In collaboration with
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WORLD ECONOMIC FORUM

Scaling Voluntary Carbon Markets: A Playbook for Corporate Action

WHITE PAPER

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Images: Getty Images

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Foreword

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Carbon markets are not new – in fact, they have existed for more than 20 years – yet they remain far from mature. Even as market infrastructure continues to evolve, the voluntary carbon market (VCM) represents an important lever to help accelerate high-impact climate action, protect nature and drive the energy transition towards net zero. Market growth in recent years has attracted scrutiny by critical observers and raised important concerns about the potential abuse of the VCM for corporate greenwashing. This, and the ambiguity inherent in any emerging market, has limited further corporate adoption of the VCM as expected. Yet if participation can be expanded to a wider set of global corporate leaders, the VCM could provide a valuable and immediate tool for climate finance.

To unlock the VCM's potential positive impact on nature and the environment and to foster increased corporate participation, the World Economic Forum and Bain & Company have convened a working group of high-ambition corporate partners in collaboration with existing market initiatives and stakeholders. Since it was first convened in April 2023, this group has worked to address key market barriers and codify corporate best practices for high-impact participation in VCMs. To complement this work, the Forum and Bain & Company have developed this white paper as a playbook to support the next wave of companies on the verge of entering the VCM. The report reflects surveys, interviews and working sessions with corporate members of the working group as well as representatives from key market initiatives. While this document reflects a faithful representation of the learnings derived from participants engaged in that work, it does not necessarily reflect the beliefs of any one organization.

This report has four main objectives:

1. Articulate the urgent need for carbon markets to scale up capital allocation in support of the climate transition.

2. Propose ways in which the VCM could evolve to reach its potential as a tool for channelling climate finance.

3. Provide an actionable guide for companies new to the VCM that helps mitigate common risks and provides practical examples from leading corporations with experience of carbon markets.

4. Declare a call to action directed at encouraging private, public and civil society actors to take the steps needed to unlock the VCM's full potential to accelerate climate action.

While the VCM is imperfect and guardrails need to be set and enforced to avoid misuse, the climate crisis is too urgent to continue underusing this source of transition finance. Now is the time to act.

Executive summary

The urgency to reduce emissions, protect critical ecosystems and deploy new technologies at scale to remove carbon from the atmosphere has never been greater. Without meaningful action, the impact of climate change, including extreme weather and rising seas, could reduce global GDP by around 14%[1] and result in 1.2 billion climate refugees by 2050.[2] Despite these potentially devastating consequences, annual flows of climate finance investment in 2021 were a mere 20% or so of the estimated $4.3 trillion required by 2030.[3]

The voluntary carbon market (VCM) is one of the few transition finance options that could accelerate action, scale up new technologies and connect private capital to high-potential projects in the limited time available. Investment today is critical, not only to mitigate carbon emissions immediately but also to build market capacity ahead of 2030 ambitions. However, the VCM has failed to secure the financial investment necessary to scale up and innovate. Current government policies and market standards have failed to provide adequate strategic inducement to motivate boards and investors to deploy capital at scale. The VCM market, estimated at $1.3 billion in 2022,[4] could grow to more than $50 billion by 2030,[5] if companies begin investing more strategically today.

For the VCM to mature, grow and contribute meaningfully to the mitigation of climate change, governments must create regulatory mandates to compel corporate action while, in their absence, market standard setters must provide alternative recognition to incentivize corporations. These incentives can encourage companies to embrace carbon credits as an additional lever to complement dedicated mitigation efforts and further support their net-zero strategies. While early adopters and market builders invested heavily to create the necessary capabilities to navigate a complex landscape, the next wave of companies needs a simplified structure, tangible incentives to participate, clear guidance for credible market participation, and market infrastructure that provides transparency on credit quality as well as de-risking purchase. This will take time, but regulators and standard setters need to initiate both independent and coordinated action now.

Several stakeholders, including regulators, standard setters and corporations are already working together to address obstacles in the VCM and promote engagement. But the planet cannot afford for the private sector to await the perfect solution. While challenges are being resolved, companies can start using carbon markets to deliver climate action now and position themselves and society to achieve net-zero ambitions.

This report aims to provide guidance to companies who recognize the climate imperative and possess the will to participate in the VCM, but who remain on the sidelines due to market challenges and other complexities. For companies less inclined to act, the report seeks to make a case for the strategic value of the VCM and the urgency to act now.

