DECEMBER 2021

Why effective carbon pricing can be pivotal in accelerating the net-zero transition

Natalia Luna
Senior Thematic Investment Analyst, Responsible Investment

Roger Wilkinson
Head of EMEA Equity and Responsible Investment Research

Carbon pricing is a critical policy tool to promote decarbonisation and achieve CO_2 emission reductions in line with the goals of the Paris Agreement on climate change. We take a closer look at the role of carbon pricing, the range of global carbon pricing schemes and what analysts, portfolio managers and advisors should know about the potential impacts of carbon pricing on companies, sectors and the broader economy.

What will it take to decarbonise in time?

Actions are being taken by governments and industry to catch up and get ahead of critical emissions goals and benchmarks. Catalysts on the road to net zero include national and regional carbon markets and climate regulation, and the development of new clean energy technologies by corporations. In the EU, the Emissions Trading Scheme (ETS) reforms – announced as part of the EU Fit for 55 Package – aim to align the carbon market with interim 2030 climate targets, while enhanced climate regulations will include policies on renewables and energy taxation. In the US, the Biden administration's infrastructure plan considers a wide range of climate policies such as clean electricity standards and fiscal incentives for renewables and clean technologies, which are expected to be enacted in legislation in some form by the end of the year. At the same time, state-level policies are seeking to address carbon pricing and renewables standards. Governments, investors and consumers are also bringing pressure on corporations to make meaningful commitments to decarbonisation.

Carbon pricing: an essential tool to achieving net zero

Carbon pricing will be a key component in achieving CO_2 emission reductions in line with the goals set in the Paris Agreement and in accelerating the transition to net zero. Recognising this, more countries have begun to embrace carbon pricing to limit their emissions. But while carbon prices are rising, current prices remain too low to achieve necessary long-term decarbonisation. The International Energy Agency (IEA), International Monetary Fund (IMF) and World Bank, among others, estimate that a carbon price ranging between $75 and $100 per ton of CO_2 is needed to achieve the Paris Agreement's goals. Today, the IMF estimates that four-fifths of the world's carbon emissions remain unpriced, and that the average global price of carbon is less than $5 a ton.

There are three approaches to pricing carbon: carbon taxes, carbon compliance markets, and voluntary carbon markets or offsets.

1. Carbon taxes are a relatively easy fiscal policy instrument to implement. They set a direct price on carbon by defining a tax rate based on greenhouse gas (GHG) emissions or the carbon content of fossil fuels. With carbon taxes, the carbon price is fixed and there is no overall emissions cap, which means the exact overall emissions reduction will be implied by the carbon pricing.

However, there is often limited flexibility with carbon taxes since polluters can't pay other companies to reduce emissions when it is cheaper to do so. As countries are increasing the level of their commitments to net zero, they are also increasing carbon taxes to help meet these objectives. For example, Norway plans to more than triple its national tax on CO_2 emissions to $237/ton by 2030, while Canada plans to increase its national carbon tax more than five-fold from C$30 to C$170/ton by 2030.

2. Carbon compliance markets are based on a cap-and-trade model where a cap is set on total emissions permitted and reduced over time. A regulator allocates or sells allowances up to the limit set by the cap. Every year entities must retire enough allowances to cover all their emissions.

A penalty mechanism is usually embedded in the event of non-compliance. Carbon prices are market-based – entities with low emissions can sell surplus allowances to larger emitters, and the other way around. In our view, carbon compliance markets are the most effective framework for incentivising and realising emissions reductions (Figure 1).

