Not all Carbon Credits are Created Equal: Ecosystem Views on Quality Credits and the Future of the Voluntary Carbon Market

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Executive summary

While investments in carbon credits have significant potential to boost advancement in clean technology, protect and restore nature, and reduce greenhouse gas emissions, the burgeoning voluntary carbon market (VCM) has experienced growing pains. Critics and proponents alike have raised concerns about the quality of carbon credits, the integrity of stated emissions reductions and verification, and the appropriate role of credits in corporate net zero planning. The future of the market depends on improving its integrity, and professional accountants can play an important role.

This research report includes insights from interviews with experts at each stage of the carbon credit lifecycle. It reveals that while not all credits are created equal, it is possible to create high quality credits that do result in meaningful emissions reductions. However, work remains to be done to create the right conditions for the market to thrive.

Chartered Professional Accountants of Canada (CPA Canada), the International Federation of Accountants (IFAC) and the Institute for Sustainable Finance (ISF) collaborated on this series, resulting in this final report, which presents the ecosystem's perspectives on quality credits and the future of the VCM. This series specifically explores the role of professional accountants in enhancing the VCM's integrity.

A job for accountants: The report finds that professional accounting firms and accountants can work to improve the quality of credits, provide robust verification and inform purchasing decisions:

- Accountants can play a strategic role in carbon credit purchase decisions by organizations, especially in budgeting and due diligence; they can help implement effective internal controls to ensure the validity and credibility of reported information and they can enhance transparency in reporting and disclosure on the use of carbon credits in accordance with financial accounting and sustainability disclosure standards.
- Accountants can help fill the need for more Validation and Verification Bodies (VVBs) to monitor carbon credits and related projects.
- Beyond providing services as a VVB, there is also a need for the skillset of professional accountants within the assessment teams of the agencies that accredit VVBs.

Market trends: The report identifies the trends that professional accountants and potential market participants should be following:

- **What are carbon credit buyers looking for?** Interviewees revealed that quality is the most important criterion. Buyers are ramping up due diligence efforts and choosing more direct purchases over standardized contracts given the increasing focus on transparency.

Some purchases have shifted towards removal credits due to their verifiability and long-lasting benefits, even though avoidance credits which fund the preservation of carbon sequestering natural areas remain important in addressing the climate change and biodiversity crises. Buyers in Canada also prefer to offset near where their assets are located to balance negative impacts with potential positive benefits. And co-benefits and newer vintage years are also perceived as indicators of higher-quality credits.

- **The focus is on risk management.** Reputational risk is one of the top concerns for developers and buyers, with controversies of any kind harming the reputation of all project parties involved and eroding market confidence. Developers are working to assess risks early and manage them through diligent project preparation and structuring.
- **There is work needed to build guardrails that ensure quality credits.** Interviewees identified challenges with the growing infrastructure that ensures quality credits, including frequent updates to methodologies by crediting programs and constantly evolving requirements for expertise by VVBs. Quasi-governance bodies[1] have emerged to establish standards for high-integrity carbon credits, led by the core carbon principles (CCPs), but interviewees raised concerns about the over-reliance on these labels unnecessarily penalizing equally high-quality credits that have not yet sought eligibility. As well, national regulations and global regimes continue to evolve, with a risk that current political turmoil may stagnate climate finance. Finally, there is still ambiguity from sustainability and climate standard-setters around what claims companies can (or cannot) make based on carbon credit purchases and how companies can credibly use carbon credits to meet their net-zero targets. Lack of clarity creates uncertainty and impacts demand.

What's next? The VCM's future is shaped by tailwinds and headwinds. Several developments that could impact the market include:

- the operationalization of global regimes such as Article 6 of the Paris Agreement which allows for cooperation by countries on emissions reductions through carbon markets
- the trajectory of global climate policies
- potential convergence between voluntary and domestic compliance carbon markets
- enhanced guidance and clarity provided by quasi-governance bodies, standard setters and regulators
- technological innovation in the measurement, reporting and verification (MRV) process
- the development of alternative market designs

It's clear that as the VCM continues to develop, market success hinges on credibility, transparency and trust. High-integrity carbon credits will be essential in driving meaningful climate action. Professional accountants are uniquely positioned to enhance the integrity of carbon credits and help shape a future VCM that makes a major contribution to prosperity and environmental sustainability.

1 In the VCM, quasi-governance bodies are non-governmental organizations formed to offer standards, best practices and guidance, in the absence of official regulatory oversight.

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For a complete list of anonymized experts who contributed to the interviews, please see the **Appendix**.

1. Introduction

The Voluntary Carbon Market (VCM) has emerged as a mechanism for companies seeking to offset their greenhouse gas emissions and contribute to global efforts to combat climate change. However, media coverages reveal that not all carbon credits are created equal—the exposé on potential fraud and misrepresentation has lowered market confidence, resulting in some market corrections. The future of the market depends on improving its integrity.

To better understand the VCM and associated challenges, Chartered Professional Accountants of Canada (CPA Canada), the International Federation of Accountants (IFAC) and the Institute for Sustainable Finance (ISF) at Smith School of Business, Queen's University, collaborated on this series:

- The **first report** offers foundational knowledge of the VCM, covering the nature of carbon credits, differences from compliance markets, key market participants, the carbon credit life cycle, prevalent risks, and valuation and pricing considerations.
- The **second report** takes a deep dive into the use of voluntary carbon credits in Canada and globally, along with a discussion on the related accounting and disclosure considerations.
- Expanding on the findings of the previous two reports and expert interviews (see summary of interviewees in the Appendix) this final report of the series presents the ecosystem's perspectives on quality credits and the future of the VCM, and explores the role of professional accountants in enhancing market integrity.

Based on the ecosystem interviews, Chapter 2 of the report starts with the value professional accountants can add throughout the carbon credit lifecycle. After that, the individual ecosystem participants' views are synthesized as follows:

- Chapter 3 examines the demand side, focusing on buyers' changing preferences and concerns.
- Chapter 4 delves into the supply side, exploring evolving financing models and risk management.
- Chapter 5 discusses the guardrails to support quality, highlighting the roles of crediting programs, Validation and Verification Bodies (VVBs), regulatory intervention and new entrants to the ecosystem including insurers and rating agencies.
- Chapter 6 looks ahead at the tailwinds and headwinds that may shape the future of the VCM.
- Chapter 7 concludes with our parting words, highlighting that collaboration is essential to advancing a high-quality VCM.

2. The role of professional accounting firms and accountants: Challenges and potential opportunities

The professional accountants' expertise in risk management, internal control implementation, financial reporting and analysis, and assessment of the reliability and credibility of information through auditing, can be utilized in the carbon credit lifecycle in various ways.

Challenges

The interviews identified several challenges affecting the professional accountants' engagement in the VCM:

Absence of universally accepted standards: Currently, large accounting firms have minimal involvement in the VCM landscape. Reputational risk arising from greenwashing risks and media scrutiny is one of the top reasons, an interviewee who worked at one of the Big Four accounting firms[2] shared. "We'll do verification for on-site abatement cost and insetting verifications,[3] but we will not do third-party offset verifications in the voluntary market." Another issue is the absence of a universally accepted standard to verify additionality, unlike financial accounting. At least one of the Big Four firms was previously engaged in assessing additionality but stepped away due to this reason. These large firms have been actively involved in the compliance carbon markets, but their participation in the VCM has been limited. In the future, with the development of credible standards in the VCM space, there is potential for these firms to reconsider their stance and participate in this growing market.

Need for more Canadian-based VVBs: Several project developers raised concerns about the limited presence of VVBs based in Canada. "We have always brought in VVBs from the U.S. … there are only a few smaller bodies in Canada." A project developer emphasized, "As the Canadian voluntary space builds up, it would be so great to have more Canadian VVBs that are operating locally." This would not only reduce logistical expenses related to travel

2 Deloitte, PricewaterhouseCoopers (PwC), Ernst & Young (EY) and Klynveld Peat Marwick Goerdeler (KPMG).

3 Insetting verification is the process of independent assessment and validation of carbon reduction or removal activities implemented within a company's own value chain or supply chain. Insetting verifications face less stringent accounting requirements than offset verifications, since its focus is on emissions reductions within the value chain rather than creation of fungible credits.

and visa concerns but also foster local expertise. According to this interviewee, the U.S. VVBs' quotes are 30 per cent more expensive. This points to the opportunity for Canadian professional accountants to meet the growing demand for Canadian-based VVBs.