Four tracks of action have been identified for the next wave of corporations to embrace the voluntary carbon market:

1. **Define a net-zero role for credits:** Define the complementary role of carbon credits while maintaining dedication to direct abatement in achieving science-based targets, consistent with the mitigation hierarchy and reflective of technological, financial and other constraints on decarbonization.

2. **Create value and recognition:** Identify tangible outcomes resulting from carbon market activity and communicate to key internal and external stakeholders to enhance forward-looking risk management, brand-building and employee engagement.

3. **Tailor a portfolio:** Prioritize high-quality, high-impact carbon credit portfolios where avoidance credits remain important initially and permanent carbon removal outcomes are ramped up over time.

4. **Orchestrate the effort:** Integrate the carbon credit strategy into the company's wider net-zero approach and organizational structure; carbon credits should be closely connected to the broader decarbonization path and overall sustainability strategy.

Although this paper will briefly identify a few key challenges facing the VCM to provide context, it will not focus on detailed diagnoses of those issues but, rather, offer a flexible framework for action that can empower companies to act despite these market limitations.[6]

The report is also a call to action for others. Corporations that have not yet built a comprehensive climate strategy must do so. Civil society, standard setters, regulators and other market actors must collectively acknowledge the market needs improvement, learn openly and drive efforts to facilitate high-integrity climate action, without distracting from or discouraging the central priority of decarbonizing value chains. When pursued as complementary to decarbonization, an environmentally robust approach to the VCM can deliver climate mitigation both within and beyond value chains[7] to help accelerate the global transition to net zero.

Introduction

Voluntary carbon markets offer an important tool to close the climate financing gap, but they are falling short of their potential.

The case for voluntary carbon markets

Limiting global warming to 1.5°C will require annual investments of over $4 trillion by 2030, an increase of nearly five times 2021 levels.

Current policies put the world on track for 2.7°C warming,[8] significantly overshooting the Paris Agreement goal to limit temperature rises to well below 2.0°C and pursue best efforts to keep warming below 1.5°C.[9] The present global surface temperature of ~1.1°C above pre-industrial levels already poses significant economic risks,[10] which are expected to compound losses if the warming trajectory continues. By 2040, an additional 2.8 billion people will experience high or extreme water stress.[11] By 2050, there could be 1.2 billion climate refugees. Urgent action is required to halt climate change: limiting global warming to 1.5°C will require a 45%[12] reduction of global carbon emissions and annual investments of over $4 trillion in global climate finance by 2030, an increase of nearly five times 2021 levels.[3]

The preservation of biodiversity and natural carbon sinks is another critical element of climate action. Between 1970 and 2018, wildlife populations declined by an average of nearly 70%,[13] with habitat loss identified as a main threat to 85% of species on the International Union for Conservation of Nature's Red List.[14] These negative trends may be irreversible without immediate, meaningful climate action from corporations.

FIGURE 1 **Urgent action required to mitigate the impacts of climate change and achieve the Paris targets**

2.6°C - 2.9°C rise in global temperature from pre-industrial levels projected by 2100

Up to 14% reduction in 2050 global GDP if temperatures rise by 2.6°C

~30% decline in average agricultural yields by 2050

~132 million people to be pushed into poverty due to climate change by 2030

~1.2 billion climate refugees displaced by natural disasters and sea level rises by 2050

Sources: Climate Action Tracker,[15] Swiss Re,[16] World Resources Institute,[17] World Bank 2020,[18] Zurich[19]

The VCM can help scale up and allocate capital flows to partially address the climate funding gap by 2030. In 2022, the VCM channelled around $1.3 billion[20] in investment flows to mitigate carbon emissions and could grow to more than $50 billion by 2030.[21] Additionally, the VCM can create and protect natural carbon sinks, develop technologies that will remove CO_2 and support local communities. For example:

- **Protecting natural carbon sinks:** 45% of the carbon credits available through VCMs today are nature-based solutions, according to carbon ratings provider Sylvera. Of these credits, 98% are issued in the Global South, providing funds to finance the transition where they are most critically needed.[22]
- **Supporting local communities and biodiversity:** The most popular nature conservation projects shortlisted on Sylvera's platform showcase both community and biodiversity benefits. The three most common benefits seen across nature conservation projects were found to be "Decent Work and Economic Growth", "Gender Equality" and "Quality Education".

