measured directly (as they are released), or measured by proxy (using conversion factors rather than direct measurement). While technology exists for direct measurement of some greenhouse gases, it is considered too expensive for widespread application, and so all current carbon trading schemes rely on measuring CO₂ emissions by proxy. In the case of calculation by proxy, only approximations are produced, with errors far greater than with direct measurement.



Offset credits

What are offset credits?

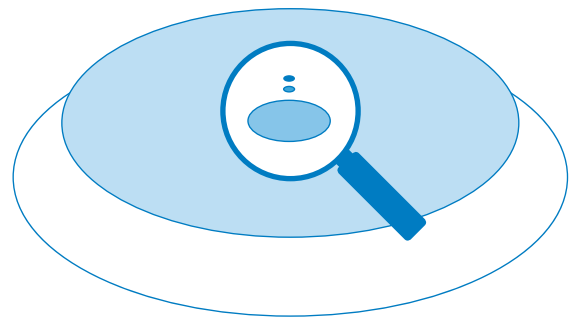
Every current and planned carbon 'cap and trade' scheme involves *offset credits* in one form or another. Credits are a supplementary source of permissions to pollute that can be bought in from countries or industries outside the cap, usually in the developing world. Their purchase allows the emitter to exceed the emissions cap by paying someone else somewhere else to reduce their emissions instead. It is important to remember: **offsets do not reduce emissions, they merely replace them.**

Offsetting is based on the assumption that it does not matter how or where emissions are reduced. Emissions can be reduced where costs are cheapest – generally the global South – while allowing emissions to continue in the capped country – generally the industrialised North – with least disruption to existing methods of production and at the lowest costs to those covered by the cap.

In short, companies and governments pay someone else to try to make reductions, somewhere else, because it's cheaper (financially and/or politically) in the short-term than doing it themselves.

Advocates of the offset system point to the many world-wide carbon-reduction projects that are funded by the system; the savings to industry (and thus consumers and society at large); the flow of money from North to South; the export of new technologies to developing economies; and how innovation in low carbon technologies has been incentivised. FERN believes that these claimed benefits very rarely exist in reality, and are heavily outweighed by the significant, systemic failure of offsetting to reduce emissions at all, which we discuss in the last section of this paper.

The often quoted figure for the size of the carbon market is US \$ 144 billion. However, this figure is not the amount that goes to projects or transformation of the EU energy infrastructure, it is the size including all primary and secondary trading. The figures that show the revenue (not profit) that goes to the project developers are US \$ 2,678 million for the primary CDM, US \$ 338 million for the voluntary market and US \$ 354 million for Joint Implementation (JI). Even within these figures, the voluntary market's US \$ 338 million may include some secondary trading. In other words, of the US \$ 144 billion carbon market, only US \$ 3,370 million goes to project developers and only a fraction of that will go to communities who host projects.



- Size of the carbon market: US \$ 144 billion
- EU ETS: US \$ 119 billion
- In the magnifying glass (enlarged 8x):
- Primary Clean Development Mechanism (CDM): US \$ 2,678 million
- Joint implementation (JI): US \$ 354 million
- Voluntary market: US \$ 338 million

The size of the offset credit markets

The offset credit market is split between the *compliance market* – serving end-users who have to comply with 'cap and trade' regulations, and the *voluntary market*, serving end users who have voluntarily chosen, for ethical or public relations reasons, to seek to offset their carbon footprint.

The compliance market is subdivided into the Clean Development Mechanism (CDM), where projects take place in the developing world (in countries that don't have a cap under the Kyoto Protocol), and the Joint Implementation (JI) market, which covers projects in the developed world (in countries that do have a cap under the Kyoto Protocol).

