



Carbon Markets 2.0

Addressing Pain Points,
Unlocking Impact

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Please note, an acknowledgement here does not imply an endorsement of the views presented.

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For more information on MSCI Carbon Markets, please visit www.msci.com/carbon-markets

About GenZero

GenZero is an investment platform company focused on accelerating decarbonisation globally. Founded by Temasek, we seek to deliver positive climate impact alongside long-term sustainable financial returns by investing in opportunities with the potential to be nurtured into impactful and scalable solutions.

Driven by a common purpose to decarbonise for future generations, we recognise the need for a holistic and integrated approach to achieve a net zero world. At GenZero, we adopt a flexible investment approach across three focus areas to drive climate impact: (i) nature-based solutions that help protect and restore our natural ecosystems while benefiting local communities and biodiversity; (ii) technology-based solutions that deliver deep decarbonisation impact; and (iii) carbon ecosystem enablers which refer to companies and solutions that support the development of an effective, efficient, and credible carbon ecosystem.

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*Carbon markets are at a **critical inflection point**.*

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After a rapid phase of growth in recent years, the carbon market is experiencing multiple headwinds. Important questions around the integrity of the carbon markets, especially in terms of the quality of carbon credits and their legitimate use as part of corporate decarbonisation efforts, have emerged.

The world is not on track to keep global warming under 1.5°C or even 2.0°C. Carbon pricing globally is not at levels that can sufficiently shift behaviour and cut emissions to the extent required to keep our climate commitments. Even as new solutions are being developed to fundamentally decarbonise our economies, they cannot come soon enough at a scale and price to make a meaningful difference. To catalyse near-term funding for both technology- and nature-based climate solutions, we need the carbon markets to work.

Rather than throw the baby out with the bathwater, it is important for us to confront shortcomings in the carbon market honestly and develop approaches to make it more robust and credible. This will require different stakeholders to come together and develop consensus around quality benchmarks, agree on what claims corporates can make to give them an incentive to continue financing climate solutions, and rebuild confidence.

Coming from an investor perspective, this paper contributes to several ongoing industry initiatives to develop solutions and scale the carbon markets in a credible and constructive manner. It synthesises the views of many important industry partners along with our own experience investing in this space.

We have to keep trying because the stakes are high.

Failure to act is not an option.

Frederick Teo

CEO



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The urgency of climate action is clear, and carbon markets are an efficient way to accelerate decarbonisation. The first Global Stocktake has confirmed that we are not on track for a 1.5°C world. Despite ambitious net-zero pledges covering 88% of global emissions and 92% of global gross domestic product (GDP), emissions continue to rise, and a significant emissions gap has persisted. Putting a price on carbon will provide a strong economic incentive to reduce emissions, and by implementing carbon pricing in the form of carbon markets, finance can be channelled to the most cost-effective abatement opportunities while supporting flexibility, scalability, and innovation.

The voluntary carbon market (VCM) supports additional abatement and channels finance into critical areas that lack funding. While compliance markets can be effective, implementation of a high-ambition carbon tax or emissions trading system (ETS) is often difficult due to political and economic considerations. The VCM therefore helps to support decarbonisation in sectors beyond the reach of compliance schemes. Projects that monetise carbon credits through the VCM can use carbon revenues to protect nature, conserve biodiversity, and support sustainable development.

Carbon markets are at a critical inflection point. They need to scale up rapidly, but multiple pain points are holding them back. Recent macroeconomic conditions, combined with increased global scrutiny and a lack of regulatory clarity, have significantly dampened demand. This uncertainty is particularly pronounced around Article 6 and its implications for national commitments. Furthermore, variability in credit quality and a lack of standardisation have exacerbated these challenges, impeding the market's growth and credibility.

A multi-pronged strategy is required to unlock the full potential of carbon markets. This includes providing clear guidance on the usage of credits, aligning market participants on quality benchmarks, enhancing market transparency and liquidity, and garnering government support. We do not want a large-scale low-integrity market, but we also do not want a small-scale high-integrity market. We see several key areas where more attention is required in the short term:

- **Evolve the discourse on supply-side quality.** There needs to be a better understanding of what constitutes 'quality' in carbon markets. The misconception that some project types are inherently higher quality needs to be dispelled (i.e. removals are better than reductions, tech-based are better than nature-based solutions). The industry needs to shift away from discussing quality in general to specific quality considerations.
- **Provide pragmatic incentives for corporate carbon credit use.** It is clear that corporates will not move at scale if only motivated by charity. The system should provide the appropriate incentives to encourage greater participation from corporates. Having quality controls is important, but it must be balanced with pragmatism.
- **Leverage technology to build a robust and scalable market.** Legacy systems in carbon markets, such as analogue registration processes, can be improved greatly by digitalisation. Technology is a critical lever to scale the market, enhancing interoperability between the various emerging systems while safeguarding rigour.

The future of carbon markets hinges on seeking common ground. Improvements in methodologies, harmonisation of standards, and advancements in technology can help carbon markets to evolve into robust, effective instruments that contribute significantly to our climate goals. This evolution can also improve support for biodiversity conservation and sustainable livelihoods. Collaboration among governments, corporations, and market participants is essential to bring about the evolution of carbon markets and to deliver impact at scale.

Figure 1  **Pain points and unlocks for carbon markets 2.0**

PAIN POINTS

UNLOCKS AND SOLUTIONS

Supply-side Issues



Quality & Environmental Integrity

- Under-appreciation of quality nuances
- No common definition of quality
- Increased costs to ensure quality
- Harmonise quality dimensions and metrics
- Adopt ICVCM's Core Carbon Principles
- Appropriately price and value quality



Transparency & Benefits Sharing

- Insufficient benefits for local communities
- Lack of price transparency
- Marketing does not match reality
- Improve disclosures by project developers
- Optimise risk allocation in the value chain
- Be conservative and realistic with claims



Process Efficiency & Accuracy

- Analogue and inaccurate MRV
- Surge in interest exposes bottlenecks
- Slow project and methodology approvals
- Adopt digital MRV and remote sensing
- Digitalise and streamline processes
- Consolidate similar methodologies

Demand-side Issues



Corporate Incentives

- Credits cannot count towards targets
- Reduced brand value of "carbon neutral"
- No urgency to act in the short term
- Allow flexibility to use credits for shortfalls
- Shift to more accurate and nuanced claims
- Design incentives that reward action today



Reputational Risk of Carbon Credits

- Fear of greenwashing allegations
- Difficulty choosing the right credits
- Difficulty communicating the role of credits
- Regulators, meta-standards provide cover
- Ratings agencies support due diligence
- Support VCMI to develop balanced claims



Buyer Preferences

- Over-simplification of what quality is
- Uncertainty if CA credits are required
- Arbitrary preferences for vintage, removals
- Better appreciate quality nuances
- Clarify that CA is not mandatory for VCM
- Deepen analysis beyond project type level

Structural Issues



Scrutiny & Criticism

- Increased global scrutiny and attention
- Broad-brush criticisms affect entire market
- Skewed coverage of negative issues
- Appreciate inherent evolution in the market
- Focus discourse on specific quality issues
- Showcase the benefits of carbon projects



Regulatory Uncertainty

- Lack of guidance from regulators
- Countries changing export restrictions
- Conflicting and overlapping regulation
- Clarify where CA is mandatory or optional
- Publish clear NDC and Article 6 guidance
- Avoid overlap with other industry standards



Fragmentation & Constant Change

- Old projects become stranded assets
- Diverse and evolving carbon standards
- New national and international systems
- Minimise abrupt and reactive changes
- Periodic reviews for improvements
- Adopt digital tech for interoperability

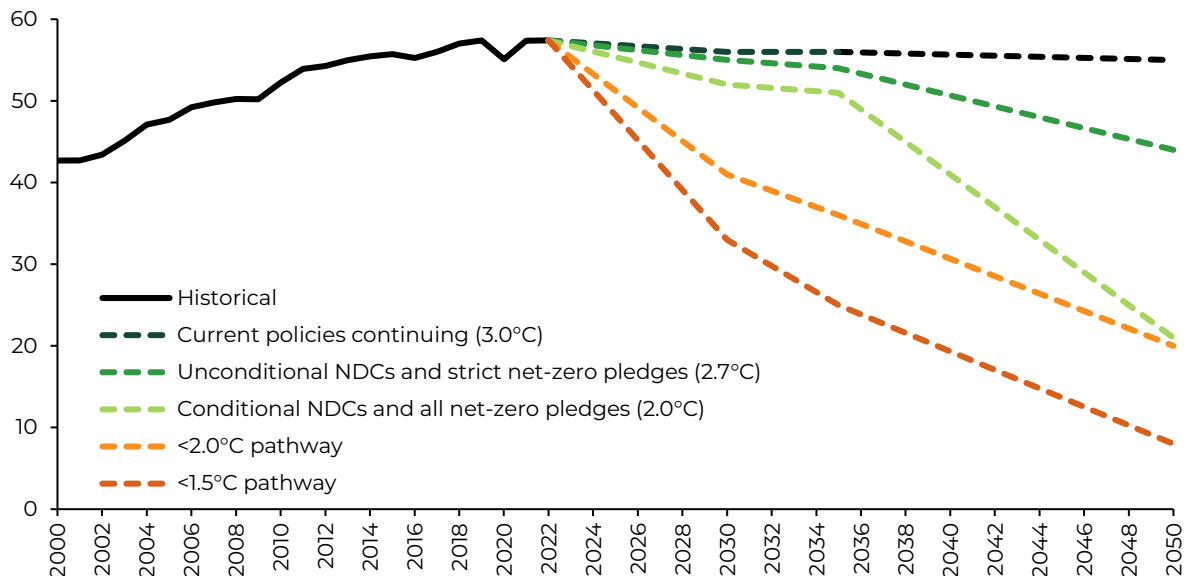
An essential tool in the fight to decarbonise

The call for climate action has never been stronger, but there are still gaps in ambition and action. Today, 88% of global greenhouse gas (GHG) emissions and 92% of global GDP are covered under net-zero emissions pledges¹. Corporate climate commitments also increased more than 40% from June 2022 to October 2023, with net-zero targets now covering more than 1,000 Forbes Global 2000 companies with an aggregate annual revenue of US\$27 trillion².

However, despite country and corporate net-zero pledges, there remains a glaring "ambition gap" between what governments have pledged and what is required for a 1.5°C pathway. **Figure 2** shows that current unconditional Nationally Determined Contributions (NDCs) imply an ambition gap of 22 GtCO₂e in 2030³. In many countries, there is also an "action gap" between policies done or planned and what is necessary to meet targets.

Figure 2 Global decarbonisation is off-track with a significant emissions gap in 2030

Global GHG emissions and projections under assumed scenarios, GtCO₂e



Projections based on median estimates from UN Environment Programme (UNEP) in 2030, 2035, and 2050
Source: UNEP³

Reducing emissions has proven extremely difficult. Global GHG emissions have continued increasing, reaching a record high of 57.4 GtCO₂e in 2022³. A sectoral analysis of climate action found that only one of 42 indicators are on track to meet its 2030 target to limit warming to 1.5°C⁴. Coal consumption reached an all-time high in 2022⁵, while deforestation was 21% higher than targeted in 2022 and off-track from the pathway needed to eliminate deforestation by 2030⁶.