BOX 1

Voluntary Carbon Market or Verified Carbon Market?

The demand-side description "voluntary carbon market" usually refers to a market based on verified carbon credits originating from carbon standards managed by organizations like Verra and the Gold Standard. This term was coined in the 2000s to differentiate the voluntary use of carbon credits from their use in compliance markets, such as the European Union Emissions Trading System, which at the time allowed the limited use of credits from the Clean Development Mechanism (CDM) to offset compliance obligations.

However, in the 2020s the world has become more complex and compliance markets rely on market infrastructure from traditional voluntary markets for several purposes, for example:

- Corporations and individuals buy carbon credits to voluntarily offset their carbon footprints.
- Several cap and trade systems (e.g. California) and carbon taxes (e.g. South Africa, Singapore, Colombia) allow for the (limited) use of carbon credits to offset obligations.
- CORSIA, the compliance carbon market for international aviation, prices aviation carbon emissions through the mandatory use of carbon credits from a list of standards (e.g. Verra, the Gold Standard, American Carbon Registry and The Climate Action Reserve).
- Guidance on Article 6.4 of the Paris Agreement from COP27 allows for the use of emission reductions to achieve countries' commitments under the Agreement (Nationally Determined Contributions) or for other purposes, such as results-based climate finance.

The commonality of these approaches is not their voluntary nature but their use of verified carbon credits that certify the reduction or the removal and storage of CO_2. Therefore, the supply-side term "verified carbon market", conveniently also abbreviated to VCM, could be an alternative to refer to a market based on verified carbon credits, irrespective of their intended use as voluntary contributions, offsets or retirement against a compliance obligation.

Voluntary carbon markets are falling short of their ambition

Since 2018, the corporate appetite for climate action has grown rapidly, with proliferating commitments to, for example, the Science Based Targets initiative (SBTi), RE100 and others. However, increased corporate action and commitment towards net zero has not translated into increased investments in carbon credits and mitigation beyond the corporate value chain due to a lack of a clear role for carbon credits within the SBTi corporate net-zero standard (see Box 2).[23] While signatories to the SBTi grew by a factor of 55.8 between 2018 and June 2023,[24] the retirement of carbon credits only grew by a factor of 3.2 over the same timeframe – an underperformance of more than 90% (see Figure 2).[25]

