



Carbon Markets

An Introduction to Carbon Markets

Executive Summary



For further information on climate science and why investors should care about climate change please refer to our [‘Climate change and your portfolio’](#) paper.

Paris Agreement

An international treaty agreed at a UN conference in 2015, with commitments from all countries to reduce their emissions and work together to adapt to the impacts of climate change. It also calls on countries to strengthen their commitments over time.

Net Zero

Where emissions released into the atmosphere are equal to those emissions taken back out of the atmosphere, through the application of nature-based solutions or man-made technology.

Offsetting

Carbon offsetting is the process of neutralising your emissions by investing in projects that aim to avoid emissions (e.g. renewable energy) or remove carbon from the atmosphere (e.g. reforestation).

We are becoming increasingly aware of how our actions are damaging our planet, leading to global average temperatures rising. Greenhouse gases (‘GHG’), including carbon dioxide, are emitted from various economic activities, e.g. burning fossil fuels for energy and travel. These emissions trap the Sun’s energy causing the Earth to warm (the ‘greenhouse effect’). Reducing carbon emissions is key to mitigating climate change, and the time for significant action is now. The Paris Agreement is central to our fight against climate change, and **global decarbonisation is critical for the health of the planet, the stability of ecosystems, and to ensure habitable conditions for future generations.**

Carbon markets and their role

As this drive to curb rising temperatures gathers pace, carbon markets are becoming increasingly fundamental to the task of achieving net zero emissions.

As we describe in this paper there are two main types of carbon markets – Voluntary and Compliance. At a high level, the purpose of carbon markets is to put a price on carbon. Voluntary markets allow carbon emitters to offset emissions by voluntarily purchasing carbon credits generated by projects that remove or reduce GHGs. Whereas compliance markets are regulatory in nature and typically incorporate a market where companies trade the ‘right to pollute’.

Why care as an investor?

Whilst carbon markets are still evolving and growing, investors are increasingly considering the opportunities and risks involved. Potential opportunities for investors include:



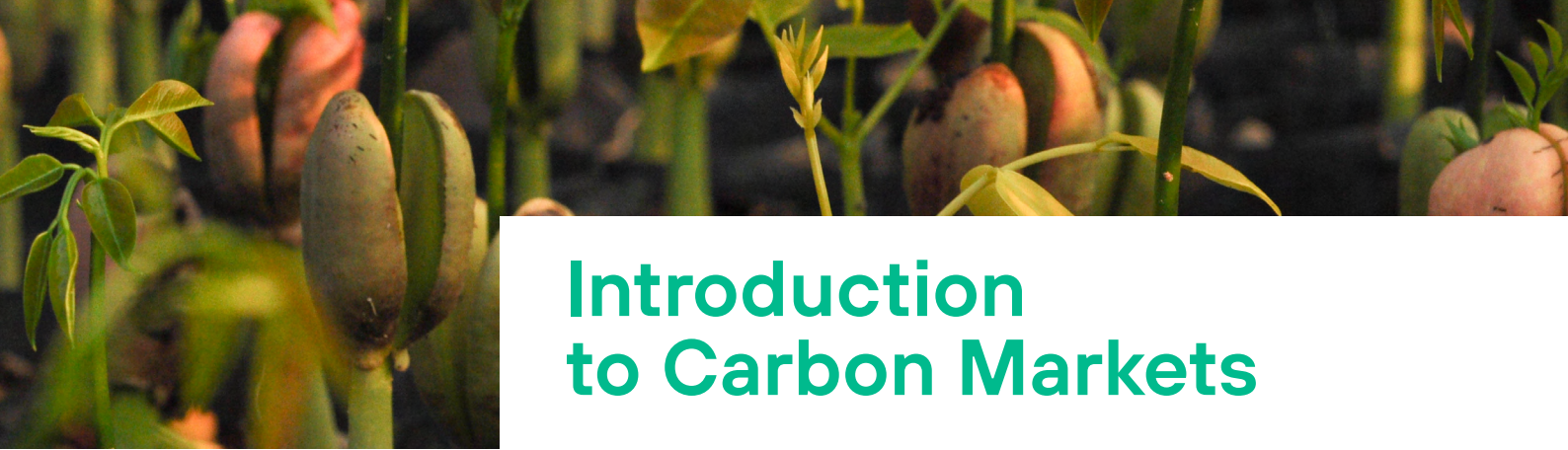
- 1. Offsetting and net zero:** Carbon credits (which enable polluters to emit a tonne of emissions for the price of a credit) can be used for offsetting purposes, once portfolios have decarbonised as far as possible; this enables investors to meet their net zero goals. The focus of investors decarbonising should however be on real world impact with the use of credits for offsetting the ‘last mile’ e.g. residual emissions from hard-to-abate sectors.