¹ Net Zero Tracker (2023) Net Zero Stocktake 2023

² Net Zero Tracker (2023) New analysis: Half of world's largest companies are committed to net zero

³ UNEP (2023) Emissions Gap Report 2023

⁴ Systems Change Lab (2023) State of Climate Action 2023

⁵ International Energy Agency (2023) World Energy Outlook 2023

⁶ Forest Declaration Assessment (2023) 2023 Forest Declaration Assessment: Off track and falling behind

This difficulty underscores the urgent need for carbon pricing. Carbon pricing provides an economic incentive for emissions reductions. GHG emissions are a negative externality that are often not considered within the boundaries of decisions made at the country, company, or even individual level. To incentivise decarbonisation, emissions must be regulated, priced, or both. There is broad consensus that carbon pricing acts as an economic signal allowing market participants to pursue emissions reductions.

Carbon markets are an efficient way to implement carbon pricing. Markets enable:

- **Cost-effectiveness:** The balance of supply, demand, and price typically results in an efficient allocation of resources to deliver the highest abatement for the lowest cost.
- **Flexibility:** Expands the suite of decarbonisation options beyond the company- or country-level boundary, providing more levers for companies to reduce emissions.
- **Scalability:** Carbon markets are governed by rules and regulations which can be toggled up or down in accordance with the level of ambition, to facilitate scaling.
- **Innovation:** Potential carbon revenues and/or cost savings from lower emissions-related liabilities drives the development of technologies and practices that reduce emissions.

High-ambition compliance markets are difficult to implement due to political and economic constraints. While carbon tax and ETS mechanisms offer a structured approach to mitigation, implementing them has its challenges. Some governments tend to adopt a more measured approach in setting a high carbon price as it could impact the competitiveness of local businesses and lead to higher costs of living. A high carbon price is likely to face greater resistance in emerging markets where political priorities are often focused on economic growth. Moreover, abatement options may be limited within the jurisdiction, and the carbon prices needed to support emissions reductions could be above the costs that can be absorbed by the economy. For example, Singapore faces land and other natural resource constraints and is unable to tap nature-based solutions at scale domestically to reduce emissions.

International carbon trading can facilitate the efficient allocation of resources for mitigation among the 'haves' and the 'have-nots'. Some countries are better endowed with resources (e.g., renewables, land, forests, coastlines) which can deliver low-cost abatement at scale. International cooperation under Article 6 of the Paris Agreement underscores the importance of carbon markets in facilitating cost-effective global emissions reductions. A study by the International Emissions Trading Association (IETA) and the University of Maryland to model the economics of Article 6 showed that if savings from a cooperative implementation of NDCs using Article 6 were reinvested in increased ambition, global mitigation could be more than doubled⁷.

A high-integrity VCM can inspire innovation, spearheading more robust carbon credits for both voluntary and compliance use cases. In addition to delivering verified direct climate impact, the VCM can also support the development of rules and regulations regarding the use of carbon credits in compliance markets. The VCM can be a sandbox for regulatory innovation, where is flexibility for market participants to innovate within appropriate guiding principles and guardrails. For instance, countries such as Japan and Thailand are using the VCM to trial regulation and sensitise stakeholders as a step towards developing compliance markets. The VCM can also fund

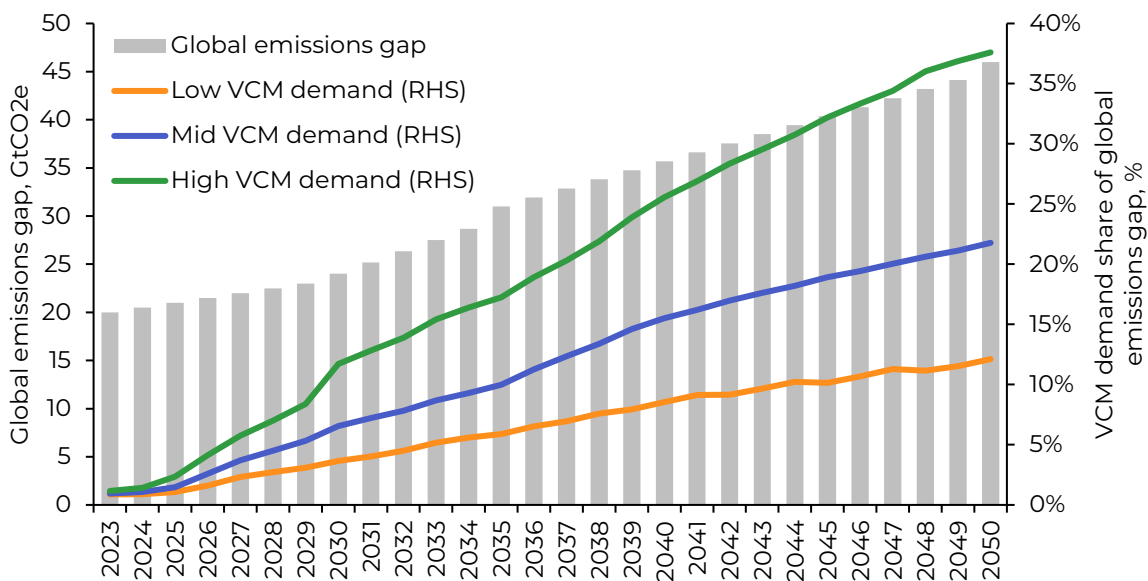
⁷ IETA, University of Maryland (2023) Modelling the Economics of Article 6: A Capstone Report

innovation in technology-based climate solutions that would be infeasible to regulate and too nascent for government funding.

The VCM complements compliance markets to deliver additional abatement. Compliance schemes are usually aimed at emissions-intensive sectors such as power generation, iron and steel production, and petroleum refining. The VCM facilitates investments into emissions reductions in sectors beyond the reach of compliance schemes, such as agriculture and forestry. In jurisdictions where compliance carbon markets are difficult to implement, the VCM provides a way to channel carbon finance from corporate carbon credit buyers to support mitigation activities within the host country. The VCM has the potential to deliver additional abatement over and beyond what compliance markets would have achieved on their own. **Figure 3** shows the VCM's potential contribution to global mitigation needs up to 2050 under different demand scenarios⁸.

Figure 3 The VCM could help to meet 12-38% of the global emissions gap by 2050⁸

Contribution of the VCM to emissions mitigation, MtCO₂e



The global emission gap dataset is based on UNEP methodology. This methodology considers a 'current policies continuing' scenario, which projects the GHG implications of existing policies and assumes that mitigation policies continue to have similar reduction efforts when extended beyond 2030. The emissions gap is between the 'Current Policies' pathway and the 'Below 1.5°C' pathway (i.e. a 50% chance of staying below 1.5°C in 2100 and a minimum 33% chance of staying below 1.5°C for the remainder of this century)⁹. The 2030, 2035, and 2050 data points are extrapolated to construct a curve that covers the 2023-2050 period to provide an estimate of the yearly emissions gap.

Source: MSCI Carbon Markets, UNEP

Carbon markets channel finance to protect and restore nature. The Agriculture, Forestry and Other Land Use (AFOLU) sector contributed to 13-21% of global anthropogenic GHG emissions in between 2010 and 2019, of which deforestation was responsible for 45%¹⁰. Failure to invest in nature and to prevent or reverse natural loss increases global emissions and worsens biodiversity loss. Natural climate solutions, such as conserving natural carbon sinks, can supply one-third of the

⁸ Estimates of future demand for carbon credits take into account several sources of potential demand, including corporate emissions targets, compliance schemes, international aviation, and shortfalls at the national level under government NDCs. The scenarios reflect different assumptions on the rate of growth in each source of demand.

⁹ For a detailed explanation of 'current policies' and 'below 1.5°C' pathways, please refer to page 24 of UNEP's Emissions Gap Report 2023.

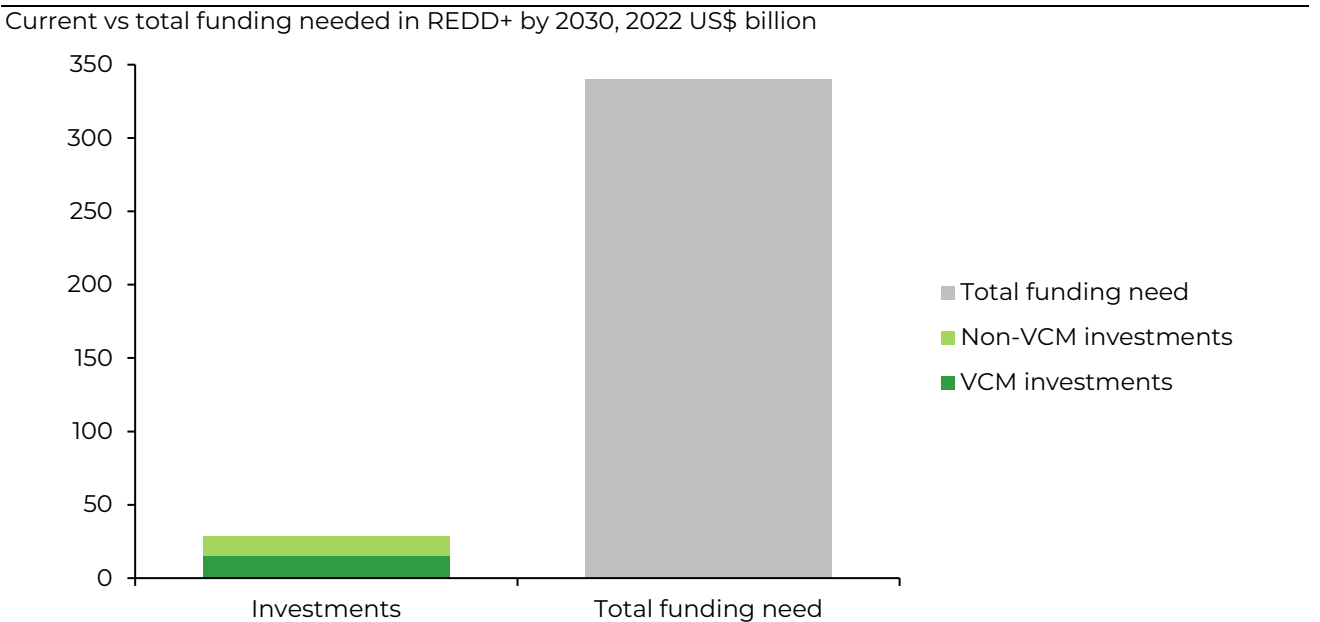
¹⁰ UNFCCC (2023) Land Use, Land-Use Change and Forestry (LULUCF)

mitigation needed by 2030 to meet global climate targets, and are among the few carbon-removal alternatives available today. Around 350 million people rely directly on forests for more than 20% of their income¹¹, and tropical forests are home to 80% of terrestrial species¹².