The maturing carbon market

The offset credit approval process

Before a carbon offset project can sell its credits, it has to pass through a series of stages to establish how many offset credits it has earned. In the CDM market (the largest offset credit market) the process works like this:

- The owner of the project produces a Project Design Document (PDD) to show how emissions will be reduced, and by how much. PDDs are highly technical documents and are usually sub-contracted to specialist project design consultants. The PDD includes a hypothetical *baseline* (how many emissions would have occurred if this project *didn't* go ahead) and calculates the supposed carbon savings by comparing the hypothetical baseline emissions with the predicted emissions from the completed project;
- Once the PDD is submitted, it goes through a complex and lengthy process of consultation, validation, approval, registration and verification involving several consultancies and auditing firms, before the credits are awarded;
- The project sells these offset credits into the carbon market. In practice, the credits are often sold at a reduced price long in advance of project approval. The reduction in price reflects the risk that some or all of the project's credits may not be awarded.

Similar processes are in place for projects in the JI and voluntary offset markets, though the voluntary market has less extensive processes and is widely regarded as less than transparent and has acquired the reputation of being the playground for 'carbon cowboys'.

Many people still think of carbon trading as a simple process whereby offset providers with credits to sell, or companies with too many/few permits, trade with each other directly. However, the carbon market has deepened or matured (to use the language of traders) significantly over the years, adding a wide variety of buyers and sellers to the original market participants and introducing a broad range of increasingly complex financial products. The size of the carbon market is, to a large extent, now determined by the amount of trading (both for hedging and speculation) in these complex financial products, rather than by the simple transactions described above. Financial speculation – rather than the need to comply with emissions targets – has become the underlying driving force of the carbon market.

In this section we give a brief overview of the kind of trades found in the carbon market, and the institutions now involved in buying and selling.



Different types of market transactions

1. Spot trading

This is the simplest kind of trade to understand. Someone who wants to buy permits or credits pays the going price 'on the spot' to someone who has permits or credits to sell. The risk to buyer and seller is low, as they both know what they are getting in the deal. As price volatility is high however, buyers and sellers cannot easily predict what the value of permits and credits will be in the future.

2. Derivatives

To remove this uncertainty from their future dealings, traders have developed other, more complex *financial instruments*, which mirror practices found in other commodity and financial markets. Called *derivatives*, they are in essence, various different ways of agreeing to buy/sell at specified prices on specified dates in the future.

There are several basic derivative types:

- **Forwards:** an agreement to sell carbon at a future date at an agreed price. Both buyer and seller know what the price will be, and although they might have got a better market price without the forward trade, they have also ensured against getting a much worse price.
- **Futures:** like forwards, but traded through an exchange, which sets the terms and conditions and mediates and underwrites delivery of the trade. The buyer and seller do not have to know anything about each other – the exchange checks credentials and solvency of the parties involved.
- **Options:** one side of the trade pays a fee which gives them the right to buy (or sell) carbon credits or a tradeable commodity at a pre-set price at a particular date in the future. They are not obliged to buy then but they may do so if they choose. Options are used as a cheap form of insurance against risk. The purchaser of the option knows they can get hold of carbon credits at a particular price in future even if the market moves against them. Options can also be used to speculate. The purchaser makes a bet that carbon prices will be at a particular level in future. If they are right they complete the transaction at the specified time and make a profit. If not, all they have lost is the (relatively small) fee they paid for the option to buy at that price. Options are a 'just in case' product often bought by traders who don't expect to exercise them.
- **Swaps:** a swap is a way of speculating on or insuring against price movements in something without having

to own it. With carbon credits and permits, the price is fixed at the time of the trade. Then, at agreed dates in the future, the actual market price is compared with the pre-agreed price. If it is higher, one party is paid the difference between the two. If it is lower, the other party is paid the difference.

Even more complex forms of derivatives are being developed. But because the market is relatively new, most trading in carbon uses one of these four instruments.

3. Over-the-Counter versus Exchange trading

These carbon trades can take place on an exchange or over-the-counter (OTC).

- **OTC trading:** occurs between two independent parties, without a third party underwriting the deal. It is far less structured, less standardised, less transparent, and has fewer safeguards against reckless trading, than exchange trading. There have been calls for greater regulation of OTC trading since the financial crisis of 2008.
- **Exchange trading:** Exchanges are private companies that provide an open market where members can see latest prices for the exchange of products under standard contracts, particularly derivatives. The exchange tries to guarantee an orderly market by ensuring members have the liquidity to cover the contracts they engage in by allowing members to assess and compare prices for the contracts traded on the exchange.