Figure 1: Carbon compliance practical functioning

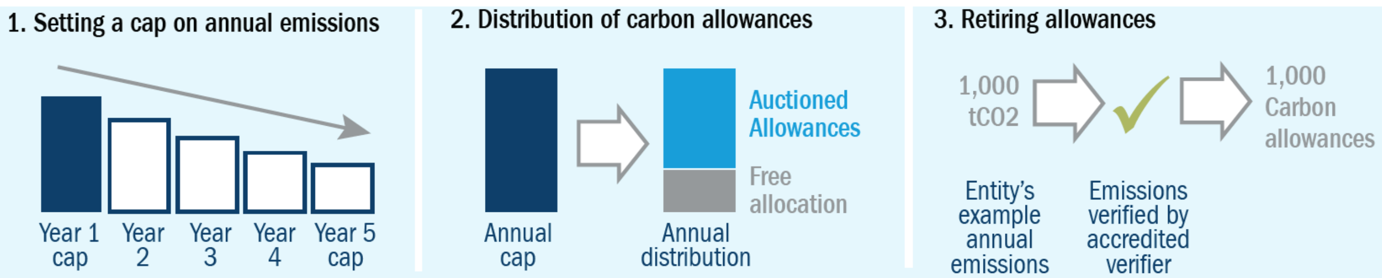
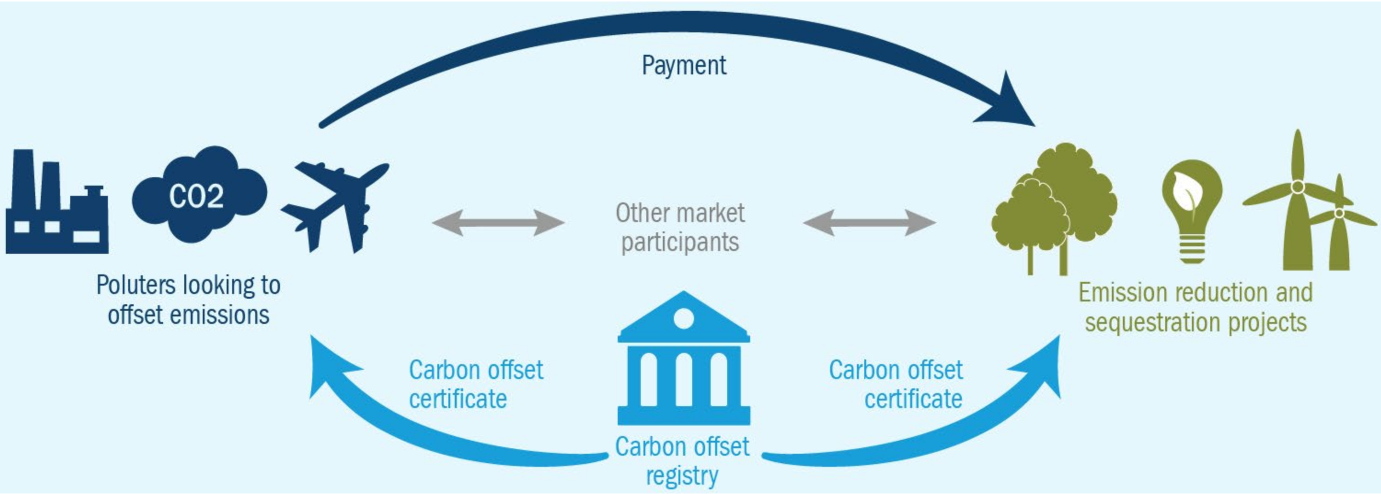


Figure 2: Carbon markets practical functioning



3. Voluntary carbon markets, or carbon offsets, present companies with an opportunity to address emissions they are unable to eliminate. These rest on the concept of companies being able to negate, or offset, the amount of emissions they release. An offset is created by directing funding to projects that reduce, avoid or remove CO_2 emissions from the atmosphere (Figure 2). The carbon price is market-based and depends on the supply of and demand for offsets.

Carbon offset projects include nature-based solutions like reforestation and afforestation, renewable energy and waste disposal. The outcomes need to be measurable, verified and proved effective. One big drawback of carbon offsets is that the market is fragmented and complex with a variety of different registries and methodologies. There is also a lack of standards, which presents the risk of "greenwashing" (ie, providing false or misleading information regarding the extent to which a product/company is environmentally sound). For this reason, carbon offsets are not currently considered to be a rigorous option or replacement for other more comprehensive emissions reduction solutions. Mark Carney's recently launched Task Force for Voluntary Carbon Markets initiative is trying to set standards on this market to contribute to the process of decarbonisation.

The current landscape of carbon markets

There are currently 64 different carbon pricing initiatives implemented globally, covering close to 22% of global GHG emissions. This suggests that not only is the global market not uniform, but that it is also heavily fragmented with a wide disparity in prices. Of these initiatives the EU ETS is the most developed and liquid. Other relevant carbon schemes include the recently launched Chinese national emissions trading system and the California Cap-and-Trade Program.

European Union

The EU ETS is the largest global carbon market and is considered the cornerstone policy for the EU to achieve its climate goals. It is viewed by many as a reference point for other potential programs and could potentially be replicated by other countries that wish to implement effective carbon pricing initiatives. The EU ETS is an entirely regulated cap-and-trade system that was launched in 2005. Carbon allowances are freely allocated (43%) or auctioned (57%), while industrials get around 90% of allocations for free. The EU ETS covers approximately 40% of the EU's GHG emissions and applies to more than 11,000 "heavy-energy-using installations" encompassing seven sectors: power, oil and gas, chemicals, ceramics/glass, pulp/paper, cement/lime, and metals. It was developed in phases, with phase IV starting this year and running through 2030. This seeks to reduce supply and free allowances through an emissions cap reduction

CCS technologies

Carbon Capture and Storage (CCS) technologies will play an instrumental role in decarbonisation. CCS is a process to remove CO_2 that results from industrial processes, power generation and manufacturing from the atmosphere. CCS will be a critical solution for hard-to-abate sectors like cement and steel where there is no easy alternative to reduce emissions from chemical processes.