The VCM has funded more than half of the total investments into Reducing Emissions from Deforestation and Forest Degradation (REDD+) projects, but the finance gap remains large.

MSCI Carbon Markets estimates that US\$7-8 billion has been invested in REDD+ projects between 2015 and 2022, with new capital raises and commitments covering an additional US\$5.3 billion to be invested by 2030¹³. In total this amounts to around US\$13 billion of capital invested and committed for REDD+ projects from VCM projects. In addition to these VCM investments, non-VCM investments in REDD+ projects are estimated to be another US\$13 billion by 2025¹⁴. This sounds like good news for forest protection, but these sums fall significantly short of the amounts needed. As shown in **Figure 4**, it is estimated that an additional US\$340 billion is needed to protect the world’s forests by 2030¹⁵.

Figure 4 Between 2015-2030, an additional US\$340 billion is required to protect the world’s forests, and the VCM has contributed less than 5% of this to date



Source: MSCI Carbon Markets

¹¹ World Bank (2020) Forests for People, the Planet and Climate

¹² UN Department of Economic and Social Affairs (2021) The Global Forest Goals Report 2021

¹³ Data based on MSCI Carbon Market’s internal data, industry survey, review of public announcements of capital raised, and modelled capital investments. Data as of H1 2023.

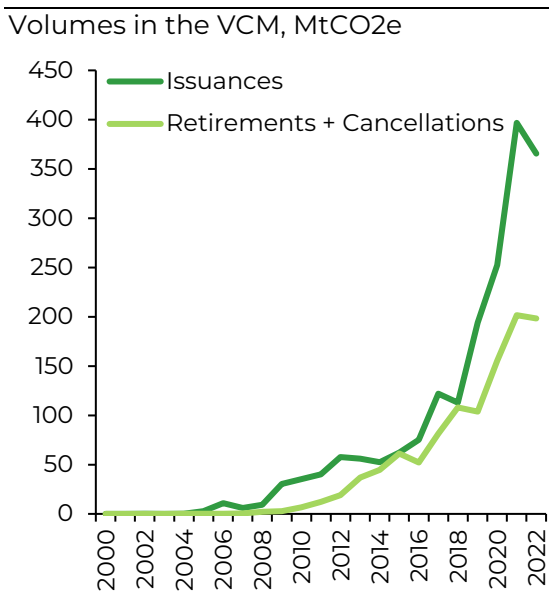
¹⁴ The estimated non-VCM investments in REDD+ projects of US\$13 billion by 2025 is an average value based on estimates from the Climate Funds Update (2022) and the Forest Declaration Assessment (2023).

¹⁵ Estimates for the finance gap for REDD+ vary between US\$10-35 billion per year from English (2023), UNEP (2022), and Chu *et al.* (2023). The estimated finance gap of US\$340 billion by 2030 is an average of the annual finance gaps from English (2023), UNEP (2022) and Chu *et al.* (2023).

Voluntary carbon markets at an inflection point

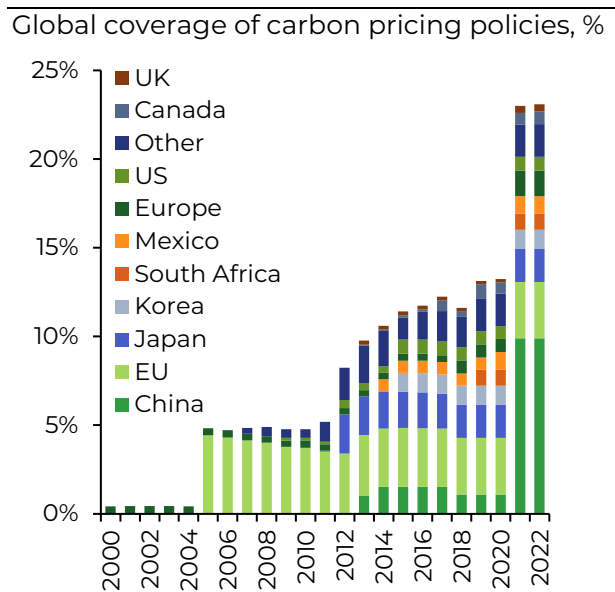
Carbon markets have gained significant traction globally. Over the last five years, carbon markets experienced substantial growth. **Figure 5** shows how volume in the VCM has been accelerating since 2010 despite a pullback in 2022. Annual issuances from the VCM hit 397 MtCO₂e in 2021 and retirements and cancellations peaked at just above 200 MtCO₂e in 2021. **Figure 6** shows the expansion of compliance carbon markets around the world since 2000. There are now 73 carbon tax and ETS schemes in operation covering 23% of global GHG emissions¹⁶.

Figure 5 Growth in the VCM since 2010



Source: MSCI Carbon Markets

Figure 6 Expansion in jurisdictional compliance carbon markets



Source: World Bank¹⁶

Geopolitical and macroeconomic headwinds are affecting the carbon markets, especially the VCM. In 2022, a complex mix of macroeconomic factors impacted carbon credit markets. The post COVID-19 rebound in economic activity and Russia's invasion of Ukraine led to a global energy crisis. Energy costs and supply chain disruptions caused persistently high levels of inflation prompted governments to tighten monetary policies, and the macroeconomic outlook has softened. Grappling with economic uncertainties, several corporates scaled back plans for carbon credit purchases for voluntary purposes.

At the same time, increased global scrutiny has affected the perception of carbon credits. The VCM's potential contribution towards global climate goals is significant. However, carbon markets have been facing significant headwinds in the form of heightened global scrutiny and a litigious movement around the use of carbon credits. Key criticisms include:

- **Supply-side:** Over-crediting, accuracy of baselines, lack of additionality, leakage
- **Demand-side:** Greenwashing allegations, criticisms about carbon-neutral claims
- **Transaction:** Lack of transparency, benefits for local communities unclear

¹⁶ World Bank (2023) State and Trends of Carbon Pricing 2023

The market remains fragmented amidst a flight to quality, with removals-type credits perceived to be higher quality. Amidst increased scrutiny, buyers are increasingly sensitive to the quality of their purchases. This is reflected in the quality premium seen in recent market prices. **Figure 7** shows the wide range of prices observed in 2023, and even within nature-based solutions, nature restoration credits trade at a significant premium to REDD+ credits. While simplifying quality into removals vs reductions may not reflect the full nature of carbon credit quality, this seems to be what the market is currently pricing in.

Figure 7  **Carbon credit prices and retirements vary significantly across different project types**

Carbon credit retirements and prices (January to October 2023)

Project Type	Retirements, MtCO ₂ e	Typical price range, US\$/tCO ₂ e	Estimated market size, US\$ million
Carbon Engineering	1.6	120 – 1,500*	525
Non-CO ₂ Gases	15.0	3 – 6	69
Fuel Switch	1.9	2 – 5	6
Energy Efficiency	16.3	5 – 11	130
Renewable Energy	40.8	2 – 4	126
REDD+	27.5	6 – 10	206
Nature Restoration	13.4	10 – 18	201
Jurisdictional REDD+	1.4	8 – 10	11
Total	118		1,300

*The Carbon Engineering average price is a high-level estimate
Source: MSCI Carbon Markets

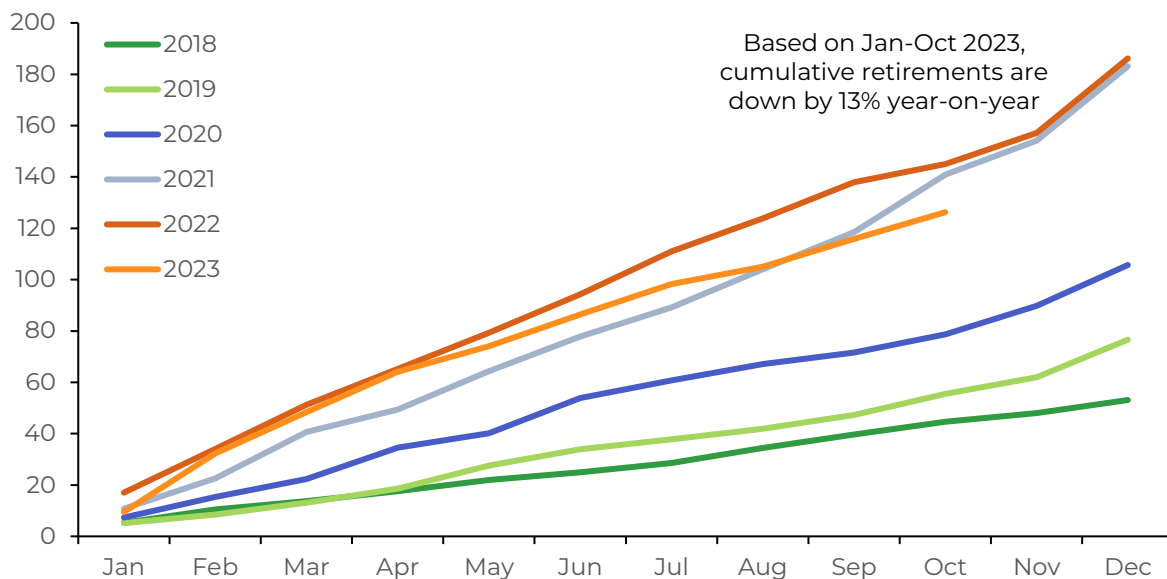
While overall market activity has slowed in 2023, the underlying demand remains resilient.

With the macroeconomic headwinds and the legitimacy of carbon credits being called into question, corporates have scaled back their participation in the VCM. As speculation dries up, trading activity on standardised contracts declined significantly, with volumes on CBL down more than 50% in 1H 2023 compared to 1H 2022¹⁷. However, most of the end-users that were previously retiring credits continue to do so. **Figure 8** shows how retirements are holding up better than trading volumes and are down just 13% year-on-year.

¹⁷ Analysis of data published by Xpansiv in its 1Q 2023 and 2Q 2023 Quarterly VCM Review reports.

Figure 8 **Despite a significant decrease in trading activity, retirements remain resilient**

Monthly cumulative carbon credit retirements, MtCO₂e



Source: MSCI Carbon Markets

Although companies are continuing to retire credits, the heightened global scrutiny around carbon markets has encouraged more “greenhushing”. The negative public perception of carbon credits means that companies using them are exposed to reputational risk. Moreover, with guidance from the Science-Based Targets initiative (SBTi) indicating that corporates cannot use offsets to meet emissions targets, companies risk being unable to meet their initial committed climate targets. This discourages companies from disclosing ambitious targets for fear of being criticised for missing them. This behaviour, where companies choose not to disclose climate targets and carbon credit purchases due to reputational risk, has been termed “greenhushing”¹⁸.