Interviewees also emphasized the growing need for more qualified VVBs in the VCM. One project developer stated, "We need more auditors; they need to be qualified, and they need to understand the projects." The interviewee underscored the challenge of limited VVBs amidst the increasing number of projects in this space, "If we need findings by August 1st and there's a delay of three days in getting them the findings, suddenly you're waiting two months for them to have a look at things again."

Opportunities

These challenges highlight the growing need for the involvement of accounting firms and the professional accountants' skillset in the VCM's ecosystem. The following opportunities were identified:

On the buyers' side

Professional accountants' strategic role in purchase decisions: Professional accountants can play an important role throughout the VCM procurement process, especially in budgeting, risk management, and assurance and due diligence. By collaborating with supporting teams, they can inform purchasing decisions to help prevent compliance failures and greenwashing and establish internal control systems for carbon credit transactions. Their expertise in budgeting, financial planning and data analysis, along with their application of professional judgment and objectivity, supports the effective verification of estimates and evaluation of credit quality.

Scope to enhance relevance and reliability in reporting: Professional accountants have a significant opportunity to improve transparency and disclosure on the use of carbon credits, with reference to financial accounting and sustainability disclosure standards (see **second report**). As a result, they help build trust in the VCM by reporting in (or assessing) compliance with emerging regulations and supporting organizations in their decarbonization efforts. Unclear accounting standards for treating carbon credits present further opportunities for professional accountants, either individually or in collaboration with crediting programs and regulatory bodies, to contribute to the standardization of financial disclosure in carbon credit transactions.

On the VVB service providers' side

Potential for premium pricing of VVB services due to the limited presence of Canadian VVBs: A project developer emphasized the significant demand for accounting firms to perform validation and verification services for VCM projects, "They should charge well for this service, and people would pay for the quality." Although pricing these services can be tricky, the willingness of project developers to pay for quality reflects the rising need

for more robust VVB services in the VCM space. This presents a clear opportunity for professional accountants to position themselves as key providers of high-quality services and command competitive fees in response to this demand.

Collaboration between professional accountants and engineers: This collaboration is essential given VCM projects are often verified by smaller, accredited engineering firms who understand the nature of projects. There is a rising need to combine skill sets from different professions, such as engineers, professional accountants and foresters. The VVB representative stated that "By far the most effective approach is a blend of those right skills in your individual team. So, engineers and professional accountants work together." Involving them in VCM projects can significantly enhance credibility, helping to ensure transparency and integrity in the market.

On the accreditation agencies' side

Professional accountants' participation in VVB assessment teams: The VVB representative who was interviewed mentioned that the assessment teams of accreditation agencies often include university professors, retired ISO auditors and other experts. However, the presence of professional accountants is minimal. This represents a scope for professional accountants to contribute their expertise by joining VVB assessment teams within accreditation agencies. Their financial acumen and auditing experience can effectively enhance VVB processes, methodologies and documentation practices.

3. Demand-side: Buyers' strategy and changing preferences

Corporate buyers represent most of the demand side of the VCM. Their sustainable procurement strategy and changing preferences influence market dynamics and shape the future of the VCM. Amidst heavy public scrutiny, this chapter reveals buyers' current approaches.

A five-step approach to procurement

Corporate buyers have varying familiarity with the VCM. Those less familiar rely heavily on education and quality assessments from advisory service providers in this space. From a buyer's perspective, the procurement process typically involves five steps (see **Figure 1**).

Figure 1: Five steps of VCM procurement

Note: *Compiled by authors based on interviews*

Step 1 Define objectives and budget

In most cases, a company's carbon credit procurement strategy is driven by collaborative efforts from the sustainability, strategy, marketing, finance and senior leadership teams. They first define the desired impacts/claims (e.g., net zero, nature positive) the company wishes to make. This then shapes how voluntary carbon credits fit into corporate sustainability goals.

The initial goal setting sometimes requires internal engagement with employees (including the executive team) and broader stakeholders. One corporate buyer shared during the interview, "We ask [the company's] employees what types of carbon offsetting projects resonate with them…coupled with best practice research…at the end, [we] come up with a set of parameters for the projects we are looking for."

Depending on the priority of carbon offsetting for the company, an approximate budget is decided, balancing costs with quality and desired impacts.

Step 2 Source projects

Corporate buyers can source directly from project developers, or through brokers, intermediaries or marketplaces. Buyers in the early days of their offsetting journey often seek support and expertise from external advisors. At this stage, they communicate their objectives (e.g., total emissions they seek to offset, co-benefits they prefer) and budget with their advisors. Advisors assist in aligning the carbon credit purchases with the buyer's sustainability strategy. For example, if the company seeks a nature-positive impact, they discuss with their advisors to find nature-based projects that support the claim.

Accordingly, the advisor collates a few portfolios with varying price points that match the buyer's preferences and needs. Most advisors are plugged in with the supply side of the market, enabling them to work with project developers, brokers and intermediaries with solid track records and build long-term relationships. This gives advisors and buyers direct contact with the projects and comfort in the process.

A request for proposal (RFP) process is another common way for buyers to identify potential projects. In the RFP, the buyer often outlines their specific needs (e.g., preferred project types, locations, co-benefits), purchase amounts and structures. For example, individual buyers such as Microsoft[4] and buyer alliances such as Frontier[5] have been sourcing through RFPs.

Step 3 Conduct due diligence

Due diligence is one of the most critical steps to ensure quality. Ideally, the vetting process is done both internally and externally. The sustainability specialists on internal teams review project documents (e.g., information about the project, project developer and stakeholder comments) and may raise concerns. Oftentimes, buyers also contract third parties for extra safeguards. In addition to in-depth document reviews, they may arrange for in-person visits to assess project quality. However, thorough due diligence can be costly and time-consuming.

The role of an advisor, if they are engaged in the process, is to screen projects and discuss potential risks with the buyer. One carbon market advisory team interviewed has a point-based scoring system. They developed metrics for project locations, types, standards/protocols, vintages (i.e., they source projects that are five years old or newer), co-benefits, Indigenous Peoples' involvement and controversies. More advanced buyers may also develop an in-house evaluation framework. Additionally, some buyers and advisors leverage carbon credit ratings (read more in **Chapter 6**). However, they also acknowledge the challenges. "[The rating] is part art, part science when you apply standardized methodologies to non-standardized products," an advisor who uses rating agencies' services commented.

Throughout the process, advisors will guide buyers to understand potential risks (e.g., country, technology, reputational risks).

4 Microsoft. (2025). **Microsoft Carbon Dioxide Removal Procurement Cycle: FY25 Guidance Document Version 3.0**

5 Frontier. (2024). **Call for Proposals**

Step 4 Negotiate and purchase

Buyers proceed with the (portfolio of) projects they have vetted and trust. They may directly negotiate with project developers, but in most cases, transactions are facilitated by advisors, brokers, intermediaries or marketplaces.

In the VCM, buyers can engage in different contracts, such as spot, forward, long-term offtakes and direct investments. At least two interviewees mentioned that buyers prefer long-term contracts after extensive due diligence. One corporate buyer disclosed that they have been procuring from essentially the same set of projects for the last few years, which saves resources for additional vetting. However, each type of agreement offers unique pros and cons (see Table 1). The ideal model depends on the need and risk appetite of the buyer.

