Carbon and emissions market challenges

Deb Ryan dives into the role that environmental infrastructure will play to create the mechanisms necessary for the carbon and emissions markets to scale

Getting to a world of zero emissions, in theory, involves a relatively simple formulation. We need to assess and understand the source of emissions, determine what we can do to reduce those emissions, and then select what carbon instruments can be used to offset the final, hard-to-decarbonize elements. In practice, this process is complex and involves huge uncertainties.

With an increased focus on decarbonizing everything, it can be easy to miss what potentially could have the biggest impact on delivering carbon reductions: getting the markets right.

To date, the market has not been able to advance a carbon-accounted price on its own despite signals of interest. A key challenge for global markets to incorporate emissions into asset and commodity valuations has been the absence of a consistent accounting framework.

Similarly, the carbon credit market has also struggled to advance. When companies offset their emissions, their methods of assessing emissions as well as the credits being claimed as offsets are met with scrutiny. While it is important to get emissions accounting correct, the potential of reputational risks has meant that many market participants have held back from executing on their carbon and emission reduction targets.

Global markets are interested in incorporating carbon into asset and commodity valuations, and there has been a rise in the number of carbon-accounted trades. However, questions about emissions accounting and use of credits still persist. While there has not been any evidence of a premium for lower carbon commodities in these transactions, they are nevertheless a clear signal of interest.

In the interim regulations like the EU's Carbon Border Adjustment Mechanism (CBAM) coming into effect and similar rules advancing in other geographies – such as the UK's recent announcement of its own CBAM regulation – will see low carbon premiums arise as a direct reflection of CBAM liabilities.

Inconsistency and differences between greenhouse gas estimates limit comparability and utility

Sources of differences		
System boundaries		• GHG estimators may choose (and for perfectly reasonable reasons) different boundaries, stages and exclusions • Guidance and alignment around direct emissions is good • Choices around some indirect emissions are a source of inconsistency
Co-products		• Processing (refining) crude oil results in many diverse co-products • Different choices are being made around excluding certain co-products when looking at the total GHG emissions of crude oil
Units		• Guidance suggests reporting of emissions on CO2e in units reflective of the sector • Sectors are not homogenous and differences are occurring within the same sector, which limit comparability
Quality		• Guidance suggests assessment of data quality should occur with discussions of data quality being provided for major sources • Data quality can be impacted across the life-cycle and qualitative statements limit users' ability to compare, contrast or understand estimate quality

Source: S&P Global Commodity Insights

One of the key challenges to advancing a price differential based on the relative carbon intensity of commodities will be obtaining alignment on how emissions are estimated and reported. Although improvements are being made, different approaches and assumptions continue to be developed that result in the potential for different estimates for the same asset.

Presently, there remains no universal agreement on what emissions or which parts of the value chain are included in a reported estimate. Questions like, "are scope 2 and scope 3 emissions included?", and "does scope 3 include full combustion?" remain unanswered.

It is also worth noting that "emissions" refer not just to carbon dioxide, but also to methane and other greenhouse gases. These different gases are combined back to a single number, a carbon dioxide equivalent, a process that involves a further set of assumptions that can vary between sources and providers.

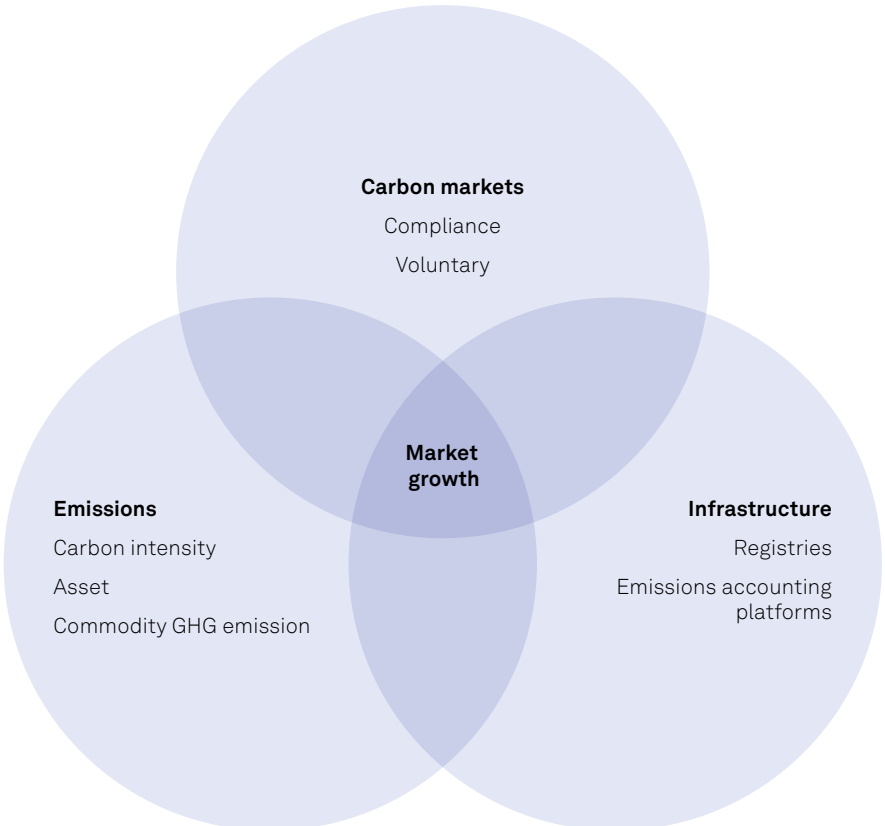
How can users trust the data when they are often represented with inconsistent information? Emissions data is, in effect, in a "pre-metric" era, where towns and villages define basic weights and measures according to a local standard; this requires a Napoleonic revolution.