4. Short-selling

Short selling is a gamble on the price of carbon or a tradeable commodity going down. In return for a fee, a trader borrows an asset, promising to return it to its owner at a future date. They then sell the asset at today's price, and bank the money. The hope is that the market price will fall so they can buy it at a lower cost, return the borrowed asset, and pocket the difference. Short selling is often seen as a cause of market instability.

5. Securities

These are bundles of assets, put together and sold in units. They allow investors to spread their money across different products in the market. Securities are rated from 'AAA' to 'Junk' by supposedly impartial agencies, to give investors an idea of how much risk is involved in each security. Unrealistic and biased rating of mortgage-backed securities is often identified as a key cause of the financial collapse of 2008.

Primary and Secondary markets

The initial trading of credits and permits between those who hold them and those who wish to buy them, is called the *primary* market, but these relatively simple transactions account for an increasingly minor part of today's carbon market. As a tradable asset with a variable price, carbon permits and credits have attracted all manner of speculators and investors, buying, repackaging and reselling credits and permits, using the financial instruments described in the box on page 9. As a consequence, the nature of and the motivation for trading has changed significantly. This is called the *secondary* market.

At financial conferences, carbon is being marketed as a new asset class for investors such as pension funds. Some of the biggest buyers of CDM credits are banks such as



22nd October 2008. Jumeirah Carlton Tower. London

This conference *“does not really concern itself with broader climate change issues. ... It is aimed squarely at investment banks, investors and major compliance buyers and is focused on how they can profit today from an increasingly diverse range of carbon related investment opportunities. ... Hybrid and complex carbon credit structured products ... how to identify investor demand from them in the US ... derivative/synthetic carbon products ... carbon linked notes ... for Japanese retail investors ... sub-index arbitrage strategies ... productising carbon ... access channels for producers, ... speculators, proprietary traders and investors. ... The programme features Sindicatum Carbon Capital, NatSource Asset Management, Natixis Environment & Infrastructures (European Carbon Fund / European Kyoto Fund), Credit Suisse, Barclays Capital, IDEA Carbon, New Carbon Finance, ICF International. ...”*

Cashing in on carbon was a real event held in London for traders. The text on this advertising flyer clearly shows that the purpose of such events is not to deal with climate change.

Barclays, Goldman Sachs and JP Morgan. These are not carbon emitters whose emissions are limited by the cap. They are in the carbon market, not to reduce the cost of complying with emissions limits, but to make money. While the compliance users of permits and credits seek price predictability, these new players in the secondary market profit from price volatility, instability, and high asset liquidity – because rapid price changes and high-volume trading are where they can make their profit.

Why carbon trading does not work and cannot be made to work

Carbon trading has not had a smooth ride in its first decade. It has suffered from volatile carbon prices; systematic fraud; unreliable and unverifiable reporting and monitoring; profiteering; and most importantly, global greenhouse gas emissions have continued to rise. Initial estimates of how long it would take to establish fully functional, inter-linked carbon markets among the different trade blocs have turned out to be over-optimistic. Meanwhile the need for a rapid phase-out of industrial fossil fuel use has been growing increasingly apparent. If the fossil carbon economy must, in the short term, be dismantled, then how long can carbon markets continue to function?

/// 30 years from now there better not be a carbon market."

Alan Bernstein of Sustainable Forestry Management Ltd.

Many carbon trading proponents argue that initial problems should be expected as the systems are complex and take in different greenhouse gases emitted from countless sources across a large number of different sectors of the economy. However, an increasing number of climate scientists and economists believe these are not hiccups that will be overcome in time, but fundamental flaws that make carbon trading not fit for purpose. It is FERN's contention that carbon trading will not and cannot provide the systemic changes required to avert runaway climate change. The mechanism by which the cap was set is fatally flawed, the cap has been punctured by the introduction of carbon offsets, while the trading element is at best an irrelevance to climate change, at worst an impediment to restructuring energy infrastructure, and even an excuse for increased emissions. The only clear benefits have been to polluting industries and profiteering carbon traders (see page 14).