Table 1 Different types of agreements for the procurement of voluntary carbon credits

Type of agreements	Definition	Delivery	Pros	Cons
Spot purchase	A one-time agreement to purchase at the current market price	Immediate	Fast and flexible	Exposed to price volatility
Forward purchase	A one-time agreement to purchase a fixed quantity at a predetermined price for future delivery	At a specified time in the future	Locks in a price; easier for financial planning	Exposed to counterparty and non-delivery risks, especially if upfront payment is made; may miss out on lower future prices; may over- or under-estimate future demands
Long-term offtake agreements	Ongoing agreement where the buyer commits to buying a fixed quantity or percentage of issued credits at a predetermined price every year for a specified period	Annually, at a specified time	Locks in a price; guarantees long-term supply; easier for financial planning	Exposed to counterparty and non-delivery risks, especially if upfront payment is made; may miss out on lower future prices; forecasting errors on future demands still remain, although some long-term agreements allow for adjustments

Type of agreements	Definition	Delivery	Pros	Cons
Carbon credit stream	A pre-purchase agreement where an investor provides upfront financing in exchange for a fixed percentage of the carbon credits generated by the project over time, often at a discounted price	Typically, annually over a long period, depending on the project type and contract terms	Locks in a price; guarantees long-term supply; simpler and lower risks than direct investment	Exposed to counterparty, non-delivery, liquidity and price risks
Direct investment into a carbon credit project	The buyer provides capital to develop and operate the project. The buyer may gain direct access to carbon credits generated by the project at a lower cost than market purchases, on top of potential financial returns	In the future once the project has issued credits	More control over the project; potential for high financial returns	Full project risks (e.g., operational, financial, regulatory) and complex given ownership stake

Note: *For both forward purchases and long-term offtake agreements, the payment structure can vary. Buyers can pay upfront, in installments as the project progresses, at delivery or hybrid.*

There has been a rise in buyer coalitions and advance market commitments (i.e., a form of long-term offtake that often involves upfront payment) in the VCM, particularly for removal projects. For example, Frontier, founded by Stripe, Google, Shopify and others, is an over US $1 billion advance market commitment to buy permanent carbon removal before 2030.[6] These provide a strong demand signal to the market and help scale up nascent technologies in the carbon removal space.

Step 5 Retire and report

The final step for buyers is to retire the credits and claim the emissions reduction. For ex-post credits, which are issued after actual, verified emissions reductions have occurred, buyers can retire them immediately; some may hold for a period and retire or resell later. This can often lead to differential treatments in their financial statements. For ex-ante credits, which are based on projected future emissions reductions, buyers cannot retire and claim the benefits until the reductions are realized.

6 Frontier. (n.d.). **An advance market commitment to accelerate carbon removal**

Some buyers have registry accounts and can retire on their own. For those who do not, advisors can retire on their behalf. Disclosure requirements may vary by registry. However, one advisor we interviewed commented that registries should ideally improve the data quality, for example, by standardizing buyer information. Coupled with increasingly stringent disclosure requirements on the use of voluntary carbon credits (see the **second report**), this can further ensure market integrity and transparency.

The five-step procurement process informs how buyers' preferences might be evolving.

Buyers' changing preferences

Quality is the bottom line

Majority of buyers and advisors interviewed agreed that quality is the most important criterion. One financial institution that has been an active buyer for several years shared its journey: "It evolved from a check-box exercise to having an internal framework that maps out what types of projects we are looking for… With the increased public scrutiny, we ramped up due diligence significantly."

However, approaches vary regarding what "high quality" looks like and how to control quality. In terms of guiding rules, some follow the Oxford Offsetting Principles, which ask companies to prioritize emission reductions and shift towards carbon removals for residual emissions.[7] Some build their (or use their advisor's) benchmark frameworks that include criteria on project types, protocols, locations, co-benefits, etc.

Another proxy for quality is the Core Carbon Principles (CCPs) label created by the Integrity Council for the Voluntary Carbon Market (ICVCM). One buyer interviewed committed to only buying CCP-labelled credits for their avoidance credit purchases.

Most buyers prefer direct purchases over standardized contracts (i.e., a basket of carbon credits at a single price). None of the interviewed buyers had purchased from exchanges as part of their VCM strategy in recent years. One buyer mentioned they participated in the early days but deliberately pulled away due to quality concerns. The perceived quality of the basket defaults to the credits with the lowest quality. It is also extremely challenging to conduct due diligence on the underlying projects. A few commented that standardized CCP contracts, first launched by Xpansiv, might restore confidence in exchange-based trading.

Shifting towards removals

There has been a strong shift towards removal credits, including nature-based and engineered removals. Nature-based removal credits originate from biological processes that absorb and store carbon emissions from the atmosphere (e.g., afforestation, reforestation and restoration, and blue carbon projects focusing on coastal and marine ecosystems). In

7 Axelsson, K. et al. (2024). **Oxford Principles for Net Zero Aligned Carbon Offsetting (revised 2024)**. Oxford: Smith School of Enterprise and the Environment, University of Oxford.

contrast, engineered removal credits come from projects involving industrial processes that capture carbon emissions and store them underground or in durable materials (e.g., direct air capture and storage, concrete mineralization).

Several factors are behind the shift.

First, in response to public scrutiny, buyers seek projects that are easy to verify and have long-lasting benefits. The impacts of removal projects such as reforestation and direct carbon capture (DAC), in general, can be more straightforward to measure than avoidance projects. Durable removals also align better with long-term climate targets.

Second, many buyers are guided by standard setters such as Oxford Offsetting Principles and the Science Based Targets Initiative (SBTi), which unanimously emphasize the importance of carbon removal. Therefore, removal credits start to become synonymous with "high-quality."

Third, buyers interviewed were attracted to the co-benefits (e.g., biodiversity, adaptation) feature, affordability and abundant supply of nature-based removal credits. At least two buyers noted that nature-based dominates their current portfolio of removal credits. The buyer coalition, Symbiosis, founded by four tech giants, pledged to sign long-term offtake agreements for nature-based removal projects that are science-based and equitable in their engagement with Indigenous Peoples and local communities.[8] However, nature-based removals still face challenges in ensuring long-term durability due to wildfires and other disruptive events.

While recognizing nature-based removals' critical role, buyers revealed their ambition to expand into engineered removal credits. Compared to nature-based, engineered removal projects often involve early-stage technologies and are more costly to develop. In 2023, the International Energy Agency (IEA) estimated the cost of direct capture with storage to be around US $600 to US $1000 per tonne of CO2 captured.[9] The prices of engineered removal credits reflect their high costs. Although many believe the cost will eventually drop, the current high price hinders buyers' engagement. From a buyer's perspective, "the engineered credits will remain a small amount in terms of the number of credits we procure, although it will eat up a good chunk of the budget."

8 Symbiosis. (n.d.) **Meet the Coalition**

9 International Energy Agency (IEA). (2023). **Unlocking the potential of direct air capture: Is scaling up through carbon markets possible?**

While buyers gravitate toward removals, some argue that avoidance credits remain important in addressing climate change and nature crises. More importantly, many avoidance projects, such as Reducing Emissions from Deforestation and Forest Degradation (REDD+), are in developing countries. These projects are instrumental in channelling climate finance toward local conservation and sustainability efforts. An opinion article written by a representative from Sylvera, a carbon data provider, calls out the potential harm of equating removals with "high-quality" and disregarding genuine avoidance projects throughout the process.[10] One buyer representative who has been involved in the transactions since the early days echoed the concerns, "as a sustainability professional, I've seen the positive impacts of REDD+ projects firsthand while investing in some of them… this kind of demonization of companies that are buying REDD+ credits is counterintuitive and negative towards driving climate action… now all those communities in the Global South have no revenue, whereas there would have been before."

The bifurcation and divided opinions towards removal and avoidance credits remain unresolved. Hopefully, the clarity on Article 6 (see **Chapter 5**) and the new finance goal[11] announced at Conference of the Parties (COP) 29 in Baku will improve the overall transparency and integrity of the VCM, particularly of the avoidance projects in developing countries.

Supporting projects near where they operate

Buyers in Canada prefer to offset near where they operate. This observation was made from CDP data (see the **second report**), and interviewees confirmed it. Although project locations do not necessarily correlate with quality, companies often position themselves as corporate citizens in the regions they conduct business. "They typically want to invest in offset projects in jurisdictions where their assets are located, balancing negative impacts they have with potential positive benefits," one buy-side advisor noted. A few buyers interviewed, most of whom have a global operation, agreed that this is one of their most important criteria: "We aim to source 90 per cent of our portfolio from the regions [where] we operate, which are primarily North America and Europe."