An international compliance market under Article 6 is emerging, generating firm demand for credits with corresponding adjustments (CA)¹⁹. Compared to the VCM, there is a much clearer use case for credits in compliance markets as they can be retired to offset compliance obligations. Article 6.2 and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) provide firm demand indicators that countries and airlines are ready to buy carbon credits with CA (i.e. Internationally Transferred Mitigation Outcomes (ITMOs)).

Countries like Singapore and Switzerland are already actively sourcing for Article 6 credits and have signed many bilateral Article 6.2 cooperation agreements with host countries. **Figure 9** highlights six examples that show the blurring and potential convergence between jurisdictional compliance markets, the VCM, and the international compliance market (Article 6).

¹⁸ South Pole (2022) 2022 Net Zero Report: Net Zero and Beyond

¹⁹ The Corresponding Adjustment (CA) is a tool that countries use to ensure carbon credits are not double counted when they are transferred or sold internationally. When carbon credits are transferred across borders as Internationally Transferred Mitigation Outcomes (ITMOs) to offset emissions in other countries or in international transportation, the host country needs to give up its right to use that credit towards its own NDC. CA is applied by the host country to correspondingly adjust its GHG inventory upwards, ensuring that the emissions reductions are not counted towards its own NDC and can be used by the buyer instead.

Figure 9 Several jurisdictional compliance markets allow the use of ITMOs to meet compliance obligations

Selected jurisdictional compliance schemes and overlap with Article 6

Jurisdiction	Type	Percentage of jurisdiction's emissions covered	Percentage of credits allowed	Permitted use of international credits	Article 6 alignment and intention to use ITMOs	Article 6.2 cooperation agreements
Singapore	Carbon tax	80%	5%	100%	ITMOs will be eligible, aligned with Article 6 accounting period.	14
South Korea	ETS	74%	5%	100%	Aligned. ITMOs will be eligible.	4
California	ETS	74%	4%	50%	Not aligned	0
Colombia	Carbon tax	23%	50%	0%	Not aligned	1
Chile	Carbon tax	29%	100%	0%	Not aligned	3
South Africa	Carbon tax	80%	5-10%	0%	Not aligned	0

"Article 6 alignment" means that ITMOs from other countries can be used to offset a jurisdiction's domestic carbon tax/ETS obligations

Source: MSCI Carbon Markets, World Bank

However, supply is currently limited as uncertainty remains around Article 6 and corresponding adjustment requirements. For Article 6.2, most of the cooperation agreements have been in the form of a Memorandum of Understanding (MOU). Despite multiple MOUs being signed, only 3 projects have been implemented to date. Meanwhile, the first accreditation assessments under Article 6.4 are unlikely to occur until 2026²⁰. Supply for credits with CA will eventually be available, but it is uncertain where and when they will come from.

Despite initial confusion, host countries are now clear that exporting credits without CA for the VCM does not directly affect their NDCs. There were initial concerns among host countries that exporting credits for the VCM would result in them not meeting their NDCs. Several countries have considered, or put in place, a ban on the sale of carbon credits as they weighed the potential implications. This has since been clarified, and the discussions have shifted to the amount of CA credits host countries can export.

Even so, several host countries' shifting carbon market policies are causing regulatory uncertainty. Several countries introduced policies to cover revenue and profit sharing from carbon credit projects. In May, the Zimbabwe government signalled that 50% of carbon credit revenue would go to the state²¹. This was subsequently reduced to 30% in August²². Other countries introduced moratoria on carbon projects and exports. In May 2022, Papua New Guinea signalled that it would impose a moratorium on new REDD+ projects for the VCM to develop domestic regulations²³. These changes introduce regulatory uncertainty which can affect project economics and reduce investor appetite.

²⁰ Quantum Commodity Intelligence (2023) UN implies first Article 6.4 activities unlikely to start until 2026

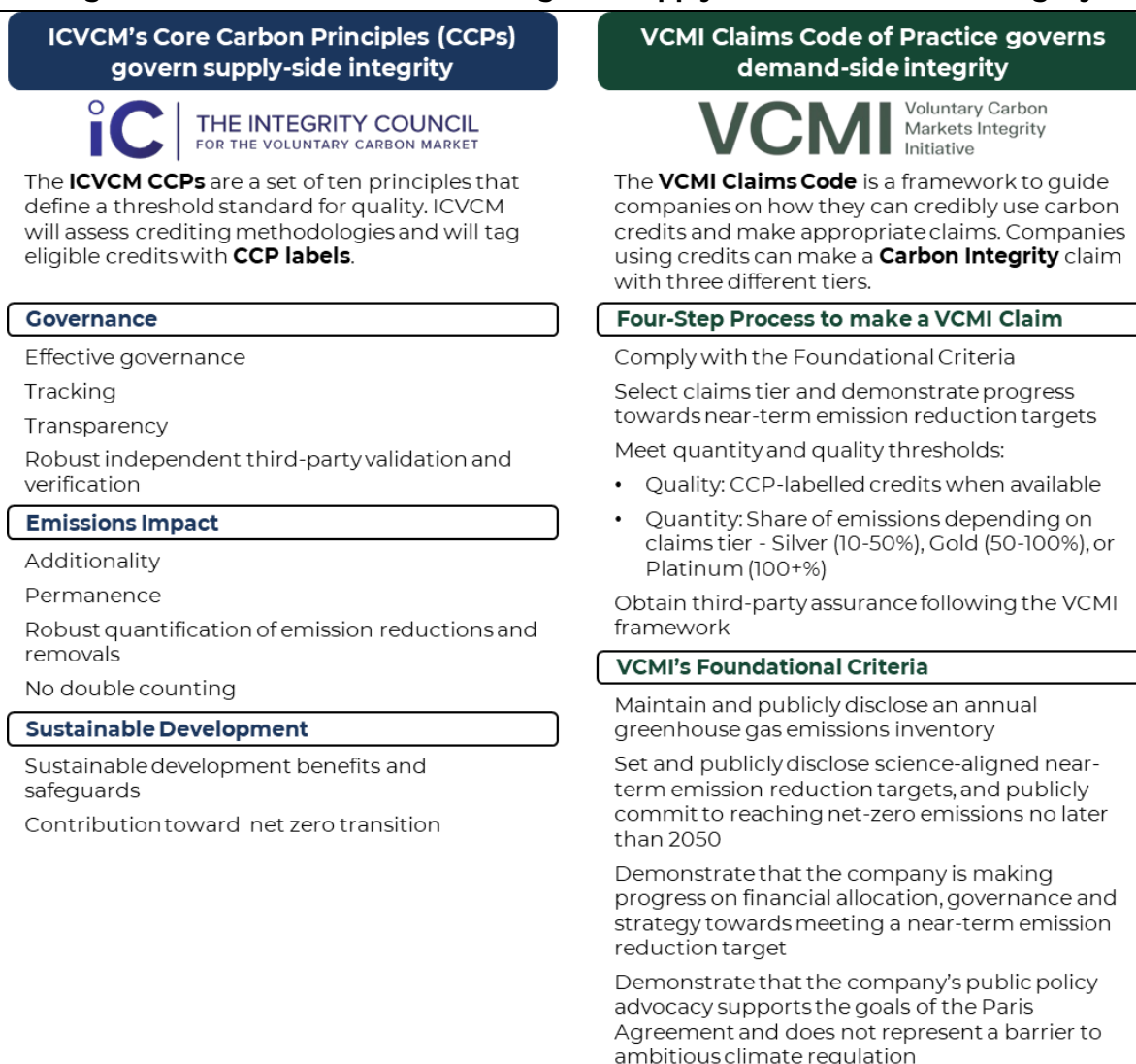
²¹ Bloomberg (2023) Zimbabwe to take over carbon credit trade, void past deals

²² Bloomberg (2023) Rule that rocked global carbon market softened in Zimbabwe

²³ Carbon Pulse (2022) Papua New Guinea to put moratorium on REDD+ projects for voluntary market

Moving forward, key updates to industry standards and meta-standards can reset the groundwork for quality. Recent announcements signal a shift towards defining and assuring quality within the VCM. Carbon standards are revising methodologies and imposing more stringent quality controls. For example, Verra's version 4.5 of the Verified Carbon Standard (VCS) introduced new requirements of an extended minimum permanence monitoring period of 40 years²⁴. Standards are also consolidating older methodologies into newer and more rigorous ones, such as Verra's consolidated REDD+ methodology²⁵. Meta-standards are also stepping up to add an additional layer of quality assurance. The heightened interest in initiatives like the Integrity Council for the Voluntary Carbon Market (ICVCM) and the Voluntary Carbon Markets Integrity Initiative (VCMI) reflects a collective desire for clarity and integrity in the market. **Figure 10** provides an overview of these two important initiatives.

Figure 10 ICVCM and VCMI safeguard supply- and demand-side integrity



Source: ICVCM²⁶, VCMI²⁷

²⁴ Verra (2023) VCS Standard v4.5

²⁵ Verra (2023) VM0048 Reducing Emissions from Deforestation and Forest Degradation, v1.0

²⁶ ICVCM (2023) The Core Carbon Principles

²⁷ VCMI (2023) VCMI Claims Code of Practice

Key issues preventing carbon markets from scaling up

The VCM is confronted with several pain points that hinder its adoption and scaling. These stem from both regulatory uncertainties and the evolving nature of market mechanisms.

Key misconceptions in the carbon markets



Price is a signal of quality



Tech is better than nature



Removal is better than reduction



VCM exports affect NDCs

Supply-side pain points

- **Lack of appreciation for nuances in quality.** The inherent complexity of carbon credits can at times result in a generalisation and oversimplification of quality issues. Broad criticisms create misconceptions about the effectiveness and legitimacy of all carbon credits, which weigh on the entire market and affect investment decisions. The reality is much more nuanced. As the market evolves its understanding of quality, projects can and should be analysed from multiple dimensions and indicators of quality. Extrapolating criticisms from a single project and applying them to the whole market may unfairly penalise the good work achieved by other projects.



One feature of the narrative around carbon markets over the past year is that criticism of a specific segment of the market became perceived as a criticism of the whole market. This did not need to be the case.

Going forward, there is a question about whether the discourse can evolve from quality in general, to more focused attention on specific issues that cause quality problems and that should therefore be addressed. This will better reflect the nuances and diversity in the carbon markets and help to identify areas where work can be done to improve quality.