The cap is the wrong size

The cap is the only part of 'cap and trade' that actually reduces carbon emissions, so if it is not ambitious enough, runaway global climate change will not be averted. The logical starting point for setting the cap would therefore be to establish the rise in global temperature that can be tolerated without catastrophic results and the CO₂e in the atmosphere that would limit temperature rises to that level. Annual permissible emission levels would then be set at a level that would achieve that target and international negotiations would haggle over the distribution of these remaining permissible emissions permits. For political reasons however, the cap was set by identifying what was already being emitted in the countries that had contributed most to the problem, then allocating permits to these historically highest emitters for 95 per cent of that total. In other words, the setting of the cap was not connected to the primary objective, and was therefore too high.

And this basic problem of excessively large caps continues to plague international climate negotiations. It is clear that the reductions pledged as of January 2010 by industrialised countries are insufficient to bring concentrations to anywhere near the modest 450 ppm mark, let alone the lower levels called for by many NGOs and countries such as the Maldives, for whom 450 ppm would most certainly mean the end of their existence.

The cap is leaky 1

As the cap does not cover all countries or industries, it is very simple to move rather than reduce emissions. Countries from the global North can give the false impression that they have reduced emissions by continuing to consume as much or more than before but moving production to a country outside of the cap area, or importing additional offset credits from countries outside the cap.

A good example is China, whose emissions have risen by up to 25 per cent due to countries from the global North consuming Chinese goods. This 'carbon leakage' gives the impression of national reductions in the industrialised countries whilst global emissions stay the same or rise.

// Our energy footprint has decreased over the last few decades and that's largely because we've exported our industry.' 'The UK's true energy footprint is twice as big as on paper.'

*Professor David MacKay*⁷

The geographical split of quotas also meant it was impossible to fit international aviation and shipping into the cap (due to the difficulty in apportioning emissions on a geographical basis) – a major failing given that together these account for approximately five per cent (and rising)⁸ of emissions world-wide. The cap has therefore failed to put a limit on consumption of fossil-fuels.

The cap is leaky 2

In the vast majority of cases, emission monitoring is inadequate and untrustworthy. Real-time monitoring of emissions is costly and for many sources of greenhouse gases, no such technology yet exists. Almost all carbon emissions are calculated by proxy – meaning that margins of error dwarf the modest changes sought by the current cap. It is estimated that error rates are between 10 to 30 per cent and the high proportion of self-reporting, and low levels of independent verification, exacerbate this risk.

The cap is leaky 3

In addition to the systemic flaw that offsetting is not designed to reduce emissions, offset credits are based on the inherently unreliable notion of *additionality*. Additionality is the supposed net reduction/prevention of emissions delivered by the project, but additionality is never reliably calculated and can never be verified as it involves calculations based on a hypothetical volume of emissions.

For example, even if an existing factory can demonstrate that its CO₂ output is halved, to prove it delivers additionality the project must also show that this halving would not have happened without the additional income from selling the offset credit. To calculate the true additionality of offset credits, you have to combine an estimation of how much carbon they are responsible for emitting versus a complex estimation of what would have happened if the project hadn't gone ahead, in an imagined alternative future. A realistic assessment of approved CDM projects reveals that between 30 and 50 per cent of claimed emissions reductions are not additional at all. For the remainder, additionality can never be verified due to the hypothetical nature of the numbers used in the calculations.

// Offset credits are an imaginary commodity based on subtracting what you hope will happen from what you claim would have happened."

Dan Welch, co-editor at Ethical Consumer Magazine

Carbon trading has rewarded polluters and penalised non-polluters

Polluters have benefited ever since carbon trading theory was first put into practice, beginning with the initial

⁷ www.guardian.co.uk/environment/2009/oct/01/carbon-emissions-david-mackay
⁸ See Second IMO GHG Study, International Marine Organisation, 2009; and Aviation and the Global Atmosphere, Intergovernmental Panel on Climate Change, 2000.