Some companies commit a certain percentage of procurement from developing countries, most of which face disproportionate impacts of climate change and lack financing to adapt. One buyer who operates in developed countries pledges to buy 10 per cent of their portfolio from developing countries. "We see the voluntary carbon market as a key channel to direct capital flows to developing countries that need climate investments," they shared, "although the project risks are higher in those countries."

10 Roberts, J. (2024). **OPINION: How the removals versus avoidance binary loses sight of impact**. Quantum Commodity Intelligence

11 Known formally as the New Collective Quantified Goal on Climate Finance (NCQG), nearly 200 countries at COP29 reached an agreement that will (a) triple finance to developing countries, from the previous goal of US $100 billion annually, to US$ 300 billion annually by 2035; (b) secure efforts of all actors to work together to scale up finance to developing countries, from public and private sources, to the amount of US $1.3 trillion per year by 2035.

Valuing co-benefits in alignment with corporate sustainability strategies

Companies make their purchase decisions based on the sustainability impact they wish to achieve. Beyond carbon reductions, VCM projects often provide additional environmental, social and economic benefits to ecosystems and local communities. Known as co-benefits, these project features can attract a price premium in the market. Buyers seek projects that are cohesive with their climate, nature and social impact strategies.

Biodiversity and nature-related co-benefits were mentioned repeatedly during the interviews. With the rise of nature-related disclosures such as the Taskforce on Nature-related Financial Disclosures (TNFD), high-quality nature-based projects are expected to remain popular among buyers.

Despite the broad embrace of co-benefits, one advisory spokesperson shared their concerns from the fungibility perspective. They worry that the buyers' prioritization of certain co-benefits may distract them from the core feature of carbon credits, their carbon reductions. "People start expecting all these things (other than carbon reduction) … and then they start downgrading projects which may be more impactful in the sense of climate action (compared to more impactful social benefit projects)." They acknowledge the value of ecological and social benefits but question whether the market's focus on co-benefits diminishes the purpose of the VCM. Due to the lack of fungibility, it is difficult to treat voluntary carbon credits as a commodity. This might have caused confusion about the true value of carbon credits and limited the market scalability to some degree.

Newer vintage year and other favourable attributes

Buyers often prefer newer vintages because these projects are perceived to align better with the latest standards and have undergone more robust verification. One advisor being interviewed included "five-year or newer vintage requirements" as one of their best practices.

Regarding crediting programs, most buyers interviewed did not have a strong preference. Although historically, they purchased most of their credits from the four largest registries—Verra's Verified Carbon Standard (VCS), Gold Standard (GS), Climate Action Reserve (CAR), and American Carbon Registry (ACR)—they are watching emerging ones such as Isometric and Puro.earth closely in recent years. They also recognize that some of the new ones are very stringent.

Interestingly, based on CDP data, some companies purchased from projects developed as part of federal or provincial offset systems to fulfill their voluntary claims (see the **second report**). By design, these projects in line with protocols set by jurisdictions are used by regulated companies to meet their compliance obligations. Faced with intense scrutiny, buying from projects with government stamps almost creates a reputation shield for the companies. "We would recommend our clients purchase compliance offsets if they are high quality. The perceived governance of these programmes might be better than the voluntary market," one advisor shared their reasoning, "but in terms of the scientific quality (of the credit), it really depends on the specific protocol."

4. Supply-side: Evolving financing models and risk management

Project developers supply carbon credits through designing and implementing avoidance or removal projects. It takes years from the inception of projects to the issuance of credits. When buyers' sentiments shift, there is often a mismatch in supply and demand for certain project types. For example, high-quality removal credits, which are in high demand, are often in short supply. If voluntary demand remains steady and compliance needs (e.g., Carbon Offsetting and Reduction Scheme for International Aviation [CORSIA], Article 6) are added to the equation, the supply side of quality projects, both nature-based and engineered, needs to scale up.

From the developer's perspective, this is a complex and lengthy process (see the **first report** in this VCM series). To ensure the economic viability of the projects, it is critical to secure financing and efficiently manage the risks. The integrity of the projects also requires proactive risk management. This section explores emerging trends in VCM financing, risks and mitigation strategies, including best practices for developers to maintain high standards.

Diverse financing sources and models

How a VCM project gets financed depends on the project characteristics (e.g., types, development timeline, scale, location, co-benefits), risk profiles, developer's access to capital and broad market conditions (e.g., demands, pricing trends).

For example, low-risk projects with predictable credit generation can often secure long-term offtakes or streaming agreements. Similar to infrastructure projects, stable cashflows enable project developers to leverage structured financing such as project financing.

However, access to capital can be challenging for projects that do not fit into the traditional risk models of infrastructure project financing. For example, engineered carbon removal projects are large-scale, capital-intensive and often involve early-stage technologies. A spokesperson from a joint venture of engineered project developers shared, "The capital stack for the first (DAC) plant and project is going to be very messy for us." Below is a non-exhaustive list of financing sources developers can access, depending on their project profiles.

Through buyers/brokers and strategic investors

- **carbon credit pre-sale contracts and offtake agreements (with upfront payments):** Developers secure upfront capital by selling future carbon credits to buyers or brokers at a pre-agreed price before they are generated. Early-stage projects might be best suited for pre-sales. Mature projects with predictable credit generation can often attract long-term offtakes with some upfront payments.
- **streaming agreements:** Carbon streaming companies, some institutional investors and companies provide upfront capital for a percentage of future credits. Investors share non-delivery risks with developers. Streaming is ideal for projects with long-term, predictable outputs.

Through commercial debt and equity providers

- **project financing:** This is a non-recourse or limited recourse (to the developer's balance sheet) form of financing. Developers must demonstrate predictable revenue through pre-sales or offtake agreements. Lenders rely on stable cash flow for repayments. The project is typically structured as a special purpose vehicle (SPV) to isolate financial and legal risks. One interviewee noted they use project financing for their improved forest management projects.
- **impact/climate funds:** Impact/climate investors may provide debt or equity for projects that fit into their risk appetite and scope of impacts. Some investors offer initial investments, often below market rate. These catalytic funds aim at early-stage, high-risk projects that might not yet attract traditional investments. "These funds could act as a bridge for the first-of-a-kind commercial plant," one interviewee shared. Once the project progresses and reaches key milestones, conventional investors may join at a later stage.
- **private equity (PE):** PE is suitable for projects that have already demonstrated some proof of concept. PE investors often target the growth or expansion stage, focusing on scaling projects and/or optimizing operations.
- **venture capital (VC):** VC targets early-stage projects in the pilot phase. This is ideal for nascent and innovative technologies with high growth potential. The high-risk profile might not be attractive to conventional investors. "It is the most accessible for us but expensive," commented the engineered project joint venture spokesperson.

Through public and philanthropic funding

- **government funding:** Public grants, subsidies and tax credits, if available, can help improve the risk-return profile of a project, which is critical to mobilizing private capital (described above). In some cases, public funding can bring credibility to the project, which private investors also view positively.
- **philanthropic capital:** Philanthropic funding functions almost the same as public grants. Both are best suited for high-risk and/or high-impact projects.

As the VCM expands, innovative insurance (see Chapter 6 for details) and guarantee products emerge as a protective layer to mitigate risks related to the underlying projects and counterparties. These de-risking mechanisms are critical to unlocking greater capital flows and are often seen as a signal of credibility by stakeholders.

Project developers, especially for capital-intensive projects, often blend multiple financing sources. To lower the cost of capital and share risks, joint ventures and partnerships arise among developers and/or other established companies with a robust balance sheet.