2. Investment opportunity:

- **Carbon price hedging:** As markets and methodologies evolve, there may be the opportunity to use carbon markets to hedge carbon price exposure within portfolios
- **Improve portfolio efficiency:** There is the potential that investing in carbon markets may be a strong return generator and diversifier, however there is a degree of uncertainty on these characteristics as the markets continue to evolve

We believe in setting investment strategies that reduce GHG emissions and increase exposure to companies with rigorous transition plans. Carbon instruments can then be used to reduce emissions further and improve the efficiency of your investment strategy. **Do get in touch should you wish to discuss any aspect of this paper and potential opportunities.**



Introduction to Carbon Markets

Carbon capture and storage

Technologies that involve the capture of CO₂ from industrial processes, the transport of this CO₂ via ship or pipeline, and its subsequent permanent storage.

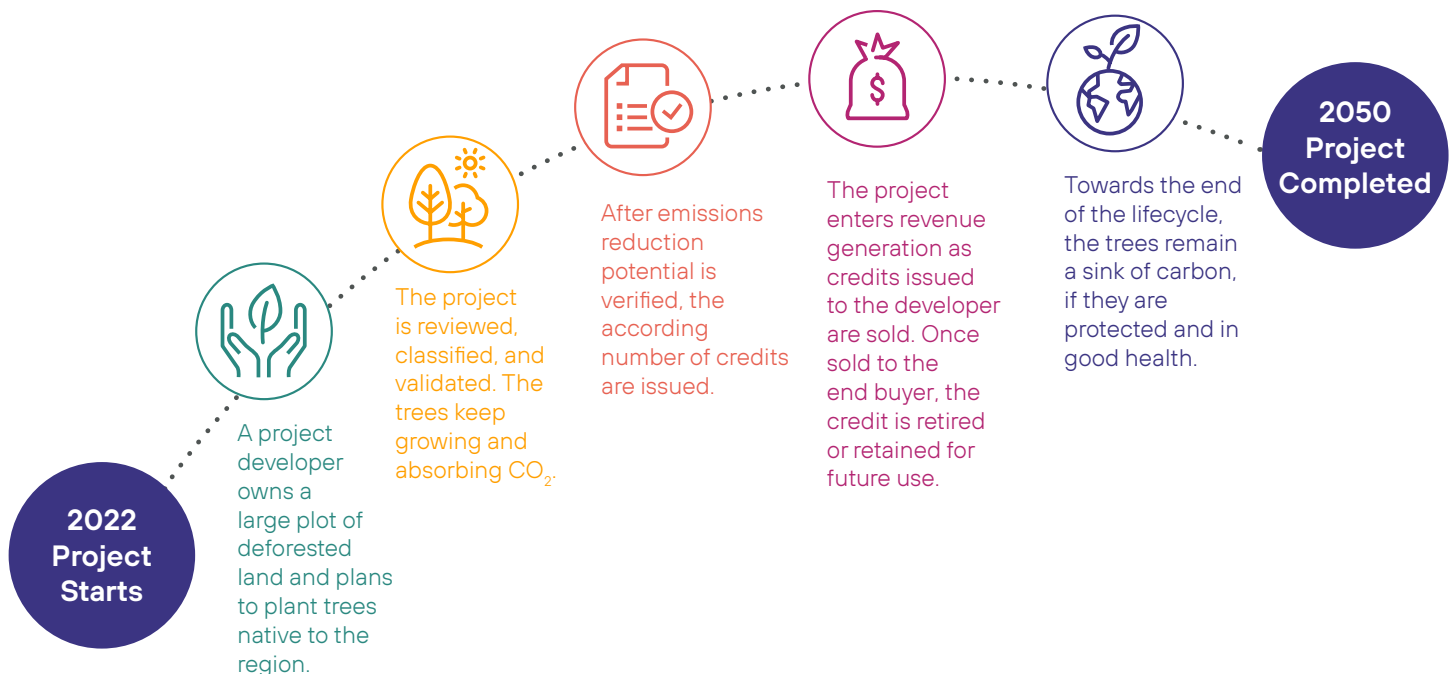
Carbon markets globally have evolved considerably over the past few years and continue to rise in prominence and impact. There are two main types of carbon markets: **Voluntary** and **Compliance**, we touch on each below.

Voluntary Carbon Markets (VCMs)

VCMs allow carbon emitters to offset emissions by voluntarily purchasing carbon credits generated by projects targeted at removing or reducing GHGs from the atmosphere. Each credit is based on an underlying project representing one tonne of CO₂ (or equivalent GHG) being removed or avoided.