How additionality miscalculations lead to an increase in emissions

Before the cap

An energy utility somewhere in the EU is producing energy by burning fossil fuels. It emitted, say, 100 units of carbon dioxide to produce that energy.

Under the cap

The EU ETS sets a cap on the emissions the energy utility is allowed to release at 95 units of carbon dioxide, but the power plant continues to emit 100 units. To be able to release these five extra units of emissions over and above the cap, the company is given the option to supposedly offset these extra emissions. They pay a company in a country or sector without an emissions limit to implement carbon savings of five units.⁹ They are assumed to be savings that would otherwise not have happened.

On paper, the energy utility in the EU has complied with the cap, with a reduction of five per cent in emissions, even if these did not take place inside the EU. However, experts consider anywhere between 30-50 per cent of registered CDM offset projects to be spurious or non-additional. If the claimed savings of the offset company are not additional, then 100 units of greenhouse gas are still being released into the atmosphere and no reduction has taken place.

If you add to this the considerable margins of error involved in estimating emissions by the proxy measures most energy utilities and companies use to claim savings, it could be that the energy utility is emitting well above 100 units of carbon dioxide, and most certainly more than the 95 units allowed under the cap.

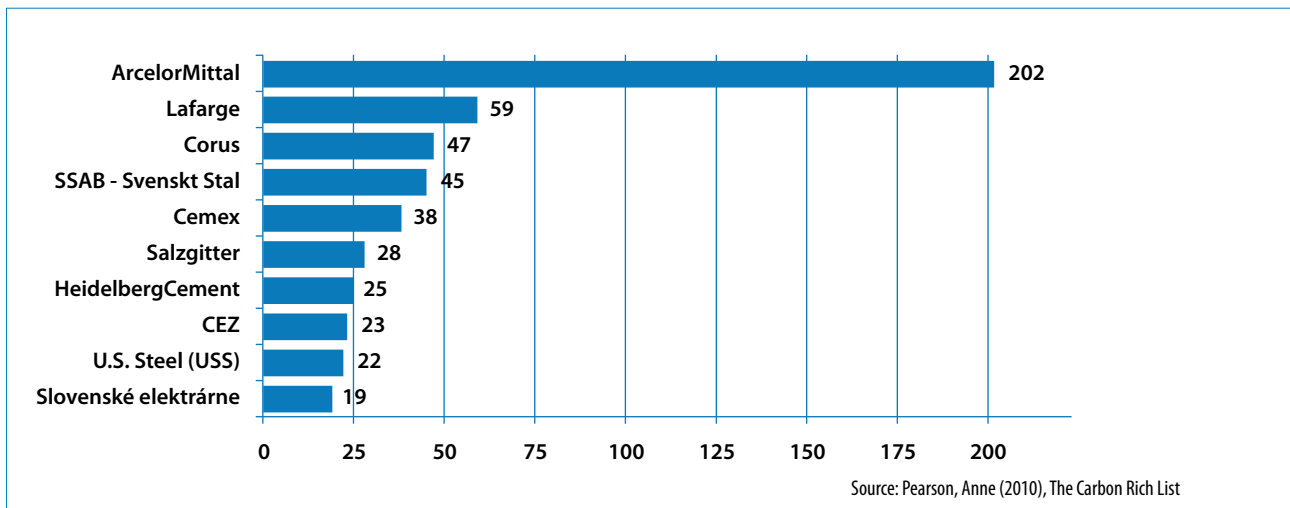
distribution of permits. If a country or industry was a heavy emitter before 1990, it was rewarded with free tradable carbon permits. Industries measured their own emissions and lobbied hard for the highest possible level of allowances. Over-allocation and business-as-usual practices were the inevitable result.

⁹ Many large polluters operating in the global South with registered CDM projects offer such offset credits. Examples include in Brazil: Vallourec do Brasil, Plantar SA, Cargill and Arcelor Mittal. In India, examples include Tata Industries and Suzlon Energies.

In the EU ETS, this free allocation resulted in huge windfall profits for some of Europe's largest greenhouse gas emitters. The ten companies benefiting most from free permits will have gained an estimated €3.2 billion in the period 2008 - 2012 (see page 14). Energy utilities increased electricity prices to cover the potential cost of permits, despite having received them largely for free, and cement and steel manufacturers sold their surplus.