A risk management approach to high-quality projects

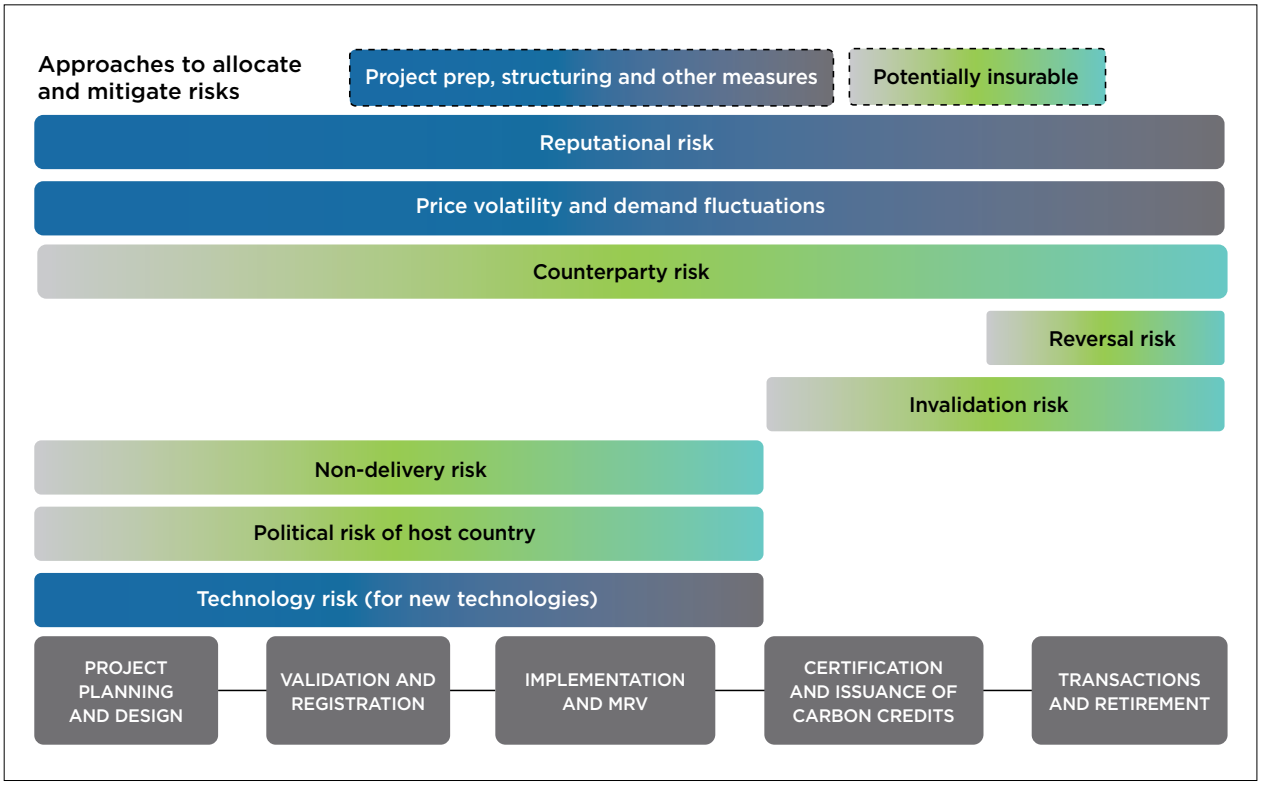
Risk assessment, allocation and mitigation are critical to the success of VCM projects. Across the project lifecycle (as described in the **first report**), a range of risks emerge—most are the same as in traditional infrastructure projects, for example, political, non-delivery, counterparty, price and demand risks.

Reputational risk has become one of the top concerns for developers and buyers. Controversies of any kind can harm the reputation of all project parties involved and erode market confidence.

Invalidation risk is the possibility of invalidating the credits, sometimes including the underlying projects. Invalidation and reversal risks are unique to the VCM process. If VVBs find an overestimation of baselines, errors, double counting, fraud or misrepresentation, the credits and projects could be invalidated. **Reversal risk** is the possibility that greenhouse gases previously removed are released back into the atmosphere, negating the emissions reductions or removals associated with the carbon credits. This is often caused by extreme weather and natural catastrophe events.

Engineered projects utilizing emerging technologies also face technology and innovation risks. **Figure 2** summarizes the common risk types.

Figure 2: Risks across the VCM project lifecycle



Note: *Non-exhaustive. Compiled by authors based on interviews and desktop research*

Project developers and buyers are advised to assess and manage the risks early in their involvement. For project developers, diligent project preparation (e.g., feasibility studies and stakeholder engagement to reduce technology-related, non-delivery and reputational risks) and structuring (e.g., long-term offtake contracts to guarantee price and demand) can help minimize certain risks.

In addition, crediting programs and VVBs can often provide some safeguards against certain invalidation and reputational risks.

The VCM also embeds risk mitigation mechanisms such as buffers, a pool of credits set aside by the crediting program, to protect against reversal risks. Buffer pool functions similarly to insurance.

As the market matures, a few insurers now offer tailored risk management solutions for buyers, developers and some intermediaries. Through a risk lens, they provide a second pair of eyes for these projects and credits. Some risks related to, for example, host countries' political uncertainties, non-delivery and counterparty can potentially be insured.

BOX 1 THREE STRATEGIES A NATURE-BASED PROJECT DEVELOPER USES TO MANAGE RISKS

A Canada-based project developer specialized in nature-based solutions was interviewed and they shared three strategies for proactive and effective risk management:

A. Select the conservative protocol

"We think it (the protocol and crediting program) is a conservative, kind of defensible approach, which we like." VCM protocols provide detailed methodologies and guidelines that dictate how to establish the baseline and model the yield curve of the project. It also takes risk adjustment into account. The project developer interviewed used protocols from one of the largest crediting programs.

B. Build trust with local communities and Indigenous Peoples

Early and continuous stakeholder engagement is key to managing reputational risks throughout the project lifecycle. The project developer has an extensive engagement process and establishes relationships with the local communities and Indigenous Peoples. They manage grievance channels to ensure interested, affected parties and rightsholders' voices are heard, and their complaints are dealt with. "We need local community buy-in to support us, to be eyes and ears on the ground for us to responsibly and sustainably make use of a landscape."

C. Screen end buyers

They follow a process where they approve every end buyer of their credits. They screen buyers based on whether the company follows the mitigation hierarchy.[12] They also check for potential greenwashing risks.

12 The corporates cannot solely depend on carbon credits to account for their emissions reductions, rather they should use them only in addition to decarbonization efforts within their system.

5. Guardrails to ensure quality: Crediting programs, VVBs, quasi-governance bodies, regulatory intervention and new players

Several ecosystem participants can provide essential guardrails to ensure quality in the VCM. Crediting programs set rigorous standards, while VVBs monitor compliance with these standards and protocols, enhancing transparency, accountability and trust in the market. Quasi-governance bodies and regulatory interventions are rising to address integrity challenges in the VCM, while new service providers, including insurers and rating agencies, contribute to enhancing market confidence. Through their combined efforts, these stakeholders help build a more credible VCM.

Crediting programs

Carbon crediting programs are independent organizations that set standards for VCM projects. Their scope of work covers project design, implementation, metric quantification, monitoring and reporting. These programs assess and approve projects against their protocols, typically after the projects receive third-party assurance from accredited VVBs. Crediting programs including ACR, CAR, GS, Architecture for REDD+ Transactions (ART), VCS and Isometric are recognized as CCP-Eligible by the ICVCM (see Chapter 5 for details). Consequently, the carbon credits issued by these programs are eligible to carry the CCP label, only for those under CCP-Approved methodologies.

Constant updates in methodologies can impede project developers' processes. Based on two interviews with developers, the main challenge they face with crediting programs is adapting to their rapid changes, including evolving disclosure requirements and embedding more specifications into their templates. This can be challenging to adjust, particularly when the project is in the middle of validation.

However, the interviewee from one of the largest crediting programs provided reasoning for these frequent amendments. Crediting bodies aim to demonstrate rigour and transparency through regular reviews, comment cycles and updates to methodologies. Additionally, some risk mitigation designs (e.g., accounting for permanence risks and the buffer pool

mechanism) also enhance crediting programs' role in ensuring quality. They actively engage with stakeholders, including technical experts, the public, governments and quasi-governance bodies, to enhance standards and their overall process.

These best practices demonstrate the crediting bodies' ongoing efforts to issue verified, high-quality credits in the VCM, thereby strengthening market trust and credibility.