Hugh Salway

Senior Director, Market Development and Partnerships
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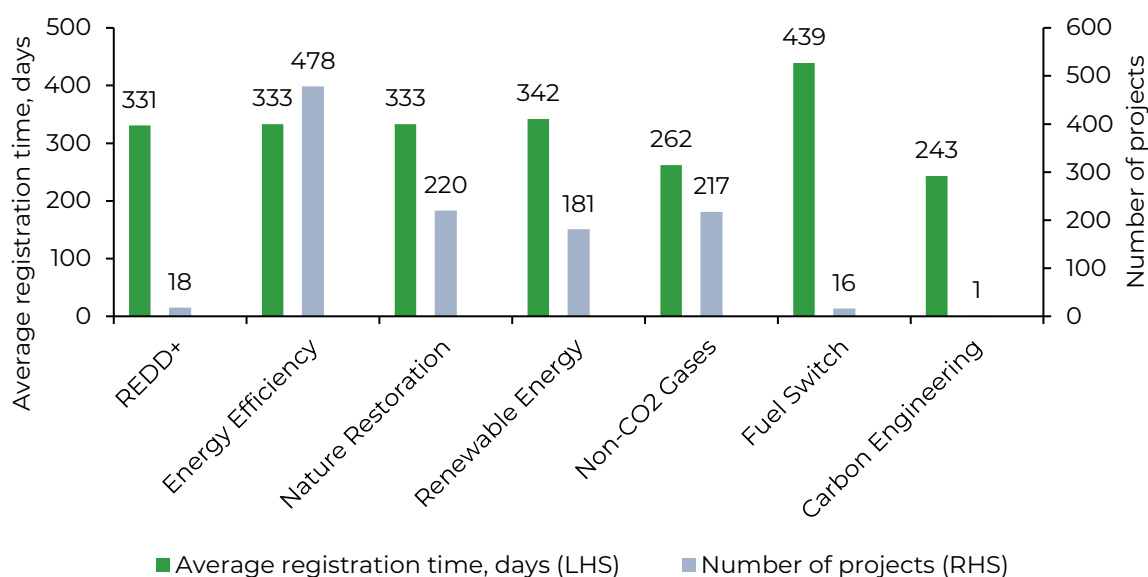
Gold Standard



- **New players are unfamiliar with project registration requirements:** The VCM is witnessing a surge of new players eager to register projects or develop new methodologies. The influx, while positive, has at times led to poorer project documentation. This is large because new carbon market entrants may not be fully versed in the intricate requirements of carbon project development. This lack of experience can lead to errors in project design and documentation, further complicating the approval process.
- **Lengthy approval processes.** The process for getting a carbon credit project approved and registered can often takes close to a year, as seen from **Figure 11**. This delay is caused by a surge in verification/validation requests since 2021/22, thorough vetting to ensure project quality, and analogue processes in some standards organisations. The slow pace of approval can deter project developers, especially in rapidly changing environmental and economic contexts.

Figure 11 The process to register a carbon project is lengthy, averaging 9-15 months

Average time taken to register a carbon project and number of projects registered since August 2021



Analysis includes projects from the following registries: ACR, CAR, GS and Verra. MSCI Carbon Markets has tracked project movement in and out of the pipeline since August 2021. Note that the time taken to register will be strongly skewed to a quicker rate than is the case in most instances. The most accurate data is available for CAR projects, as they provide key pipeline dates for almost all of their data.

Source: MSCI Carbon Markets

- **Lack of precision in estimating abatement.** This can stem from having varying methodologies and assumptions used, the complexity of measuring real-world impacts, and the challenge of accounting for factors like leakage (where emission reductions in one area leads to an increase elsewhere) and permanence. Inaccurate estimations undermine the integrity of carbon credits and can lead to scepticism about their real impact.
- **No universal definition of quality and how to price it.** The market lacks a universally accepted definition of high-quality credits. This uncertainty affects investment decisions and the perceived value of different credits. The quality underpinning a carbon crediting project also seems to go beyond carbon metrics, which is reflected in the price of the credits. Equitable benefit sharing with local communities, protecting biodiversity, and

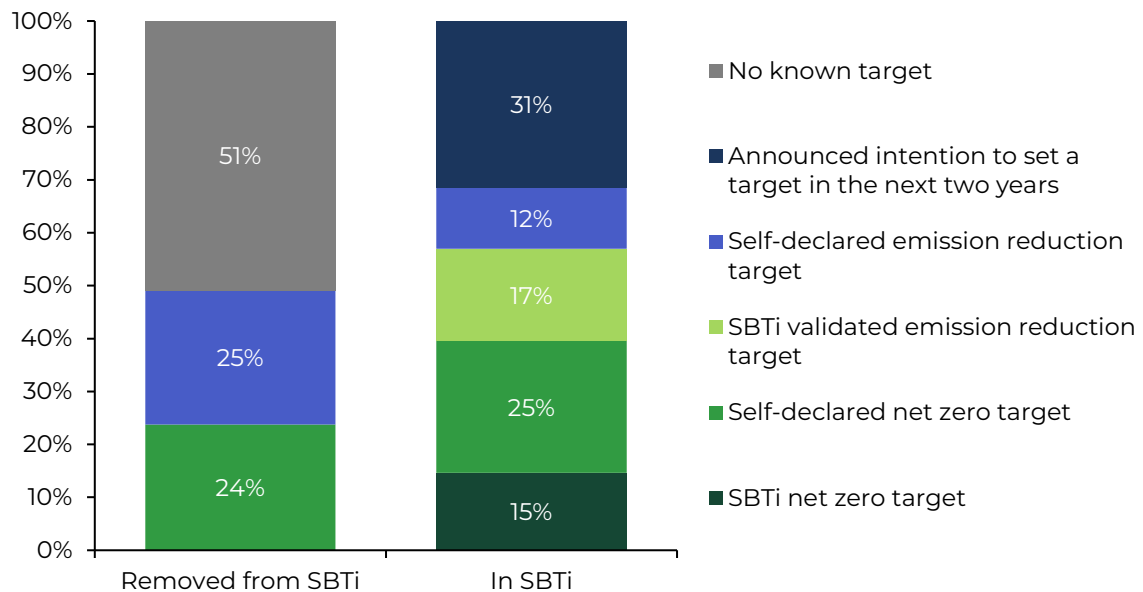
supporting sustainable development are all seen by the market as dimensions of quality. The market also lacks consensus on the correlation between such metrics and price.

- **Frequently changing methodologies.** The methodologies used to quantify emissions reductions or removals are frequently updated to reflect the latest scientific understanding and market realities. While necessary, frequent and drastic changes can create uncertainty for project developers. Adapting to new methodologies often requires additional resources and can delay project implementation.
- **Insufficient benefits going back to carbon projects and local communities.** Despite carbon projects often claiming that they generate substantial benefits for local communities, there have been cases where the reality on the ground is different. The challenge is to balance commercial interests with channelling meaningful benefits back to local communities. There are currently no benchmark levels for benefits sharing, and the lack of transparency on carbon credit prices at the various transaction points in the value chain makes it difficult to assess how much carbon revenues are going back to the project itself.
- **Lack of demand for credits from old projects.** Older carbon projects and credit vintages pose significant challenges for the market. The market tends to perceive them to be low quality, though it is debatable if measuring an old project against today's standards is a fair comparison as standards improve over time. Nevertheless, the market today is faced with an oversupply of credits from old projects. The surplus may resolve itself over time as old credits drop out of the traded market, but this causes concern that the projects of today may not be able to monetise their credits towards the end of the crediting period. The risk of stranded assets for early investors disincentivises action to develop projects today.
- **There is a price to pay for quality, and the need for more stringent project controls affects project economics.** The costs associated with developing and maintaining carbon projects have increased, due to more rigorous monitoring, reporting, and verification (MRV) processes and the necessity of ensuring benefit sharing with local communities. These heightened costs, coupled with longer timelines to realise returns, can deter investments into new projects and affect the overall feasibility of project development.
- **Shifting buyer preferences. There is an observable shift in the demand patterns within the market.** Buyers are increasingly favouring specific types of credits, such as those with stronger co-benefits or those from projects using newer, more innovative technologies. This shift in preference can make it challenging for projects that do not align with these emerging trends to attract investment or sell credits, even as they may still contribute to global mitigation.
- **Host country regulatory risk.** Host countries may impose export restrictions on carbon credits, even if they are used for the VCM. There is also uncertainty if a project is eligible for CA, and whether credits will be authorised. While CA credits promise greater durability and fungibility, they also introduce potential delays in project development and credit issuance due to additional processes.

Demand-side pain points

- Unclear incentives for corporates to use carbon credits to meet decarbonisation targets.** Companies seek to align their investment and financing activities with net-zero commitments. Leveraging carbon credits to meet shortfalls against their emission reduction targets is one example. However, SBTi currently does not allow corporates to count carbon credit retirements towards their decarbonisation targets. Without this flexibility, some companies have withdrawn their SBTi commitments. **Figure 12** shows that half of the companies that have dropped out of SBTi have subsequently not publicly communicated emissions reduction targets.

Figure 12 Half of the companies that were removed from SBTi when the grace period²⁸ ended on 31 July 2023 no longer disclose their climate targets



Data as of August 2023

Source: MSCI Carbon Markets

- Reduced brand value in compensation claims means fewer companies use credits to cover their current emissions.** In the past, there was brand value in the “carbon neutral” compensation claim and a return on investment for participation in the VCM. Carbon neutral claims required companies to retire credits in an amount equivalent to their emissions. This incentive played a big part in enabling the VCM to scale rapidly in 2020. However, the carbon neutral claim has recently been heavily criticised for portraying a false equivalence between reported emissions and claimed reductions. The brand value of the compensation claim has therefore become diminished.
- Corporates using credits lack a robust defence against reputational risk and greenwashing allegations.** Companies engaging in the carbon market face potential criticism and allegations of greenwashing. This has led to increased caution in the public

²⁸ SBTi announced that there would be a 6-month grace period from 31 January 2023 to 31 July 2023 for committed companies to set targets. All companies that had committed to SBTi (since inception) but did not submit their targets on time (within 24 months) and also missed the grace period were subsequently marked as “Commitment Removed” on SBTi’s Dashboard. This analysis was conducted August 2023, which was after the grace period ended and SBTi applied the new status to the affected companies.

disclosure of climate targets and carbon credit transactions. Companies need guidance on how to integrate carbon credits into their broader sustainability strategies at the corporate, product, and supply chain levels. They need a way to show that their use of credits supplements rather than replaces direct action on emissions reductions.

While such guidance is missing in the market today, VCMI is the process of rolling out relevant guidelines with its Claims Code of Practice²⁹. One emerging concept in the market is the move from compensation claims to contribution claims³⁰. However, the brand value of contribution claims is untested and could limit the ability of the carbon market to scale. It could also discourage carbon finance from corporate spending to support new climate solutions.

- **SBTi guidance limits corporate carbon credit demand.** There is a very narrow scope in which SBTi incentivises firm demand for carbon credits. In its corporate net-zero standard, companies must first reduce more than 90% of emissions through internal abatement, then neutralise the remaining with high-quality removals credits³¹.

While the intention is to safeguard the environmental integrity of corporate decarbonisation, the resulting impact on the VCM is twofold: (1) there is no firm demand for reductions credits at all, and (2) even for removals credits there is only firm demand in the long term.

The unintended consequence is that the VCM is unable to deliver finance at scale for near-term high-abatement reductions projects such as avoided deforestation and accelerated coal phase-out. Such credits can also be high quality, and the removals/reductions dichotomy as a quality benchmark is too simplistic. Even for removals, there is no urgency for corporates to act today, and with the long lead time required to develop projects, the market may not reach the required scale by 2050.