The IEA estimates that CCS could help reduce around 15% of global emissions by 2050, which is a 100-fold increase from today. CCS technologies differ greatly in form and cost by application and industry, which means different carbon prices, supportive policies and government funding will be needed to make them commercially viable. However, these technologies are likely to remain very costly and higher carbon prices will be needed to reduce the gap.

at a linear reduction factor (LFR) and a market stability reserve to remove the surplus of allowances that has built up over the years.

EU regulations on the carbon market could have global implications. For example, the Fit for 55 EU climate package contemplates the introduction of a carbon border tax, which seeks to address the risk of "carbon leakage" and set a level playing field for EU industrials. This carbon border tax could have implications for non-EU industrials in the form of a levy on imported goods. The debate of this tool may have far-reaching implications and act as a catalyst to drive carbon taxes elsewhere.

China

China has been running emission trading scheme pilots across different regions since 2011. In July 2021 it launched its national ETS. While the scheme currently covers only power generation, it covers almost half of China's total carbon emissions, which equal 14% of total global emissions. The system lacks an absolute emissions cap limit and provides a high level of free allocation of allowances, which results in relatively low prices (under €7/ton), well below European carbon prices.

California

The California Cap-and-Trade Program began operating in 2013. It is the primary method the state is using to achieve its emission reduction plans, covering industries responsible for 85% of the state's GHG emissions. The mechanics of the program are very similar to the EU ETS – it has a cap on emissions and allowances are freely allocated or auctioned. While prices have risen since its inception, at less than $20 they remain relatively low.

Thus far, President Biden has made strong commitments on climate change, including rejoining the Paris Agreement, increasing the target for the new emissions reduction to 55% by 2030, and proposing the green infrastructure plan, which includes the introduction of new clean energy standards. However, Biden has not explicitly expressed public support for a national carbon pricing system, and the US is currently not contemplating implementing one, most likely due to the perceived difficulty of securing bipartisan support. Nonetheless, more states, including Pennsylvania, Washington and Virginia, are committing to ambitious climate targets and also announcing the implementation of state-level carbon pricing schemes.

A framework for analysing the impact of high carbon prices

As carbon prices change it could impact the profitability of different companies. We use the following parameters to assess the potential impact of higher carbon prices on a variety of sectors:

Carbon intensity. We look at the scope of company emissions and estimate the cost of generating this volume of emissions at a relatively higher carbon price. Comparing this cost relative to revenues helps frame the magnitude of the potential impact on profit-generating capacity.

Pass through ability. We analyse the ability of a company to pass on higher carbon costs to customers, which could be a very important mitigating factor. There are companies for which

carbon costs behave like a commodity, including utilities and chemicals such as steel and cement. These companies can fully pass the higher cost through to their end customers. So, despite being high-carbon-intensive sectors, higher carbon prices could have a moderate impact in the overall earnings before interest, taxes, depreciation, and amortisation (EBITDA).

Decarbonisation options. We assess how easily and costly it could be for a company within a specific sector to reduce carbon emissions, thereby offsetting the impact of higher carbon prices. For example, utilities have the potential to reduce emissions through renewables, which would reduce the sensitivity of this sector to higher carbon prices. Other sectors like aviation or chemicals rely on clean technologies that are still in development and/or not commercially available, such as sustainable fuels and hydrogen. Transition to net-zero emissions for these sectors could take longer, leaving them vulnerable to the impact of higher carbon prices.

We use these three lenses to evaluate the potential impact of higher carbon prices and assess whether the issuers within each sector are well or poorly positioned to adapt. Even in carbon intensive sectors, companies that implement immediate and credible CO_2 reduction plans and show strong pricing power should fare better than those that do not.

Bottom line

Net zero is going to impact all companies, in all industries – and this impact is starting now. Investors and their advisors should educate themselves on the potential impacts of carbon pricing on the economy and on companies in which they invest and consider how best to position their portfolios in light of decarbonisation initiatives.