The financial crisis has seen more benefits for over-allocated polluting industries, whilst non-polluting industries have suffered the full brunt of the lack of available credit. By converting the free permits they had 'earned' (ironically, for long histories of high emissions) into cash (by





Value of spare permits held in 2008 by the ten most profitable companies (millions Euro)

selling them) polluting industries had access to cash when banks refused to lend during the financial meltdown in 2008. This option was not available to low-carbon enterprises that had not 'earned' an allocation of free permits. Ironically, and scandalously, the carbon market therefore rewards polluters and gives them an advantage over their low-carbon competitors, such as renewable energy or energy efficiency industries.

Offset credits have also given polluters an opportunity for profit. Offsets reward industry for removing pollutants, so it creates incentives for the unscrupulous to purposefully create more pollution in their production processes, so they can claim credits for destroying them at the end of the process. Often, the value of credits awarded far outweighs the costs of creating, then removing, pollutants within a manufacturing process. Some companies generated hundreds of millions of offset credits as a by-product of installing a relatively cheap incinerator to burn HFC-23, a gas produced by the manufacture of refrigerant gases and air conditioners. The huge profits provided an incentive to increase production or expand existing factories solely for the purpose of increasing the production of the by-product (HFC-23), the subsequent removal of which generated offset credits – an outcome that not only provides no net reduction in emissions, but also risks undermining the phasing-out of ozone depleting substances.

The market cannot find the right price for carbon

The primary goal of carbon trading theory was to attach a cost to pollution and so use market forces to discourage industry from polluting. In reality, the market has consistently failed to find the 'right' price for carbon. The initial free distribution led to an over allocation of permits, exacerbated by a fall in demand as economic production fell in the recession. In April 2006, the price of carbon permits in the EU ETS plunged to just €1 per tonne CO₂e, from a high of €30. According to the market, the cost of pollution was virtually nil, as was the reward for reducing your emissions.

To date the price of carbon has never been high enough to force the necessary carbon reduction measures,¹⁰ but even if it did, in the third phase of the EU ETS for example, 'price triggers' are in place to curb such market forces. If demand for permits were ever high enough to make prices spike, EU Member States have agreed to meet to find ways of bringing the price of carbon down again. So, there are structural checks in place to ensure supply and demand will not be allowed to price polluters out of the market.

10 Estimates vary widely of what that 'right price' would be; many place the lower end of the range at around €80-100. Others argue that we don't really know what the cost to society is of an additional tonne of carbon emissions, so we do not know what the right price is and that "Even if you could price the killing tonne [that would trigger runaway climate change], it is a transaction that should never be allowed. Economics becomes redundant if it can rationalise an exchange that sells the future of humankind." <http://www.neweconomics.org/blog/2009/04/21/carbon-trading-wont-stop-climate-change>

Often, credit-producing schemes sell the rights to their credits before they have been approved or issued. This entails a high level of risk for the purchaser: how many credits will the project be awarded? The higher the risk, the cheaper the price. These projects are bundled by investment banks into *securities* for resale to investors (see box on page 9). Thus the packaging obscures the detail, and unsuspecting customers may not know how much risk they are really taking on, making the market inherently unstable, and carbon prices even more untrustworthy. Many analysts have pointed to the worrying similarities between trading in carbon offset credits and sub-prime mortgage derivatives. They both run relatively high risks of not delivering, yet comprise a disturbingly high proportion of the market. Traders and speculators resist further regulations, whilst others argue that without more controls, there is a possibility of price bubbles,



mis-selling and subsequent catastrophic collapses of the carbon market.

The carbon market is unique and experimental

Unlike other commodity and financial markets (oil, gold wheat, etc) the carbon market was not created to make money from the buying and selling of a tangible product. It was instigated by governments, with the primary purpose of providing a cost-effective way of phasing out, within our lifetimes, the fossil carbon economy – it trades in the absence of a physical commodity (CO₂e *not* produced). It was thus set up to aid and accelerate the phasing out of the very source of the raw material that its trade is based on. The primary purpose of all other markets is to facilitate and sustain the ongoing production and consumption of commodities, and allow people to make a profit from these activities.