Figure 13 shows that, according to analysis from MSCI Carbon Markets, SBTi-led demand for carbon credits could pick up by the mid-2030s and account for approximately 40% of total demand by 2050. Other initiatives are trying to encourage firms to use more carbon credits as part of their decarbonisation efforts in the shorter term. For example, VCMI is proposing a new Scope 3 flexibility claim which would allow corporates to use carbon credits towards a proportion of their scope 3 emissions targets³².

²⁹ VCMI (2023) VCMI Claims Code of Practice

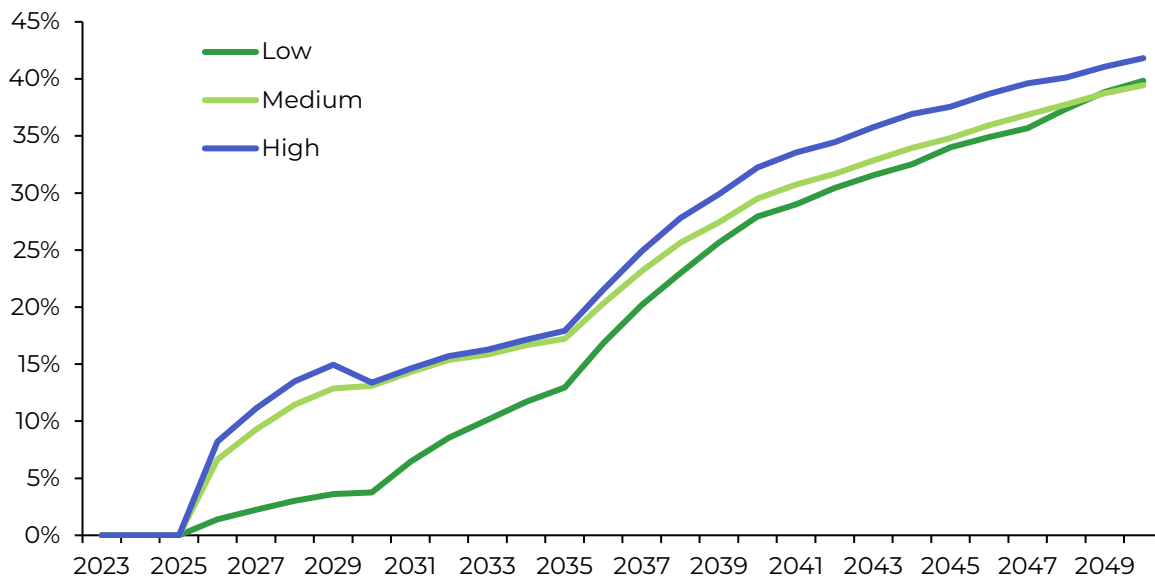
³⁰ Carbon credits can be used to make either compensation or contribution claims. Compensation claims like “carbon neutral” are typically made by retiring credits to offset emissions, matching the volume of credits retired to emissions at the product or company level. For a contribution claim, companies still retire carbon credits, but instead of netting off retirements against emissions, the retirement of credits is used to demonstrate their contribution to climate action and/or the host country’s national objectives.

³¹ SBTi (2023) The Corporate Net-Zero Standard

³² VCMI (2023) Scope 3 Flexibility Claim (Beta Version)

Figure 13  **SBTi is unlikely to be a key enabler for market scaling before 2030**

SBTi-led demand out of total demand, %



The chart above is based on the three following assumptions:

1. In total, 2,983 companies have now had a target verified by SBTi, with Scope 1, 2 & 3 emissions of c.24 GtCO₂e. Not all of these targets are currently net zero targets, as the SBTi net zero standard was only published at the end of 2021. It is assumed that all companies with an SBTi target will also commit to SBTi's net zero standard in due course. A further 2,431 companies have committed to set an SBTi target in the next two years, and it is assumed that 90% of these companies will continue with their commitments.
2. It is assumed that all these companies offset their emissions with removals in their net zero year.
3. To account for double counting in the emissions value chain, it is assumed that two thirds of a company's Scope 3 emissions overlap with emissions from other companies in their value chain that have already been offset, thereby removing the need for them to be offset 'again'.
4. It is assumed that corporates start to buy credits earlier than their net zero year. The annual demand forward curve is built in a way that a portion of the total offset demand in 2050 is purchased every year.

Source: MSCI Carbon Markets

- **Uncertainty on CA requirements for VCM buyers.** Complex guidance on Article 6 has created buyer uncertainty, and there are questions on whether CA is an accounting tool or a mark of quality. This ambiguity affects how credits are used and valued, impacting both buyers and project developers.
- **Increased market complexity affects procurement.** In the past, most buyers would be comfortable purchasing credits to offset their emissions as long as they were issued by a reputable carbon standard. The introduction of meta-standards like ICVCM and VCMI and the emergence of carbon credit ratings platforms means that buying carbon credits is no longer a simple task. Significant due diligence efforts are required to ensure the appropriate credits are purchased to make the relevant claim.
- **Evolving quality requirements:** Future requirements for carbon credits are likely to be driven by advancement in measurement technologies, increased focus on co-benefits, and the demands of more discerning buyers. Buyers who purchase credits today may find that they are not regarded as high-quality in the future, both from an environmental integrity and market acceptance perspective. Discourse around perceived higher quality of

removals compared with reductions could divert investments and finance away from much-needed technologies and nature-based solutions that do not fall neatly within the removals category.

Structural pain points

- **Lack of clear ‘rules of the game’ from financial and state regulators.** Regulatory bodies and government agencies are scrutinising carbon trading more closely, and are increasingly issuing guidance on stronger disclosure requirements to stem greenwashing. Financial regulators such as the International Organization of Securities Commissions (IOSCO) are seeing potential concerns in the VCM and are actively undertaking public consultations to address them³³. Differing standards and treatment across the globe can cause further confusion for market players looking to navigate the space.
 - The EU has banned carbon neutral claims alongside other generic environmental claims by 2026, unless companies can prove the claim is accurate³⁴.
 - California’s new regulations recognise net-zero, carbon neutrality, and emission reduction claims, but with stringent disclosure requirements³⁵.
- **Diverse and evolving carbon certification standards.** The VCM is characterised by many different carbon standards which can have varying degrees of rigour and focus. While the four largest standards (Verified Carbon Standard, Gold Standard, American Carbon Registry, and Climate Action Reserve) still issue the vast majority of credits, there are more than 40 different carbon certification standards in total. Some of them like ART TREES are expected to issue large amounts of credits in the coming years, while others like Puro.earth focus on niche but important areas like carbon dioxide removal (CDR). The variety of standards makes it challenging for market participants to navigate and compare credits across them.
- **Complexity of interoperability across registries.** A significant challenge within the VCM is the lack of transactional transparency in carbon credit registries. There is often limited information regarding the end-buyers, the details of credit transfers, and the final retirement of credits. This opacity can lead to difficulties in tracking the lifecycle of a carbon credit, making it harder for market participants to assess the actual impact and credibility of these credits. Each registry may have its own set of rules and formats, posing challenges in interoperability, hindering the transfer and tracking of credits across different platforms. As the carbon market grows, the emergence of various platforms, including meta-registries like the Climate Action Data Trust (CAD Trust), seeks to address interoperability challenges.

³³ IOSCO (2022) Voluntary Carbon Markets Discussion Paper

³⁴ European Parliament (2023) EU to ban greenwashing and improve consumer information on product durability

³⁵ California State Legislature (2023) AB-1305 Voluntary carbon market disclosures

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With the proliferation of carbon pricing policies and countries preparing their domestic registries in order to participate in Article 6, interoperability becomes a challenge as there are many systems to integrate. The Climate Action Data Trust (CAD Trust) initiative seeks to address these challenges and provide a robust data infrastructure that facilitates the implementation of Article 6 of the Paris Agreement.

Andrea Bonzanni

International Policy Director
IETA

IETA

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How to unleash the full potential of carbon markets

The path to realising carbon markets' full potential requires private sector initiative, regulatory clarity, and technological innovation. Integrity and ambition are important, but the strictest rules may not lead to the highest impact. Some trade-offs will have to be made, especially as the carbon market is just beginning to scale. Stakeholders should consider that certain pain points may have to be tolerated for some time as part of the market evolution, focusing instead on long-term strategies to scale the market effectively. We do not want a large-scale low-integrity market, but we also do not want a small-scale high-integrity market.

To drive the market forward, companies should not only focus on procuring high-quality carbon credits, but also on retiring them responsibly. These credits should not just offset emissions but also contribute to environmental and socioeconomic benefits. Ultimately, the carbon markets must accelerate our efforts towards more sustainable development, including addressing climate change.

In order to encourage a rise in ambition among businesses, standards and regulations must adapt to recognise and incentivise those that go beyond the minimum requirement.

We identify the essential steps to unlock this potential:

1. Refining carbon credit taxonomy to bridge the gap between reductions and removals.

It is essential to clarify the distinct roles and values of emissions reductions and removals in the carbon market. While removals often command higher prices due to perceived higher quality and direct impact on reducing atmospheric carbon, emissions reductions play an equally crucial role in preventing emissions from entering the atmosphere in the first place.

High-quality emission reductions are vital, especially in sectors where decarbonisation is challenging. For instance, generating carbon credits from the early retirement of coal-fired power plants can play a significant role in reducing emissions if projects are robustly implemented³⁶. However, these accelerated coal phase-out transition credits are reductions-type credits. It is crucial to recognise and value such high-impact activities to spur innovation and investment in these sectors.

Both reductions and removals should be recognised as instrumental in achieving voluntary corporate targets, and national and global decarbonisation goals. A more inclusive approach would align with Article 6 of the Paris Agreement, acknowledging the contribution of both types of credits towards NDCs.

2. Evolve the discourse around quality.

The market needs to converge on a shared understanding of quality across different types of credits. This understanding should also account for various attributes of carbon credits, such as the type of project, its co-benefits, and the rigour of its verification processes. By doing so, the price of credits can more accurately reflect their environmental integrity and impact.

³⁶ MAS, McKinsey (2023) Accelerating the Early Retirement of Coal-Fired Power Plants through Carbon Credits

Having a better appreciation for the various dimensions and nuances of quality will also help to facilitate constructive criticism such that market participants can identify specific areas that need to be improved. When discussing quality, buyers, sellers, and observers should go beyond the project type level and analyse how individual projects measure up a set of standard quality attributes, such as those described in ICVCM's Core Carbon Principles³⁷.

- 3. Clarify that CA is optional for the VCM.** There is a need for clear education on the role and application of CA in the VCM. Applying CA is vital for Article 6 trades in the context of the United Nations Framework Convention on Climate Change (UNFCCC) accounting framework for preventing double counting of emission reductions. However, it has different implications in the voluntary market. CA is primarily relevant for international trading under compliance regimes such as NDCs and CORSIA and not necessarily for voluntary offsetting actions by corporations. **Figure 14** shows the lifecycle and various use cases for credits with and without CA.