- 1. Removal credits:** Projects that remove GHGs from the atmosphere via either man-made technologies, such as carbon capture and storage or via nature-based solutions, such as reforestation
- 2. Avoidance credits:** Projects that reduce emissions compared with the most likely course of action, such as renewable energy

As an example, the graphic below depicts the typical lifecycle of a nature-based carbon credit in the voluntary market.



A key concern of VCMs relates to ensuring the quality of the underlying projects. Currently different methods of assessments are applied, e.g. for verifying emissions offsetting potential of different projects, as well as in assessing the long-term viability of these projects e.g. a planted forest may be prematurely cut down or man-made technologies may require high carbon pricing to be viable.

An aerial photograph of a lush green forest with a dirt road winding through it. In the lower-left corner, a small lake or reservoir is visible, surrounded by trees and a rocky shore. The overall scene is a natural, wooded landscape.

Evolution of VCMs

Whilst VCMs have been in place for over 20 years, these markets remain small and fragmented across different regions¹. With a growing number of companies and investors making net zero commitments, we can expect increasing focus and activity on VCMs, however offsetting alone won't solve the climate crisis. The Taskforce on Scaling Voluntary Carbon Markets ('TSVCM') is a private sector initiative set up to focus on scaling an effective and efficient VCM to help meet the goals of the Paris Agreement. There is rising consensus regarding the need for a global, scalable VCM that can deliver a rigorous, market-based approach for investment in activities that reduce GHG emissions and remove carbon from our atmosphere. The TSVCM cite demand for voluntary carbon credits has increased rapidly, doubling in 2017-2020, with the potential for a 15X increase by 2030 (to align with a 1.5°C scenario). A key focus is ensuring offsetting investments are impactful and the avoidance of greenwashing.

Relevance to investors

It is possible for investors to purchase carbon credits via VCMs to reduce their own emissions; however, considerations should be given to cost and the quality of the underlying project, as well as ensuring wider decarbonisation efforts without reliance on offsetting.

Compliance Carbon Markets ('CCMs')

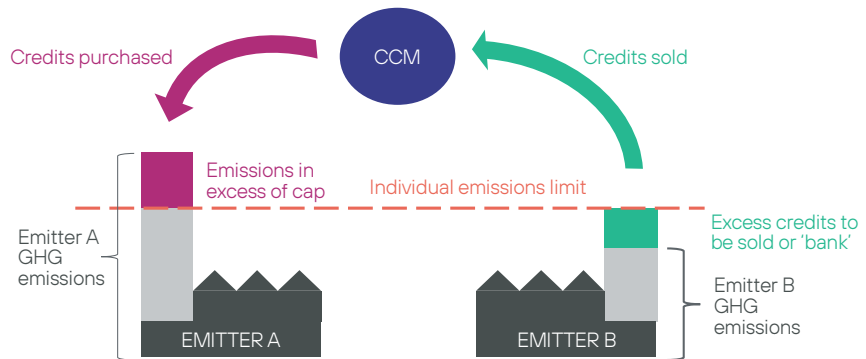
Regulatory carbon policies are typically introduced in two ways:

1. Via **carbon tax** where companies are required to pay a tax for each unit of emissions they produce. This penalises high emitters and incentivises companies to decarbonise and invest in low carbon and efficient solutions. Currently, carbon tax policies only cover c. 5% of global GHG emissions²
2. Via **emissions trading schemes** where companies buy and sell carbon credits, i.e. the 'right to pollute', via a carbon market

¹With the caveat that some CCMs do integrate some ability to offset ²World Bank

Emissions trading schemes ('ETSs')

Within ETSs (also referred to as cap-and-trade), governments set a cap on the amount of carbon credits available across a given industry. Each credit permits a company to emit one tonne of CO₂ (or the equivalent in other GHGs). This cap will typically reduce over time to incentivise companies to decarbonise.



As depicted above, companies are then able to sell any excess credits not used (or hold for future use), and other companies may buy these credits in order to emit above their individual emissions limit (with offsets purchased via VCMs to reduce emissions sometimes allowed). As the supply of available credits falls, we can expect the cost of purchasing these credits to rise, again incentivising decarbonisation. Once used, a credit is retired and removed from circulation.

