COLUMBIA THREADNEEDLE INVESTMENTS

Climate change and investing

Why effective carbon pricing can be a pivotal tool in accelerating the transition to net zero carbon emissions

Natalia Luna
Senior Thematic Investment Analyst
Responsible Investment

Roger Wilkinson
Head of EMEA Equity and
Responsible Investment Research

Changes in policy and business and consumer behavior may not be enough to meet aggressive decarbonization goals on their own.

Carbon pricing is a critical policy tool to promote decarbonization and achieve CO2 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 decarbonize in time?

Actions are being taken by governments and industry now to catch up and get ahead of critical emissions goals and benchmarks. (Read more about the history and status of climate change emissions regulations here.) 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 U.S., 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 year end. 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 decarbonization.

Carbon pricing: An essential tool to achieving net zero

Carbon pricing will be an essential tool in helping accelerate the transition to net zero and a key component in achieving CO2 emission reductions in line with the goals set in the Paris Agreement. Recognizing 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 decarbonization. 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 CO2 is needed to achieve the Paris Agreement's goals. Today, the IMF estimates that four-fifths of the world's carbon emissions remain un-priced, and that the average global price of carbon is less than $5 per ton.

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

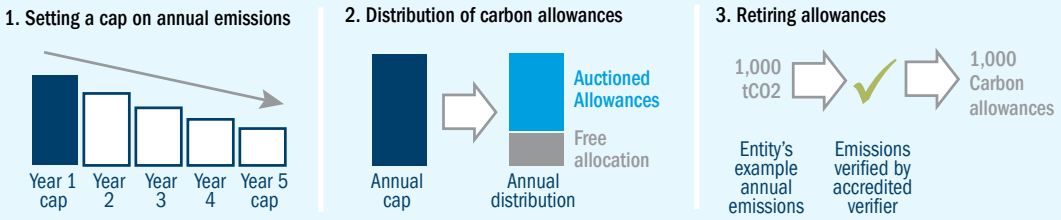
1. **Carbon taxes** are a relatively easy fiscal policy instrument to implement. They set a direct price on carbon by defining a tax rate based on greenhouse gas emissions or the carbon content of fossil fuels. With carbon taxes, the carbon price is fixed and there's no overall emissions cap, which means 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's 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 CO2 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.

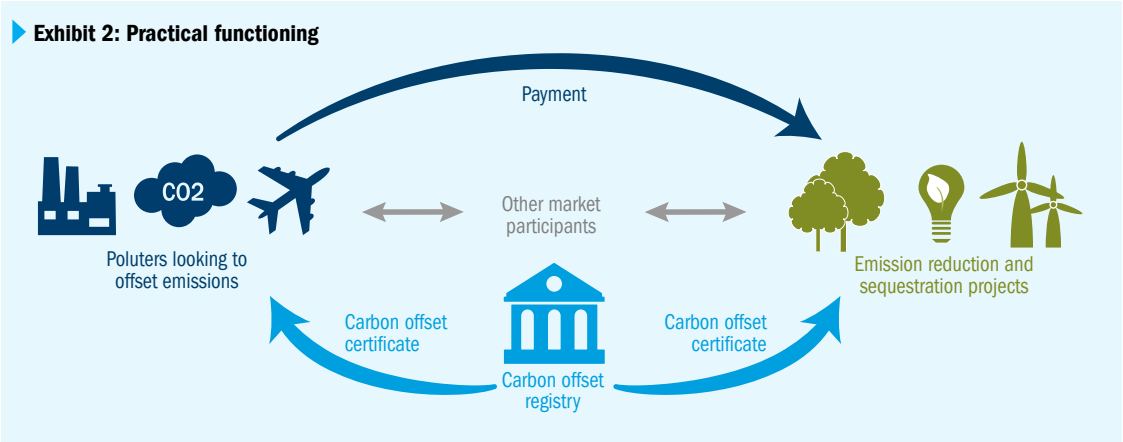
   Carbon prices are market-based — entities with low emissions can sell surplus allowances to larger emitters, and the other way around. In our view, carbon compliance markets are the most effective framework for incentivizing — and realizing — emissions reduction (exhibit 1).

Exhibit 1: 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 CO2 emissions from the atmosphere (exhibit 2). The carbon price is market-based and depends on the supply of and demand for offsets.

Exhibit 2: Practical functioning



The types of 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" (i.e., 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. The recently launched initiative by Mark Carney, the Task Force for Voluntary Carbon Markets, is trying to set standards on this market to contribute to the process of decarbonization.

The current landscape of carbon markets

There are currently 64 different carbon pricing initiatives implemented globally, covering close to 22% of global greenhouse gas (GHG) emissions. This suggests that not only is the global market not uniform, but that it's also heavily fragmented with a wide disparity in prices. Of these initiatives, the EU Emissions Trading Scheme (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 phase reduces supply and free allowances through an emissions cap reduction 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 latest EU climate package (Fit for 55) 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.

CCS technologies

Carbon Capture and Storage (CCS) Technologies will play an instrumental role in decarbonization. CCS is a process to remove CO2 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 ~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.

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's 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, they remain relatively low — below $20.

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 U.S. 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 are also announcing the implementation of state-level carbon pricing schemes.

A framework for analyzing 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 analyze 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 EBITDA.

- **Decarbonization 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 CO2 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 decarbonization initiatives.

columbiathreadneedle.com

COLUMBIA THREADNEEDLE INVESTMENTS

YOKU (10/21) 3878139
exp. 10/22