Article 6 decisions from recent COPs allude to the use of credits without CA in the VCM contributing to the host country's NDC achievement. It is ultimately up to the host country to determine if it will undertake CA for credits that are used against corporates' voluntary targets. A consensus that CA is not required will greatly encourage the host country to permit a wider range of projects to be implemented and attract much needed carbon finance to support decarbonisation and a just transition.

“

The question of imposing CA on the VCM is a trade-off between two uncertainties.

What happens if we impose the requirement of CA? There is likely less mitigation overall motivated by the VCM. That is a pure loss, there is no expectation that such lost mitigation is picked up by anyone else. What happens if we do not impose CA? Some countries could be incentivised to put all their efforts in the VCM and not expand their NDC.

Overall, the effect of freezing investment in the VCM is likely much higher than freezing policy in host countries.

Pedro Martins Barata

Associate Vice President, Carbon Markets and Private Sector Decarbonization
Environmental Defense Fund (EDF)

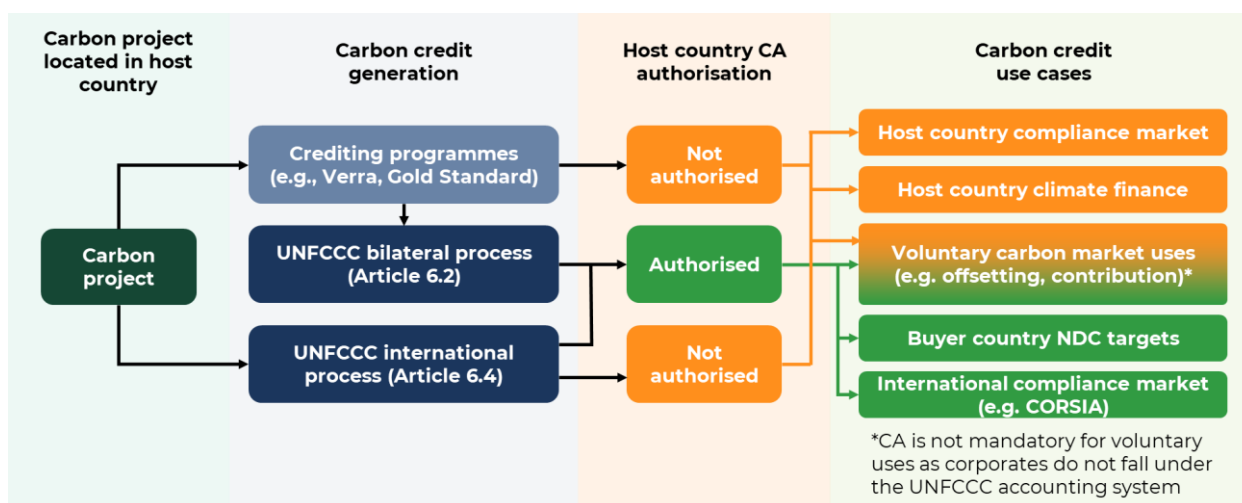


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³⁷ ICVCM (2023) Core Carbon Principles

Figure 14 CA should not be mandated for voluntary use cases, even offsetting

Lifecycle of carbon credits under VCM and Article 6



4. Expand on the concept of “co-claiming” as corporate GHG inventories are embedded within the UNFCCC accounting framework. There is merit to consider expanding on the concept of “co-claiming”, recognising that corporates’ Scope 1-3 emissions are embedded within countries’ national GHG inventories and international transport emissions, and the fact that corporates’ carbon footprint overlap across Scope 1-3 emissions. In specific instances, the use of carbon credits can also contribute to host countries’ climate targets or reduce the net impact of overlapping Scope 1-3 emissions of corporates. Accurate accounting of emissions frees up capital for further decarbonisation, and encourages collaboration within the supply chain.

5. Incentivise corporate participation through enhanced frameworks and quality controls. The VCM has largely been self-regulating. To bolster confidence and credibility, there is increased emphasis on establishing guardrails across the entire carbon market value chain. This involves setting meta-standards for specific types of projects and credits, and rigorous project-level quality control mechanisms. **Figure 15** shows some of the initiatives that seek to address quality concerns.

- **Meta-standards** such as ICVCM and VCMI play a crucial role in enhancing the quality of both supply and demand in the carbon market. These frameworks provide guidelines and standards, ensuring corporate investments in carbon credits are both environmentally impactful and socially responsible.
- **Standard-setting bodies** maintain the quality of methodologies and verified credits or certificates.
- **Ratings agencies** provide an additional layer of quality assurance on the individual project level.

On the demand side, there is scope to accommodate flexibility for corporates to use carbon credits judiciously, to compensate for hard-to-abate emissions through both reductions and removals credits, and to channel finance towards scaling nascent technologies. Corporate demand for carbon credits may increase substantially as mid-term decarbonisation targets get nearer, but incentives need to be in place. For example, Rio

Tinto said that it would miss its 2025 target unless it used carbon credits³⁸. If the right incentives are not in place, companies may simply miss their targets and not do anything to make up for it, resulting in less mitigation globally.

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The voluntary carbon market is, by definition, unregulated. Therefore, there is no legally defined "minimum bar" of quality for carbon credits. It is an organic ecosystem of actors. Ratings agencies can play a role as an independent voice within the ecosystem, providing science-based assessments on the quality of credits and raising the bar, which in turn helps to sustain the market and contribute to greater climate action and impact.

Donna Lee
Co-Founder
Calyx Global

Calyx Global 

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Figure 15  Many initiatives seek to address quality concerns at various levels

Map of quality controls across the VCM



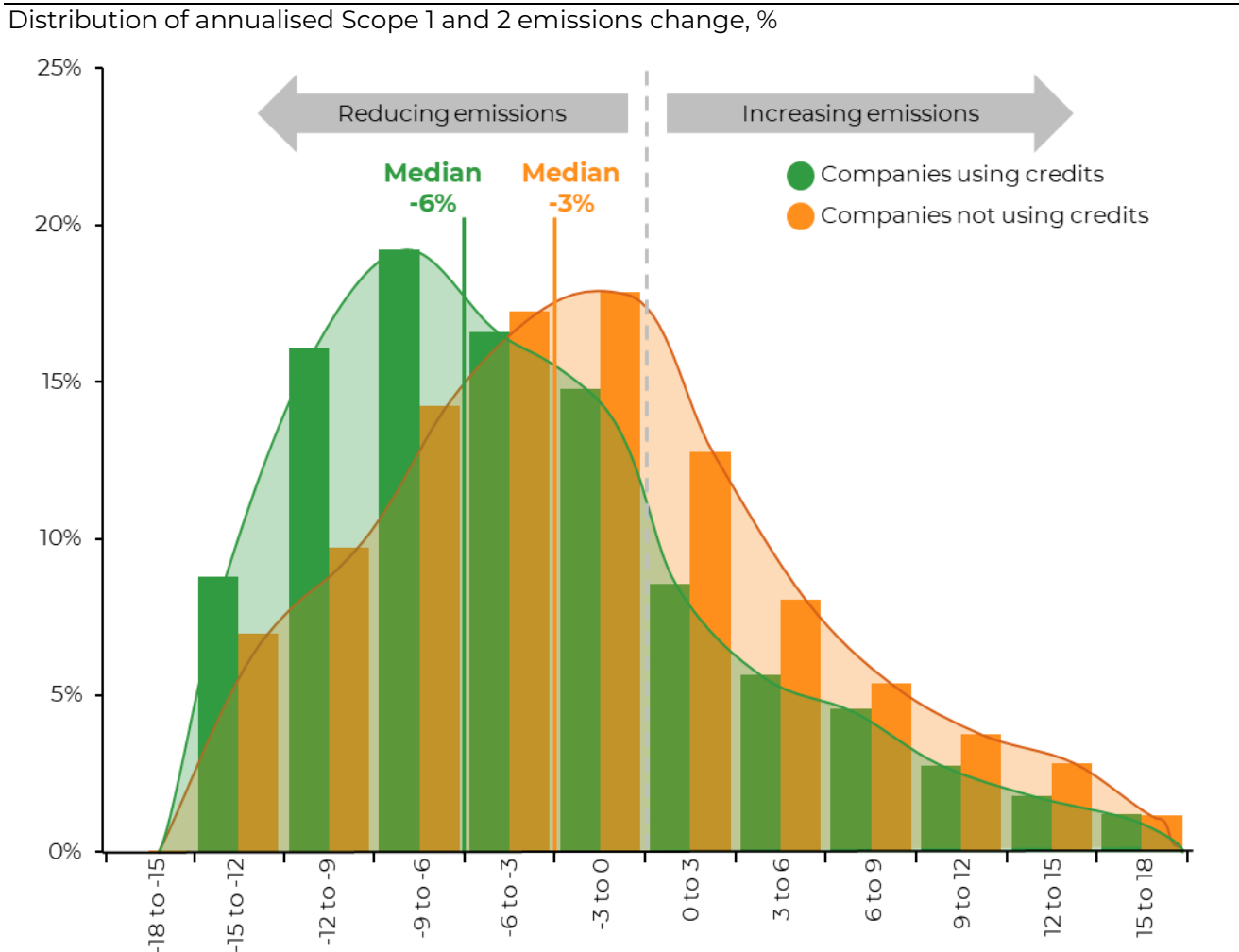
6. Balanced communication on the role of carbon credits in corporate decarbonisation.

The misconception that the VCM is a form of greenwashing by companies undermines its legitimacy. While feedback should be taken on board, the data indicate that companies using carbon credits are not doing so in lieu of internal abatement, but in addition to it. Research by Ecosystem Marketplace shows that even back in 2021, companies engaging in the VCM were likely to outperform those who do not in multiple dimensions of climate

³⁸ Financial Times (2023) Rio Tinto admits 2025 climate target in jeopardy without carbon offsetting

action, including reducing emissions, reporting emissions, and setting decarbonisation targets³⁹. **Figure 16** shows that, according to research by MSCI Carbon Markets, corporates using carbon credits are decarbonising twice as fast on average than those that do not⁴⁰. These studies challenge the allegations that companies are simply using credits in lieu of decarbonising. This positive aspect needs greater emphasis to reshape the public narrative.

Figure 16 Companies using credits decarbonise 2x faster on average vs those who do not



Source: MSCI Carbon Markets

7. Robust market infrastructure to capture the diversity in the market while improving transparency and liquidity. The carbon market is likely to remain fragmented due to the variety project types and quality attributes available. Unlike traditional commodity markets where liquidity concentrates around a small number of standardised benchmarks, carbon credits are inherently a much more diverse asset class. The market needs robust infrastructure to integrate with various systems, reflect the underlying diversity and complexity while also enabling participants to trade and facilitate price discovery.