To find out more visit
COLUMBIATHREADNEEDLE.COM

Important Information:

For use by professional clients and/or equivalent investor types in your jurisdiction (not to be used with or passed on to retail clients). This is an advertising document. This document is intended for informational purposes only and should not be considered representative of any particular investment. This should not be considered an offer or solicitation to buy or sell any securities or other financial instruments, or to provide investment advice or services.

Investing involves risk including the risk of loss of principal. Your capital is at risk. Market risk may affect a single issuer, sector of the economy, industry or the market as a whole. The value of investments is not guaranteed, and therefore an investor may not get back the amount invested. International investing involves certain risks and volatility due to potential political, economic or currency fluctuations and different financial and accounting standards. Risks are enhanced for emerging market issuers.

The securities included herein are for illustrative purposes only, subject to change and should not be construed as a recommendation to buy or sell. Securities discussed may or may not prove profitable. The views expressed are as of the date given, may change as market or other conditions change and may differ from views expressed by other Columbia Threadneedle Investments (Columbia Threadneedle) associates or affiliates. Actual investments or investment decisions made by Columbia Threadneedle and its affiliates, whether for its own account or on behalf of clients, may not necessarily reflect the views expressed. This information is not intended to provide investment advice and does not take into consideration individual investor circumstances. Investment decisions should always be made based on an investor's specific financial needs, objectives, goals, time horizon and risk tolerance. Asset classes described may not be appropriate for all investors. **Past performance does not guarantee future results, and no forecast should be considered a guarantee either.**

Information and opinions provided by third parties have been obtained from sources believed to be reliable, but accuracy and completeness cannot be guaranteed. This is an advertising document. This document and its contents have not been reviewed by any regulatory authority.

In Australia: Issued by Threadneedle Investments Singapore (Pte.) Limited ["TIS"], ARBN 600 027 414. TIS is exempt from the requirement to hold an Australian financial services licence under the Corporations Act and relies on Class Order 03/1102 in marketing and providing financial services to Australian wholesale clients as defined in Section 761G of the Corporations Act 2001. TIS is regulated in Singapore (Registration number: 201101559W) by the Monetary Authority of Singapore under the Securities and Futures Act (Chapter 289), which differ from Australian laws."

In Singapore: Issued by Threadneedle Investments Singapore (Pte.) Limited, 3 Killiney Road, #07-07, Winsland House 1, Singapore 239519, which is regulated in Singapore by the Monetary Authority of Singapore under the Securities and Futures Act (Chapter 289). Registration number: 201101559W. This advertisement has not been reviewed by the Monetary Authority of Singapore.

In Hong Kong: Issued by Threadneedle Portfolio Services Hong Kong Limited 天利投資管理香港有限公司. Unit 3004, Two Exchange Square, 8 Connaught Place, Hong Kong, which is licensed by the Securities and Futures Commission ("SFC") to conduct Type 1 regulated activities (CE:AQA779). Registered in Hong Kong under the Companies Ordinance (Chapter 622), No. 1173058.

In Japan: Issued by Columbia Threadneedle Investments Japan Co, Ltd. Financial Instruments Business Operator, The Director-General of Kanto Local Finance Bureau (FIBO) No.3281, and a member of Japan Investment Advisers Association.

In the USA: Investment products offered through Columbia Management Investment Distributors, Inc., member FINRA. Advisory services provided by Columbia Management Investment Advisers, LLC. Collectively, these entities are known as Columbia Management.

In the UK: Issued by Threadneedle Asset Management Limited. Registered in England and Wales, Registered No. 573204, Cannon Place, 78 Cannon Street, London EC4N 6AG, United Kingdom. Authorised and regulated in the UK by the Financial Conduct Authority.

In the EEA: Issued by Threadneedle Management Luxembourg S.A. Registered with the Registre de Commerce et des Societes (Luxembourg), Registered No. B 110242, 44, rue de la Vallée, L-2661 Luxembourg, Grand Duchy of Luxembourg.

In Switzerland: Issued by Threadneedle Portfolio Services AG, Registered address: Claridenstrasse 41, 8002 Zurich, Switzerland.

In the Middle East: This document is distributed by Columbia Threadneedle Investments (ME) Limited, which is regulated by the Dubai Financial Services Authority (DFSA). For Distributors: This document is intended to provide distributors' with information about Group products and services and is not for further distribution. For Institutional Clients: The information in this document is not intended as financial advice and is only intended for persons with appropriate investment knowledge and who meet the regulatory criteria to be classified as a Professional Client or Market Counterparties and no other Person should act upon it.

Columbia Threadneedle Investments is the global brand name of the Columbia and Threadneedle group of companies.