Validation and Verification Bodies (VVBs)

The path to accreditation for VVBs

VVBs, also referred to as third-party auditors, are independent entities that are recognized by one or more crediting programs. In Canada, the accreditation for VVBs is generally conducted by two agencies:

Standards Council of Canada (SCC) SCC is the only internationally recognized accreditation body based in Canada. SCC offers a Verification and Validation Accreditation Program based on ISO/IEC 17029, ISO 14065 and ISO 14066. Various voluntary and mandatory crediting programs recognize SCC accreditation, including Verra's VCS and the climate registry. As signatories of the International Accreditation Forum (IAF) Multilateral Recognition Arrangement (MLA), SCC's accreditation is internationally recognized. Further, SCC undergoes peer evaluations by the Asia Pacific Accreditation Cooperation (APAC) to uphold signatory status and further enhance trust.

ANSI National Accreditation Board (ANAB) ANAB is based in the U.S. and can accredit VVBs that operate in Canada. It is a founding member of IAF and one of the initial signatories of MLA for ISO 14065. They are recognized worldwide as the leading accreditors of VVBs. Verra acknowledges ANAB and provides a list of VCS sectoral scopes for which ANAB-accredited VVBs can offer verification and/or validation.[13]

Canadian companies aiming to get accredited can apply through either SCC or ANAB, depending on their requirements and target markets.

What happens after a VVB receives accreditation?

An organization obtains accreditation after undergoing a stringent process and meeting the agency's rules and regulations. Once accredited, the VVB is authorized to engage in validation and verification opportunities with project clients. However, this is not the end of the process; rather, it marks the beginning of the VVB's responsibility to carry out tasks and comply with the agency's ongoing requirements to maintain its accreditation status.

13 VCS and ANAB sectoral scopes include energy (renewable/non-renewable); energy distribution; energy demand; manufacturing industries; chemical industry; construction; transport; mining/mineral production; metal production; fugitive emissions—from fuels (solid, oil and gas); fugitive emissions—from industrial gases (halocarbons and sulphur hexafluoride); solvents use; waste handling and disposal; agriculture, forestry and other land use (AFOLU); livestock and manure management; and carbon capture and storage.

According to a VVB representative, the accreditation agency typically visits VVBs at least once a year to assess ongoing projects. "They go with the verification team to the client and watch them do the work. Then they get the report's working papers, and they look through that. They are on-site with you doing the work." After the on-site assessment, the agency prepares a report and submits it to a committee for review. If any misconduct is found in the verification process, they issue non-conformances. The VVB is given a limited time period to respond with an action plan. If these issues are not resolved, the verifiers risk losing their accreditation. Furthermore, accredited VVBs are also required to undergo training as part of the ongoing efforts to improve the process.

How VVBs uphold standards in the VCM

- **selection of VVBs:** Project developers typically choose from a list of VVBs verified and approved by the registries. While selecting the VVBs, project developers check whether they meet the eligibility criteria established by the standard. For instance, "If projects are being certified under Verra's Carbon Credits based Verified Carbon Standard (VCS), Climate, Community and Biodiversity standard (CCB) and Sustainable Development Verified Impact Standard (SD VISta), the auditor must meet the criteria for all of those three certifications to be eligible as your auditor." Following this, developers contact eligible VVBs to check their availability and receive their quotes. Therefore, complying with the eligibility requirements for VVBs is essential for both parties to maintain and uphold the established standards.
- **standard practices:** The validation and verification processes are dictated by the standards followed by project developers. Both can be performed by the same VVB; however, there are certain regulations governing the rotation of VVBs. Validation is a one-time process, while verification occurs on an ongoing basis. Since verification is expensive for project developers, they often bundle it and seek verification every two to three years.
- **competency:** From the VVBs' perspective, "removal projects are straightforward, but avoidance projects are particularly the challenge in the market." Most interviewees highlighted that the tangible processes involved in engineered projects and their easier quantification make them less complex compared to nature-based projects. Therefore, each project type requires different areas of expertise, with the level of specialization increasing as the system becomes more dynamic. Several factors are considered when approving individuals to be part of the verification team: levels of verifiers (such as lead verifiers and peer reviewers), the registry, the project sector and other relevant parameters. When forming their teams, VVBs primarily refer to ISO 14066, "Environmental information — Competence requirements for teams validating and verifying environmental information."[14] This demonstrates how VVBs best utilize their resources to maximize the benefits of the project.

14 ISO 14066 specifies competence requirements for validation and verification teams (including technical experts) and independent reviewers for the benefit of environmental information program administrators, regulators, and Validation and Verification Bodies (VVBs). Defining competence requirements for environmental information is required to achieve consistency in the international marketplace and maintain public confidence in environmental information reporting and other communications.

- **independence:** VVBs remain impartial and objective—they do not offer advice but instead, verify the developer's plans and only confirm whether those aspects comply with the standard requirements. In this way, VVBs avoid conflicts of interest, maintain independence and focus solely on assessing compliance.
- **rigorous processes:** VVBs conduct on-site visits to verify the project and subsequently send the reports to the respective registries. "Apart from the models, they do site visits. They want all your records. They want to know everything from every grievance that's been filed to how we measure our plots. They go out and remeasure the plots," noted project developers. Regarding, the VVBs' approach to verifying the grievances, a developer explained that the VVB collects the contact details of relevant parties. The subsequent processes for verifying the handling of grievances are conducted discreetly without the involvement of the developers. These processes reflect the unbiased nature of VVBs' operation.

BOX 2 RESPONSIBILITY FOR DETECTING FRAUD AND MISREPRESENTATION

Detecting fraud and misrepresentation in carbon offset projects is crucial for maintaining the integrity and credibility of the VCM. More than one interviewee emphasized that ensuring trust is a shared responsibility between crediting programs and VVBs, who are tasked with detecting anomalies and reporting them to the relevant authorities. There are three common scenarios that VVBs may encounter when they find discrepancies in the project:

1. VVBs raise the discrepancy findings to the project developer, who then amends them accordingly.
2. VVBs identify discrepancies, but the project developer justifies their approach, showing that it aligns with the methodology.
3. VVBs identify discrepancies, but the project developer refuses to make corrections. In such cases, VVBs issue a negative assurance letter, preventing the project from being submitted to the standard body for certification.

Quasi-governance bodies

Integrity Council for the Voluntary Carbon Market (ICVCM)

ICVCM is an independent governance body that develops and implements standards, guidelines and best practices for the VCM, primarily focusing on the supply side. One of their key initiatives is the establishment of the CCPs, which serve as a global benchmark for high-integrity carbon credits. The CCPs set stringent thresholds for disclosure and sustainable development initiatives while simultaneously unlocking investment opportunities within the VCM. CCP-eligibility is intended to boost confidence around transparency and comparability of carbon credits in the independent crediting space.

ICVCM'S CORE CARBON PRINCIPLES (CCPs) ASSESSMENT

1. **carbon-crediting programs** to determine whether a carbon-crediting program can be approved as CCP-eligible
2. **categories of carbon credits** to determine whether a category of carbon credits may be labelled as CCP-Approved by a CCP-Eligible program

ICVCM's CCP assessment framework evaluates carbon crediting programs across several key areas, including governance (effective governance, tracking, transparency and robust independent third-party validation and verification), emissions impact (robust quantification of GHG emission reductions and removals, no double-counting) and sustainable development benefits and safeguards. They also have specific criteria for categories and methodologies, covering emissions impact (additionality, permanence, robust quantification, no double-counting), sustainable development benefits and safeguards and contribution to net-zero transition.[15]

Once assessments are complete, programs deemed to be CCP-Eligible will be able to issue CCP-Approved carbon credits from CCP-Approved Categories of carbon credits.

As of February 2025, ICVCM has designated six crediting bodies as "CCP-Eligible" and approved 16 categories of carbon credits under the CCP-Eligible program, with many others still awaiting final decisions.[16]

In August 2024, ICVCM announced that existing renewable energy methodologies, accounting for almost a third of the VCM, fail to meet the additionality requirements.[17] Therefore, such categories will not receive the CCP label.

The market is leaning toward CCP-labelled credits because of their perceived credibility. However, one interviewee raised concerns about the over-reliance on ICVCM CCP-Eligible carbon credits. They suggest that buyers using the CCP label as a proxy for quality may penalize those equally high-quality credits in circulation that have not yet sought CCP eligibility.

Nevertheless, ICVCM's stringent framework, through its clear and rigorous standards, contributes to transparency and credibility. Amidst public scrutiny, their initiative helps restore confidence in the market.