³⁹ Ecosystem Marketplace (2023) All in on Climate: The Role of Carbon Credits in Corporate Climate Strategies

⁴⁰ MSCI Carbon Markets (2023) Corporate emission performance and the use of carbon credits

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In the short term, there will likely be more fragmentation than consolidation in the carbon markets. It is a time of transition for the market, with various approaches by incumbents to adapt to new market developments, and the blurring of voluntary and compliance markets further complicates matters. At Climate Impact X, we are building our system to reflect the diversity in the market. The way we think about data architecture needs to be flexible enough to serve multiple segments of the market, like a universal adapter.

Genevieve Soh

Chief Product and Strategy Officer
Climate Impact X (CIX)

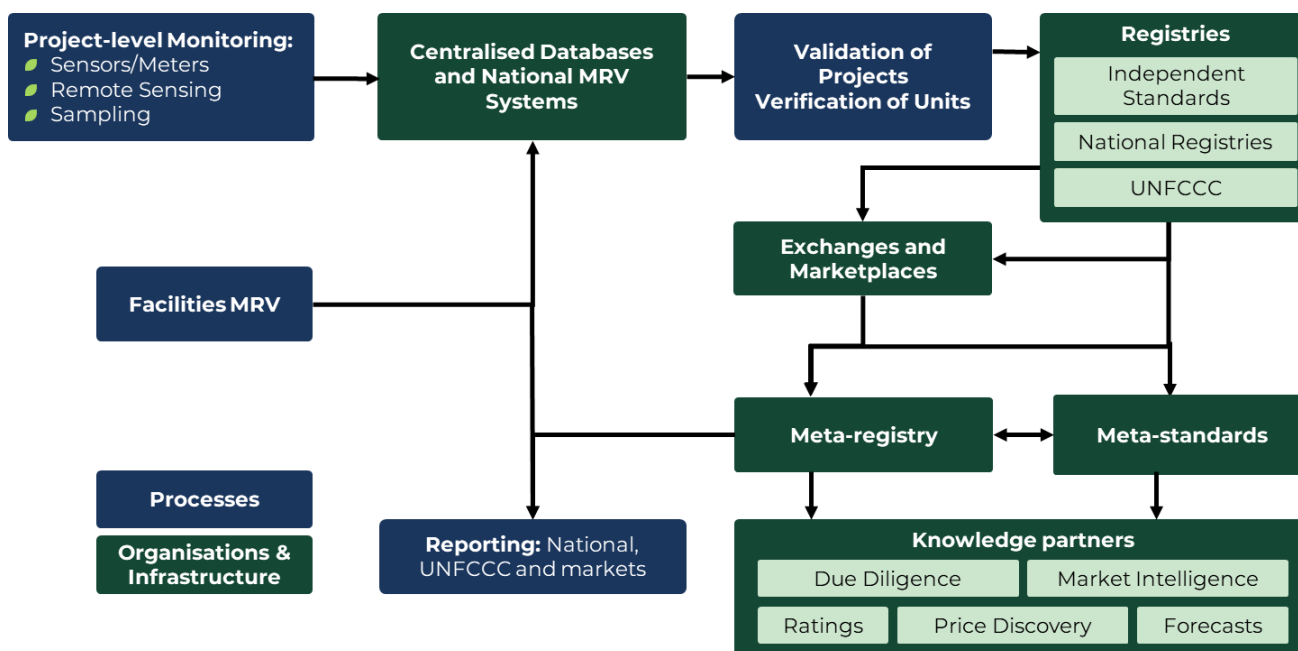


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8. Innovations for system maturity. The carbon market is ripe for a digital transformation that can streamline processes, enhance transparency, and build trust. The adoption of basic digital solutions like electronic forms and databases is an important first step. These tools can significantly reduce administrative burdens, speed up transactions, and improve data accuracy. However, digitalisation is just the starting point. **Figure 17** shows the various processes in carbon credit market, which are expanding rapidly amidst new requirements for Article 6 reporting.

Figure 17 Integrated processes, organisations, and infrastructure for Carbon Markets 2.0

Flowchart of processes in carbon markets



Source: MSCI Carbon Markets

While there remain questions of timing and costs, advanced technologies such as Distributed Ledger Technology (DLT) or blockchain offer transformative potential for the carbon market. DLT can provide a secure, immutable ledger for carbon credit transactions to ensure traceability, reducing the risk of double counting and boosting the transparency and reliability of credits. As digital solutions proliferate, ensuring interoperability between different platforms and registries becomes essential, enhancing market efficiency and participant experience.

Transparent data on project outcomes, credit issuance, and retirement can boost confidence among buyers and sellers. Platforms that aggregate and present this data in an accessible format can democratise information, allowing smaller players to compete more effectively in the market. Utilising big data analytics can provide valuable insights into market trends, participant behaviour, and potential areas for growth. This information can guide policy decisions, market strategy, and innovation in the sector.

Incorporating digital MRV, remote sensing, and artificial intelligence can improve MRV processes. These technologies can provide real-time data on project impacts, such as forest growth or renewable energy generation, enhancing the credibility of carbon credits.

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The New Era for Verra is all about scaling impact while further enhancing environmental integrity, engaging more actively with our stakeholders, and achieving operational excellence. Work to achieve this includes technology and digitisation. We are looking at incorporating solutions like a long-term monitoring system (LTMS), digital MRV (dMRV), and remote sensing into our methodologies.

The Verified Carbon Standard (VCS) registry is also being further developed and enhanced with digital processes, thereby streamlining the project registration process. Consolidating methodologies will also help to simplify the process for project developers and market participants, starting with the consolidated REDD+ methodology.

Robin Rix

Chief Legal, Policy, and Markets Officer
Verra



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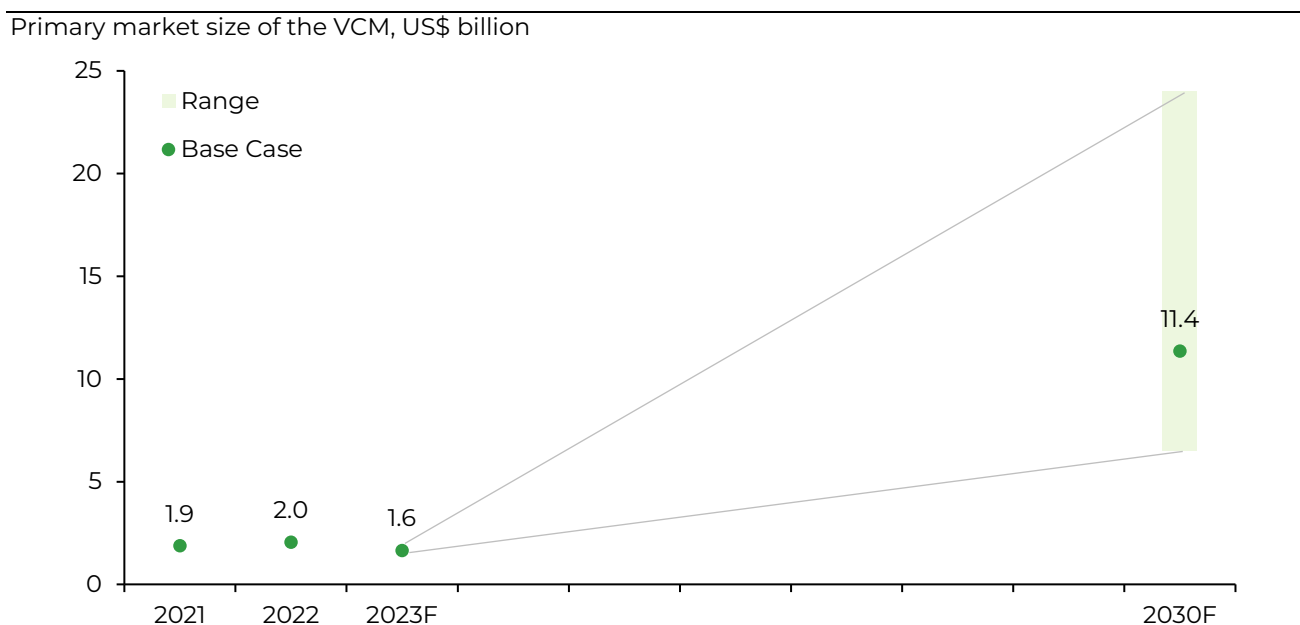
Towards Carbon Markets 2.0

As we steer towards Carbon Markets 2.0, a new chapter unfolds in the global effort to combat climate change. This is a time of crucial evolution, where addressing pain points and capitalising on emerging opportunities will shape the future of carbon markets. Presently, the carbon market grapples with an array of complexities. These range from the intricacies of project origination and methodologies to the evolving market dynamics and interactions with regulations.

Nuances are seldom captured by headlines, and the mere use of credits should not simply equate to greenwashing without deeper diagnostics on the constraints and challenges. High-integrity projects and case studies should be spotlighted as much as those that fail to deliver real abatement and co-benefits. Scrutiny is welcomed, but it should be constructive.

The outlook for the market remains positive. Multiple initiatives are currently underway to improve supply- and demand-side integrity, and once finalised, these should restore confidence in the carbon markets and foster greater participation. **Figure 18** shows the latest analysis from MSCI Carbon Markets suggests that the value of the primary carbon credit market could increase from US\$1.6 billion by the end of 2023 to between US\$6 billion and US\$24 billion in 2030.

Figure 18 The primary market value of the VCM is expected to grow 4-7x from 2023 to 2030



Market size calculated based on total annual retirement and average annual price for each project type. It is equivalent to the primary market size and excludes the secondary market.
Source: MSCI Carbon Markets

As we stand at crossroads, it is imperative to reinvigorate our approach towards carbon markets. This is not just an opportunity but a necessity to ensure that carbon markets evolve into robust, effective instruments that can significantly contribute to our climate goals. This is our chance to create a carbon market that truly reflects the value of our planet and the urgency of our climate crisis.

There is no Plan B. There is no Planet B. There is no alternative.

AFOLU	Agriculture, Forestry, and Other Land Use
CA	Corresponding Adjustment
CAD Trust	Climate Action Data Trust
CCP	Core Carbon Principles
CDR	Carbon Dioxide Removal
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
DLT	Distributed Ledger Technology
dMRV	Digital MRV
ETS	Emissions Trading System
GDP	Gross Domestic Product
GHG	Greenhouse Gas
ICVCM	Integrity Council for the Voluntary Carbon Market
IETA	International Emissions Trading Association
IOSCO	International Organization of Securities Commissions
ITMO	Internationally Transferred Mitigation Outcome
MOU	Memorandum of Understanding
MRV	Monitoring, Reporting, and Verification
NDC	Nationally Determined Contribution
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SBTi	Science-Based Targets initiative
UNFCCC	United Nations Framework Convention on Climate Change
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Market
VCMi	Voluntary Carbon Markets Integrity Initiative
VCS	Verified Carbon Standard
MtCO_{2e}	Megatonnes of carbon dioxide equivalent
GtCO_{2e}	Gigatonnes of carbon dioxide equivalent

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