“ You’re obtaining not a physical entity or asset but a piece of paper. [...] In effect, you could be falsifying ownership in something you can see in order to sell something that you can’t. And then inserting that into the carbon markets and selling it to people.”

Peter Younger of Interpol

Much of the trading on the carbon market however, has become de-linked from the initial objective of providing an effective cost-management tool for countries and companies with a cap on their greenhouse gas emissions. Furthermore, supply in the carbon market is supposed to decline over time (and the market eventually to be wound down), and it is difficult for regulators to determine whether or to what extent prices are moving due to

normal supply dynamics, excessive speculation, or inappropriate lobbying by industry. Regulators have yet to decide whether the schemes they have designed are to promote price predictability or price volatility as achieving both through the same design will not be possible. If and when the objective to shrink the carbon market conflicts with the profit motive of speculators in that market, which way will the regulator go? These questions remain unanswered. In her report *Smaller, Simpler and More Stable*, Michelle Chan explains that, unlike in other markets, ‘an accurate price is not what best reflects “what the market will bear” – a figure that could be greatly influenced by who is trading – but rather whether the price is high, clear, and consistent enough to generate the intended environmental results.’ It is clear that, to date, carbon trading has not contributed to establishing this ‘accurate price.’

/// There are now already in development, derivatives of CO₂ prices that are so complicated that I do not understand it any more. If you get a reservoir of derivatives which becomes so big that it becomes an industry in itself, that is very dangerous because you can get the tail wagging the dog.”

Feike Sijbesma, chief executive, Dutch chemicals group DSM

Many, including FERN, would argue that what is needed to avert a climate crisis is investment in low carbon infrastructure and a reduction in consumption. Neither a small nor a big carbon market will deliver either price stability and predictability, or the long-term incentives that are needed for this transformation of our fossil-fuel and growth-dependent economies, with their consumption-driven development model.

Trading is a distraction that does nothing to reduce carbon emissions

Trading itself does nothing to reduce emissions. The trading (including offset credits) only exists to allow polluters a reduction in the cost of complying with the cap. The danger is that trading gives the impression of action, while the active component of the scheme (the cap) remains too large to avert runaway climate change. The frenetic activity of the derivative traders in the secondary carbon market, churning and re-churning credits and permits on their convoluted path from original owners to end users, add nothing either – except to their own profits. They do however constitute a new vested interest group with no desire to see the end of the fossil carbon economy – the source of the asset they trade.

Carbon trading delays the structural reforms that the most polluting industries urgently need to initiate if they are to meet longer-term reduction targets and help the transition to a low carbon economy. All carbon trading does is give capped industries and countries a means of meeting short-term reduction targets without making more fundamental, transformational changes. Three years ago, the Stern Report on the economics of climate change argued that each year that we fail to take action, the costs rise substantially. As ‘cap and trade’ is not reducing our carbon output, we are building up unbelievable future costs. By focussing on short-term cost reductions for the largest polluters, carbon trading will in the long run prove to be the more costly approach for everyone.

The growing offset credit market also gives the false impression of action on climate change. By funding emission-reduction technologies, it seems to be presenting a solution. However, every tonne of CO₂e

supposedly saved in credits is subsequently used as a justification for increased emissions elsewhere, generally in an industrialised country. Credit offsetting is a zero-sum game at best, another distraction that even in theory only delivers a nil net reduction in our emissions.

Meanwhile, the more time that is spent trying to refine and fix the problems of the carbon markets, the more careers, jobs and institutions become tied up with carbon trading, and the more difficult it becomes to dismantle. One reason why the first phase of the EU ETS led to windfall profits was that companies and then governments spent a lot of time and energy lobbying for their own narrow interests – career time that could also have been spent on researching, analysing and implementing policies and measures that allow for the just and rapid transition to low carbon economies.