Outside of regulated compliance markets, voluntary carbon markets have also seen challenges related to quality, bringing into question how emission reductions and avoidance are determined and verified. This challenge around quality has been particularly prevalent in the nature-based avoidance space.

In 2023 we saw a significant decrease in credits that were issued in this category. With all the different types of credits available in the market, and the significant range in prices, the added complexity for companies to buy the "right" carbon credits for their emissions reduction claims and ensuring that the credits are valid for their claims are some of the key risks that are keeping companies out of the carbon markets for the time being.

Scaling carbon and emissions markets

The relationship between carbon markets, carbon management and the infrastructure needed in the marketplace



Source: S&P Global Commodity Insights

With all the challenges associated with estimating emissions, verifying carbon reduction and avoidance claims for credits, corresponding adjustments to avoid double counting and allocating emissions appropriately to final products, it is no wonder that the market is having a hard time finding consensus, which is slowing down the market's ability to scale. This is where market infrastructure plays a critical role. Environmental registries can be structured to address some of these challenges, by, for example, cross checking for double counting or tightening the linkage to verification systems.

The standards used in environmental instruments are already working to improve their methodologies, and independent third-party assessments of these may help build confidence. Verification infrastructure is also improving – through analysis of satellite remote sensing or more in-depth third-party investigation. This is part of the rationale behind S&P Global Commodity Insights Meta Registry™. The Meta Registry links together diverse registries and liquidity venues, and provides users with consistent access to cross-checking, methodology evaluations and verification data.

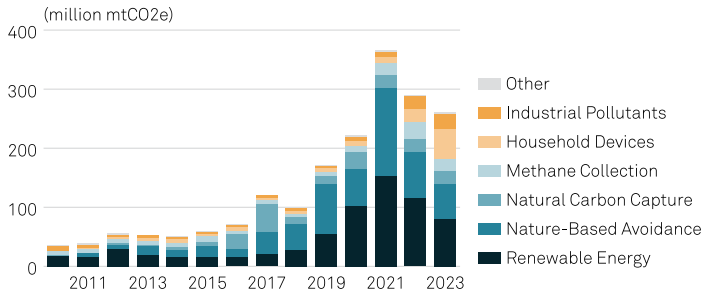
These solutions, no doubt combined with others, will allow the market to adopt standards that will enable carbon differentiated trading, environmental instruments for low carbon solutions, and consistency in the carbon markets to reduce the risk to buyers.

Certified emission reductions will be one way for producers to verify their emissions claims. This is possible both in a regulated space, as well as voluntarily. Creating this kind of registry would solve issues on how to drive consensus with emissions accounting and allow for comparison to regional or country level benchmarks, as well as provide much needed transparency in claims. The biggest challenge for this area is still on the demand side, so regulations, like CBAM, is needed to see this space grow.

Carbon accounting platforms, like Agora, provide buyers and sellers a transparent way to share and interrogate emissions information of specific supply chains, so that the carbon intensity at the point of transaction can be trusted and transacted on. S&P Global is the data emissions provider for the Agora platform.

There are significant risks and uncertainties in the rapidly evolving emissions and carbon markets space. Consistent emissions accounting methods, quality transparency, registries and platform infrastructure for the global markets are needed to address the uncertainty and risk that exist.

Voluntary carbon market credit issuances by project type



Note: Other credits mostly include industrial energy efficiency and fuel switch
Source: Verra, Gold Standard, ACR, CAR

Understanding how these three aspects – emissions, carbon markets and infrastructure – work together to bring transparency and allow more companies to confidently participate on a global scale is essential for the market to transact on carbon and accelerate the transition. ■

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