Voluntary Carbon Markets Integrity Initiative (VCMI)

Established in 2021, the VCMI is an international non-profit organization that aims to promote high-integrity VCM that provide genuine environmental benefits, support nature conservation and contribute to ambitious climate policies and regulations. VCMI primarily focuses on the demand side of the VCM. The organization ensures that corporations engage in the market to drive emission reductions in alignment with their mitigation hierarchy.

15 ICVCM.(n.d.). **How we assess carbon crediting programs**

16 ICVCM. (n.d.). **Assessment Status**

17 ICVCM. (2024). **Carbon credits from current renewable energy methodologies will not receive high-integrity CCP® label**

To support companies in making credible carbon integrity claims, VCMI launched the Claims Code of Practice in 2022. It provides direction and guidance to help participating companies effectively integrate carbon credits into their climate action strategies. To make the carbon integrity claim, companies must follow four steps.[18] Companies can submit all required information for review once they complete these steps. VCMI will then assess whether the company meets the criteria for their chosen claim (i.e., Platinum, Gold, or Silver). If the review is successful and the company demonstrates eligibility, they will receive branding assets and guidelines to support their claim.

Along with carbon integrity claims, the VCMI's Claims Code Practice also offers "Beta Scope 3 Claim." This claim offers a science-aligned approach for companies to address challenges in reducing their value chain emissions. The Scope 3 Claim enables companies to invest in high-quality carbon credits to offset excess emissions while taking meaningful action to address barriers to reducing their emissions.

To prevent its use to slow the pace of decarbonization efforts, companies must fulfill a set of foundational criteria to show they have a comprehensive climate strategy. Additionally, the gap in their Scope 3 emissions should not exceed 24 per cent of their projected Scope 3 emissions trajectory. The VCMI is currently conducting a consultation on this claim, and its finalization is expected to be released in early 2025.

International Organization of Securities Commissions (IOSCO)

IOSCO is a prominent global cooperative of securities regulatory agencies established with the goal of developing and promoting high regulation standards to enhance investor protection and minimize systemic risk within the financial markets. In November 2022, the Board of IOSCO published a **Discussion Paper** that aimed to foster a deeper discussion about the features of a sound and efficient VCM and the role of financial regulators in promoting market integrity. This report was followed by the **Consultation Report**, which outlined a proposed set of good practices to promote the integrity and orderly functioning of the VCM. These good practices are addressed to regulators, relevant authorities and market participants aiming to provide support to jurisdictions that have already established or are in the process of establishing the VCM. At COP 29, IOSCO released its **Final Report** outlining 21 good practices to support sound market structures and ensure financial integrity in the VCM, which could also be applicable across all the carbon markets. IOSCO's 21 Good Practices have three overarching objectives:

1. supporting the establishment of sound market structures and appropriate architecture for custody, trading, and settlement
2. promoting transparency to foster information symmetry and ensure orderly and fair trading
3. advocating for adequate market conduct and behaviour—to prevent fraud, market abuse, insider dealing and scams

18 VCMI. (n.d.) **Steps to making a Carbon Integrity Claim**.

IOSCO has set a precedent for other associations to explore ways in which regulators, policymakers and market participants can benefit while also addressing the ongoing challenges within the VCM.

Regulatory bodies

National policies

Over recent years, several regulatory interventions have been introduced in the VCM to strengthen their credibility and integrity. The Biden-Harris Administration in the U.S. announced the ***Joint Statement of Policy*** and ***Principles for Responsible Participation*** in VCMs in May 2024.[19] This statement established the Biden-Harris Administration's approach to promoting a high-integrity VCM. It also underscored the need for improved transparency and disclosure. While political transitions in the U.S. may not guarantee the continuity of this policy, government-backed initiatives, as such, are making a global impact and can steer the market in the right direction.

Several countries and jurisdictions recognize certain VCM credits in their compliance schemes. In April 2024, the Japanese government announced that its Green Transformation Emissions Trading System (GX-ETS) will accept durable carbon dioxide removal (CDR) voluntary carbon credits for compliance obligations.[20] South Africa's Carbon Tax Act allows for the use of certain VCM credits for compliance.[21] Colombia has also integrated VCM credits into its carbon tax system, allowing companies to use certain types of carbon credits to offset their tax obligations.[22] California, Peru, Ghana, Egypt, and other jurisdictions have undertaken similar efforts to allow certain voluntary and compliance market convergences. This trend of recognizing high-quality VCM credits in compliance schemes will likely gain momentum, especially after Article 6 becomes fully operational.

Global regimes

Article 6

Internationally, regulatory frameworks such as Article 6 of the Paris Agreement facilitate global trading of carbon credits to help nations meet their net-zero goals. Key components of Article 6 include:

- **Article 6.2:** Allows countries to exchange mitigation outcomes bilaterally, report their trade, and use them to meet their nationally determined contributions (NDCs)
- **Article 6.4:** Establishes a new UN-administrated mechanism for the validation, verification and issuance of high-quality carbon credits.

19 U.S. Department of Treasury. (2024). **Voluntary Carbon Markets Joint Policy Statement and Principles**

20 Ghosh, A & Yeong, A.Z. (2024). **Japan's GX-ETS to accept international removal voluntary credits for compliance obligations**, S&P Global.

21 AlliedOffsets. (2024). **Scheme spotlight: South Africa's Carbon Tax (COAS)**

22 Verra. (2021). **Using Verified Carbon Units (VCUs) in the Context of the Colombian Carbon Tax**

- **Article 6.8:** Provides opportunities for countries to cooperate towards achieving their NDCs without relying on carbon markets.

After nearly a decade of negotiations, COP 29 finally achieved full operationalization of Article 6. This international cooperation is projected to lower the cost of implementing NDCs by up to $250 billion annually.[23] A key feature of Article 6 is the requirement for corresponding adjustments to prevent double counting of emission reductions and removals. This ensures the host country, and the buyer do not claim the same credits. Although Article 6 does not directly regulate the VCM, its requirements could be adopted or mirrored by the VCM, pushing VCM participants to align with higher standards. The intersection between Article 6 and the VCM is still evolving, with the potential for integration or parallel operation. If VCM credits are allowed to be used under Article 6, the demand for credits that meet corresponding adjustment requirements might surge.

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

CORSIA, an initiative of the UN agency, the International Civil Aviation Organization (ICAO), is the world's first regulatory, market-based mechanism specific to international aviation. To foster sustainable growth in global civil aviation, the ICAO introduced a target in 2019, urging its member states, including most of the world's sovereign nations, to "achieve carbon-neutral growth from 2020 onwards."[24]

Under CORSIA, covered airlines must offset a percentage of their CO2 emissions from international flights annually. It is implemented in three phases: pilot phase (2021–2023), first phase (2024–2026) and mandatory phase (2027 onward). VCM projects supply credits for CORSIA compliance.[25] However, only credits that meet CORSIA's eligibility criteria can be used. This creates a steady demand from airlines for high-quality VCM credits, which is expected to grow during the mandatory phase.

New players in the ecosystem—insurers and rating agencies

The VCM has witnessed significant growth and evolution in recent years, which has attracted new players in the market. These players enter the VCM space to achieve their climate-related commitments and serve the growing demand for carbon offsets. Below is the description of the emerging market participants informed by both the interviews and other resources:

Insurers

The most common risks faced by VCM participants include natural catastrophe, environmental, political, technological, fraud and negligence, non-delivery and invalidation risks. The emerging insurance products can help unlock capital by providing risk mitigation. An interviewee from an insurance broker stated that insurers provide a "second pair of eyes" to assess the underlying risk and its management. If a project passes the scrutiny and obtains

23 UNFCCC. (2024). **COP29 Agrees International Carbon Market Standards**

24 ICAO. (n.d.) **Climate Change Mitigation: CORSIA**

25 ICAO. (2024). **CORSIA Eligible Emissions Units**

risk capital, it could be an additional signal of quality for the carbon credits being sold. However, a nature-based project developer countered this view stating that they might refrain from getting insurance for their credits, as it may create a false impression of higher project risk. Instead, they would prefer that buyers opt for insurance, if they choose to do so.