Offset credits do little to help development in poor nations

One defence of the offset credit market is that through the CDM it channels funds and new technologies to the global South, allowing them to leap-frog into low-carbon industries. The reality is that a large percentage of energy projects that sell CDM offset credits would have existed regardless of the CDM, in particular wind and hydro projects. CDM projects tend to supplement, not supplant, old energy technologies. Indeed, in some cases such as a different type of coal power generation, known as super-critical coal technology, they even finance them. What is more, the projects that can make the maximum credits are most likely to get funded so that, for example, clean coal is promoted above solar power.

In 2009, 71 per cent of CDM offset projects were not in heavily-indebted poor countries, but China, India and Brazil. Even there, the beneficiaries are often large, multi-national companies, and the majority of projects subject



to opposition from local communities. Not that it is easy to oppose such large-scale developments: the CDM approval process excludes most civil society as PPDs are very technical documents, generally available only in English. Communities rarely have access to information or the expertise to interpret and challenge these highly complex proposals. Few comments are ever submitted by those most directly affected, and non-technical concerns by local communities are often not addressed or reflected in the auditor's recommendations.

Offsetting does not recognise that not all carbon is equal

There is increasing interest in using forestry projects to offset the carbon dioxide produced by fossil fuels. At first glance, this seems logical: if trees absorb carbon dioxide, then we might plant (or protect) trees to absorb the emissions of industry. This does not however take into account that, for the climate, there is a huge difference between a tonne of CO₂ remaining in the ground as oil or coal, or being trapped in growing trees. The release of each tonne of fossil CO₂ permanently increases the overall burden of CO₂ circulating among oceans, air, soil, rock and vegetation. Once it is released it will not move back into the fossil carbon pool for millennia. Carbon trapped in trees will remain there for, in climate terms, only a few short years – at most a few centuries. A CO₂ molecule from a coal-fired power plant may be chemically the same as a CO₂ molecule from a burning forest, but it is not climatically the same.

There are further reasons why, along with many NGOs, FERN has argued strongly against the inclusion of forest offsets in schemes such as the EU ETS or the Kyoto Protocol.

- The use of forest offsets is yet another demand by the global North on the productive lands of the South;
- They tend to fund mega-plantations that have well-documented negative impacts on forests and forest peoples;
- Halting forest loss requires action against the underlying causes of deforestation. Linking forest protection and reforestation with increased fossil-fuel-emitting activities and with more monoculture tree plantations is a dead end for the climate and forest peoples;
- Measuring the carbon-capture of forests is fraught with uncertainties. Given the accuracy required for a carbon trading scheme, where forests offsets are treated as equal to fossil carbon offsets, it is virtually impossible to know how much carbon is being captured by forests.

It is also important to realise that without drastic cuts in emissions (as opposed to just moving them around, as offsets do) forests will be lost in the long-term as a result of climate change.

Conclusion

The best defence that could be made for the carbon market is that it is an irrelevance to global CO₂ emissions. In fact, it has a real detrimental effect on our ability to respond to the climate change crisis in a timely and appropriate manner. At its worst, it provides a smoke screen for increased levels of emissions.¹¹ The fact remains that after more than a decade of carbon trading, the level of CO₂ in the atmosphere continues to rise by approximately 2 ppm each year¹² and we are still perilously far from finding alternative energy sources to fossil fuels.

There is not one way forward, but many, and tested and proven policy instruments already exist. These include regulation to promote the best available technology; energy efficiency regulation; public investment in low-carbon technologies and infrastructure; and public procurement to aid early disbursement of new low carbon technologies – along with drastic reduction in energy and material consumption, especially in industrialised countries. It is to policies such as these that we must look if we hope to move to a low-carbon economy before catastrophic climate change becomes a reality. *“We have to get this right. If we do, we can still shape our world. If we do not, our world will determine our destiny.”* British Foreign Secretary William Hague, September 2010



11 By the end of the first phase of the EU ETS, total emissions by capped industries had risen by 1.9 per cent.

12 Average annual rise over last 10 years. See http://www.esrl.noaa.gov/gmd/ccgg/trends/#mlo_growth



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