BOX 2

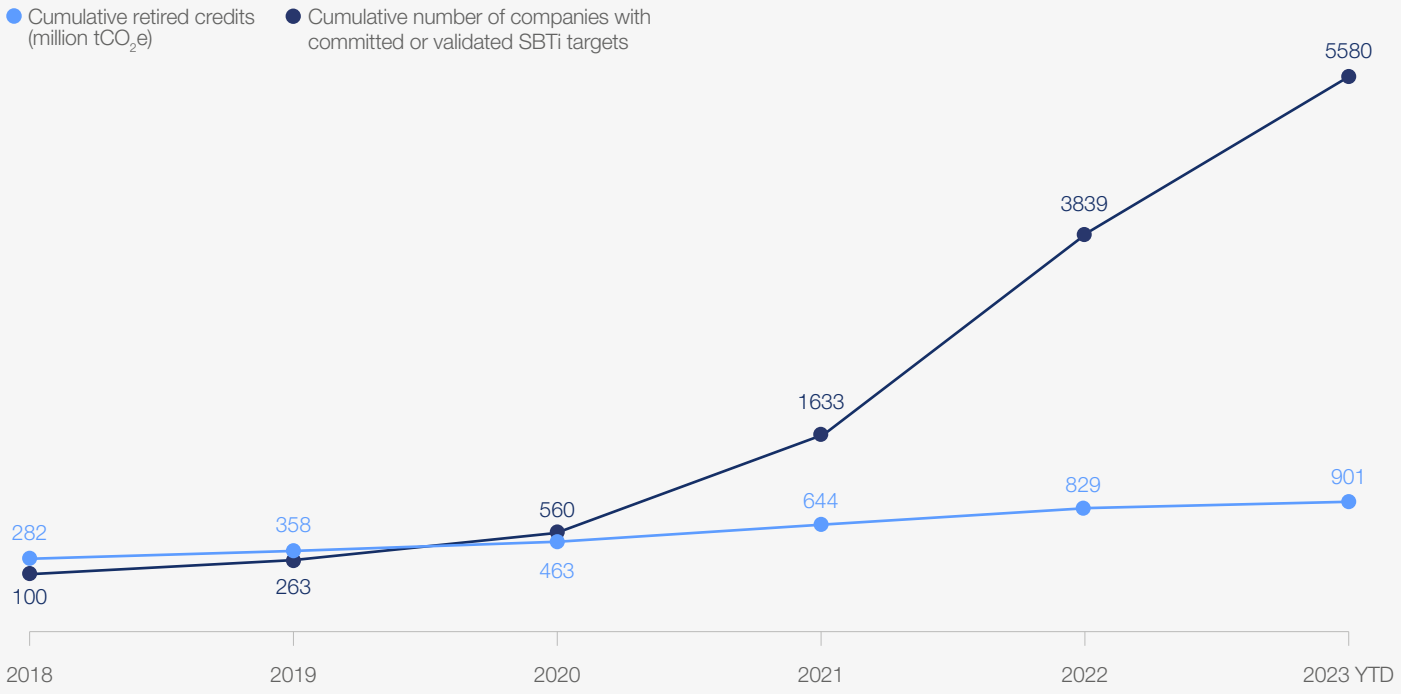
SBTi's corporate net-zero standard

The SBTi's corporate net-zero standard for setting corporate net-zero targets in line with 1.5°C:

1. **Near-term science-based targets:** Emission reduction plans for 5-10 years in line with 1.5°C.
2. **Long-term science-based targets:** Most companies are required to cut emissions by at least 90% no later than 2050.
3. **Beyond-value-chain mitigation:** Companies are expected to take action to mitigate emissions outside their value chains, such as purchasing high-quality, jurisdictional REDD+ credits* or investing in direct air capture.
4. **Neutralize residual emissions:** Remaining emissions, i.e. the final 10% or less, must be neutralized with permanent carbon removals.

***Note:** REDD stands for "Reducing emissions from deforestation and forest degradation" in developing countries. The '+' stands for additional forest-related activities that protect the climate, namely sustainable management of forests and the conservation and enhancement of forest carbon stocks. Jurisdictional REDD+ refers to a government-led, comprehensive approach to REDD+ across one or more legally defined territories (e.g. states, provinces). Sources: United Nations, World Resources Institute.

FIGURE 2 **Growth in SBTi signatories not matched by retirement of carbon credits**



Sources: SBTi, Trove Research[26]

If the VCM remains underutilized, the world will miss an opportunity to funnel potentially billions of dollars into climate action.

If the VCM remains underutilized, the world will miss an opportunity to funnel potentially billions of dollars into climate action. In the current environment, risks and benefits for the VCM are misaligned. The risks of inaction for nature are too high, while the incentives for corporations to act now are too low (see Figure 3). As with all investment decisions, companies must allocate scarce resources. Resources available for beyond-value-chain action are limited further as corporations prioritize decarbonization.