Insurance can be made available for each individual peril (i.e., insurance coverage for each risk type) or more comprehensively (i.e., insurance coverage extending to more than one risk type such as non-delivery/under-delivery products). Regarding the current demand for insurance solutions, interested parties include carbon project developers, carbon credit buyers, investors and lenders.

There are differing views on whether the buffer pool is an efficient risk-mitigation mechanism for the stakeholders involved. Buffer pools act as a safety net for buyers and developers to cover potential reversal and invalidation risks. However, there are concerns regarding the integrity of the buffer system, including an insufficient buffer pool size that may not be large enough to protect against catastrophic losses, and potential quality discrepancies where registries may use lower-quality credits to replace the higher-quality ones.[26] This presents an opportunity for insurance and buffers to collaborate, leveraging the insurance sector's extensive experience with risk management and portfolio construction to foster confidence in the buffer system's integrity.[27]

Overall, introducing a diverse range of risk management and mitigation products could help scale the market and encourage participation from large players.

Rating agencies

Carbon credit rating agencies are entities that evaluate and assign ratings to the carbon credits within the VCM. These organizations use their own framework to fairly and comprehensively assess the likelihood that a tonne of $CO2_e$ is genuinely represented by the evaluated carbon credit. Carbon Market Watch's study highlights discrepancies in how agencies assess factors such as additionality, non-permanence risks, leakage risks, and co-benefits and safeguards.[28] It also notes that while these agencies aim to uphold high integrity in the market, they add confusion due to the stark differences in their assessments of the same projects.

The buyers interviewed shared that carbon credit ratings can inform their analysis but not replace in-depth due diligence. One organization, which acts as a buyer and advisor, noted that rating agencies typically review public documents and monitor news. Due to the lack of on-the-ground reviews by rating agencies, they use them only as part of their due diligence process. Another buyer added that these rating subscriptions are typically expensive.

Based on existing studies and interview responses, carbon credit rating agencies have room for improvement and the potential to add value to the VCM.

26 MacDonald, A. (2022). **Guide to Carbon Credit Buffer Pools. Sylvera**.

27 Kita & Oxbow Partners. (2024). **Gross Written Carbon: Are carbon credits the next billion-dollar insurance market?**

28 Carbon Market Watch. (2023). **Rating the Raters: Assessing the quality of carbon credit rating agencies**

6. Looking ahead

As the market evolves, its future is shaped by tailwinds (positive drivers) and headwinds (potential challenges). This section explores six of the latest developments and trends—some serve as clear tailwinds or headwinds, while others have a more nuanced or mixed impact.

- **full operationalization of CORSIA and Article 6:** Both mechanisms can potentially create steady and predictable demand for high-quality VCM credits, creating strong tailwinds for the market. CORSIA requires airlines to offset emissions exceeding their baseline levels by purchasing carbon credits. It is currently in the voluntary phase for all participating countries and will enter the mandatory phase in 2027. At COP29, delegates reached a consensus on Article 6. Once countries ramp up efforts to meet their NDCs, the demand for high-quality credits backed by corresponding adjustments is expected to grow. There are still uncertainties regarding how much demand CORSIA and Article 6 could drive when they are still in the early stages. Depending on their implementation, potential challenges related to accounting for emissions reductions may arise, undermining the market integrity.
- **divergent paths on climate policy in major markets:** The U.S. and China, the world's two largest emitters, are adopting divergent approaches to climate policy under their current administration. In the U.S., the current Trump-Vance Administration has weakened federal support and slowed down regulatory advancements on climate programs. Meanwhile, some states remain at the forefront of climate action (e.g., California's compliance carbon market), mitigating the impact of federal pullbacks. Nevertheless, for the VCM, this political shift in the U.S. creates uncertainties for both the supply and demand ends. In contrast, China is advancing its climate agenda and expanding its national compliance carbon market. As of January 2025, only credits from China's domestic scheme (i.e., China Certified Emission Reduction [CCER] program) can be used for compliance. If China starts to recognize credits from the VCM, it could significantly boost demand for high-quality credits and influence pricing. Overall, the evolving landscape of climate policies warrants close attention.
- **some convergence between voluntary and domestic compliance carbon markets:** Similar to CORSIA and Article 6, domestic compliance markets could also create demand for high-quality credits. Several jurisdictions have integrated VCM credits into their compliance schemes. For example, California and Japan allow certain VCM credits for compliance. The convergence of voluntary and domestic compliance markets offers companies flexibility to meet their compliance obligations. Setting a cap on the use of carbon credits ensures that businesses remain focused on reducing emissions within their supply chains.

- **quasi-governance bodies and regulatory intervention to provide guidance and clarity:** Although it is a voluntary market, some clarity might help address integrity issues and buyers' concerns. The ongoing work from quasi-governance bodies (e.g., ICVCM's CCP) acts as a tailwind, enhancing market standards. Multiple ecosystem players interviewed expressed support for regulatory intervention to prevent fraud and promote good practices. For example, in the EU, the demand side is likely to be reshaped by the regulatory effort to crack down on greenwashing (i.e., the EU Green Claims Directive) and to create a voluntary framework to certify high-quality carbon removals.
- **enhanced target-setting and disclosure requirements:** Regarding target-setting and disclosure, efforts from SBTi and VCMI are ongoing to provide clarity and guidance. The possible recognition of VCM credits for companies to offset Scope 3 could create significant tailwinds by increasing demand. Clear disclosure requirements are generally interpreted as positive for quality projects. However, they may have a mixed impact on the market if leading to unintended greenhushing.
- **technological innovations in MRV processes:** Technologies such as drones equipped with high-resolution cameras, Light Detection and Ranging (LiDAR) sensors, and Internet of Things (IoT) devices are revolutionizing the process of MRV. AI and machine learning enable MRV systems to process large datasets from satellites, IoT devices and sensors. By improving accuracy, transparency and efficiency, these technological advancements generate tailwinds to boost market confidence.
- **the development of alternative market designs (e.g., biodiversity credit markets):** Alternative market designs like biodiversity credit markets are still evolving. Biodiversity credit markets differ from the VCM as they assess biodiversity improvements based on species richness, habitat quality and ecosystem services, among other metrics. There is potential for synergies between the VCM and alternative market designs. Nature and climate impacts are often intertwined—many VCM projects already benefit nature. However, some may argue that the creation of alternative markets introduces additional complexity for buyers and developers. Double-counting risks may arise when several markets interact without clear rules.

7. Final words

A market consensus exists on the need for greater integrity, transparency and standardization in the VCM. A clear shift toward high-quality carbon credits is underway, driven by initiatives from quasi-governance bodies that raise the bar for credit integrity. As the VCM continues to evolve, close collaboration among key ecosystem participants—project developers, buyers, investors, crediting bodies, VVBs and other service providers, quasi-governance bodies and regulators—is imperative to fostering a transparent, reliable market that can advance global climate action. Importantly, the emerging opportunities for professional accountants underscore their increasing potential to play a pivotal role in scaling a high-integrity VCM.

8. Appendix: Summary of interviewees

The report is based on 13 expert interviews, including senior representatives from four buying organizations (three also acting as advisors), three project developers (nature-based and engineered), two VVBs, one intermediary service provider, one crediting program and two other stakeholders. The experts were chosen to provide diverse perspectives based on their, on average, more than five years of direct industry experience. Between June and August 2024, we conducted a one-hour, semi-structured interview with each participant. Two researchers independently categorized and analyzed the data by theme from transcripts and notes.

Category	Designation of interviewees	Count of Company/ Organization
Buyer	Director, Environmental Markets Solutions Group	1
	Environmental Commodities Strategist	1
	Manager, Climate and Environment Strategy	1
	Managing Director	1
Developer	Chief Science & Commercial Officer	1
	Director, Conservation Finance	1
	Director, Domestic Land Use	1
VVBs	Director, Sustainability and Climate Change	1
	President (former)	1
Service provider	CEO & Co-Founder	1
Crediting program	Chief Program Management Officer	1
Others	Managing Director, Climate Risk Advisory	1
	Technical Director (former), Voluntary Carbon Markets	1
Grand Total		**13**

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