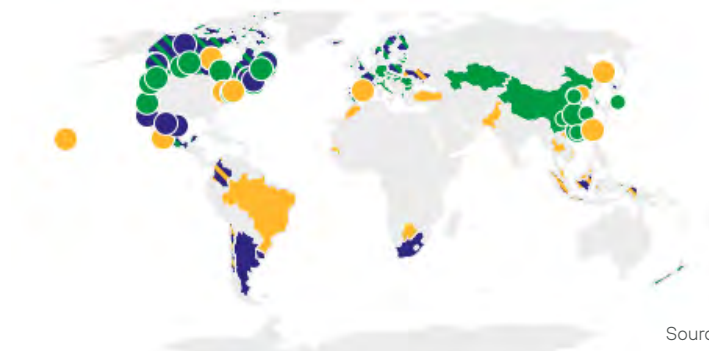
A key concern of CCMs relates to carbon leakage, which refers to the risk of high emitting companies relocating to other markets with less carbon policies/lower carbon pricing in place, and hence potentially impacting GDP growth. A related concern is the European Union (EU)'s carbon border tax on imported goods' carbon content and its potential impacts on developing countries.

Evolution of CCMs

The EU ETS, implemented in 2005, is the largest and most established CCM globally. Many other regions have since followed suit. Today, 68 carbon pricing initiatives across ETSs and carbon tax policies have been implemented globally.

In 2022, these initiatives would cover 12 GtCO₂e, representing 23% of global GHG. The EU ETS remains a leading scheme, with 41% of GHG emissions covered across the jurisdictions. With regulation and attention continuing to rise on global warming, we expect ETSs globally to continue to grow, evolve and increase emissions coverage. We may expect to see the convergence of ETSs globally rather than regional schemes over the coming years; however, this has yet to be confirmed.

Summary map of regional, national and subnational pricing initiatives



Source: World Bank

Relevance to investors

Investor interest in these markets is growing rapidly. Exchange-traded products and carbon futures are available, providing investors with exposure to CCM carbon pricing.

CO₂e

Different GHGs have different impacts on global warming. In order to standardise this, GHG emissions are often reported in tonnes of CO₂ equivalent (CO₂e).

- ETS implemented or scheduled for implementation
- ETS or carbon tax under consideration
- ETS implemented or scheduled, ETS or carbon tax under consideration
- ETS and carbon implemented or scheduled
- Carbon tax implemented or scheduled for implementation
- Carbon tax implemented or scheduled, ETS under consideration

Considerations for Investors

What can you do as an investor?

Whilst carbon markets are still evolving and growing, with challenges to be addressed, we expect to see investors increasingly considering the opportunities and risks involved. There are a number of avenues for investments, for example, there are exchange-traded products and carbon futures that enable investors to access ETS carbon pricing, or investors can purchase voluntary carbon credits directly.



Offsetting and net zero

Voluntary carbon credits can be used for offsetting purposes once portfolios decarbonise as far as possible; this enables investors to meet their net zero goals. The focus of investors decarbonising should however be on real world impact with the use of credits for offsetting the 'last mile' e.g. residual emissions from hard-to-abate sectors. The SBTi science assumes that investors will need to offset their final 10% of emissions to achieve net zero by 2050. These voluntary carbon credits can be bought directly or produced by direct investments in projects that generate carbon credits e.g. reforestation.



Investment opportunity

1. Carbon price hedging

Over the coming years, there may be the opportunity to use carbon markets to hedge carbon price exposure within portfolios. As global carbon prices rise, we may see high emitters' valuations being negatively impacted and hence any portfolios with exposure to these emitters, even if they have rigorous transition plans in place. Holding physical assets such as exchange-traded products and carbon future may enable investors to hedge their carbon price exposure. We may see methodologies evolve to implement carbon price hedging strategies.

2. Improve portfolio efficiency

There is the potential that investing in carbon markets may be a strong return generator and diversifier. Whilst the EU ETS suffered teething problems, reforms have driven price growth of over 200% from the beginning of 2019. We will also see the increasing scarcity of allowances on ETs and tightening emissions regulation, potentially driving momentum upward in carbon pricing. As depicted in the chart, the price of European carbon allowances ('EUA') has grown considerably in recent years. We note, however, that carbon prices need to be pushed higher to make high cost technologies, such as carbon capture and storage, viable. There is of course uncertainty regarding how carbon markets (both CCMs and VCMs) will evolve and hence the corresponding pricing.

We believe in setting investment strategies that reduce GHG emissions and increase exposure to companies with rigorous transition plans. Carbon instruments can then be used to reduce emissions further and improve the efficiency of your investment strategy. **Please contact your Isio consultant or our ESG team (contact information overleaf) if you are interested in discussing carbon markets further.**

Science Based Targets initiative ('SBTi')

The SBTi defines and promotes best practice in emissions reductions and net zero targets, whilst also providing technical assistance to companies setting these targets.





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