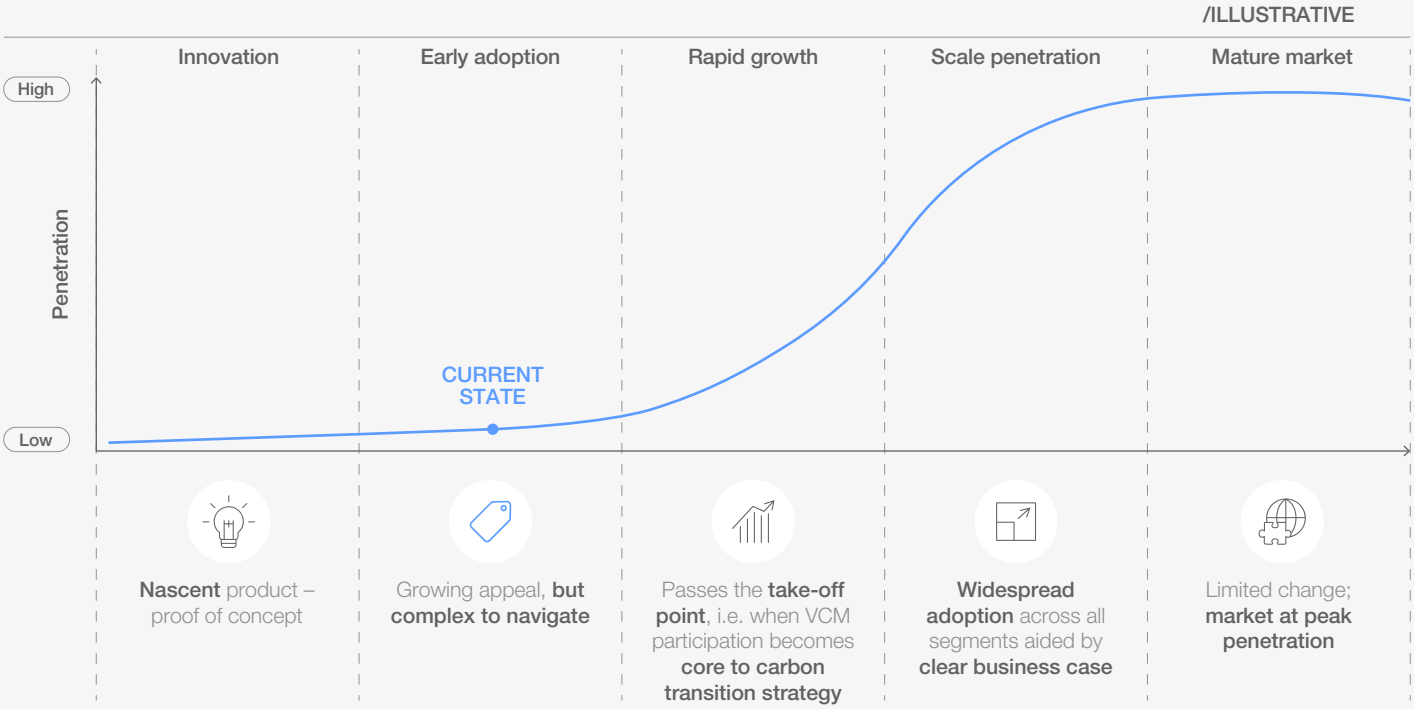
FIGURE 3 **The cost of inaction is higher than the cost of action**

	Acting now	Acting later	
Risks and Benefits for **Corporations**	• **Complex landscape** of standards and **low transparency** • Risk of **greenwashing** accusations • **Lack of supply** of **high-integrity** credits • **Unclear incentives** • **Market risk** for specific credit types (stranded asset risk) • Potential unlocking of **new business opportunities**	• **No strong "alternative plan"** to reach net zero if targets are missed • Risk of **missing access** to high-quality **credit supply** • **Lower abatement costs** as technologies move down experience curve • Better **clarity** on **regulations** and **standards** • **Demonstrated examples** from early adopters	**At a corporate level, the high cost of action is holding companies back…**
Risks and Benefits for **Nature & Climate**	• Funding to **protect/restore/create new carbon sinks** • Positive impact through **co-benefits** • Support achievement of **global climate ambition**	• **Delayed protection** and **restoration** of **nature** • Accelerating climate change **compounds ecosystem degradation**	**… but at a collective level, the cost of inaction is higher; corporations should ACT NOW**

Source: Bain & Company

To contribute meaningfully to the transition ahead, the VCM needs to move up the adoption S-curve and reach the "take-off point" for widespread corporate adoption. The initial wave of early adopters invested heavily in building internal capacity and took conscious risks when entering the market, however broader adoption has stagnated. Broader adoption requires a more easily accessible market, clear incentives to act, and manageable corporate and individual risks. The next wave of corporate adopters requires a strategic rationale for carbon credit use, explicit incentives for participation, clear market rules, accepted claims recognition processes and infrastructure to support risk management.

FIGURE 4 **VCM yet to reach the "take-off point" in S-curve of corporate adoption**



Source: Bain & Company

Waiting passively for the perfect solution is not an option – corporations have no choice but to navigate the uncertainty and learn in the open.

Among the key challenges facing the VCM is the risk of criticism, even when acting with integrity and striving to adopt industry best practices. Healthy scepticism is merited and helps highlight past mistakes to avoid them in the future. To avoid criticism, corporations must act with renewed vigilance and integrity rather than withdrawing. The market can support this by collectively investing in mechanisms to ensure the high quality and integrity of carbon credits. Waiting passively for the perfect solution is not an option. Consumers, customers, employees and societies demand climate action – so corporations have no choice but to navigate the uncertainty and learn in the open. While some uncertainty does remain, there has been significant progress made in the last year or two to bring standards into alignment. Core frameworks from market standard setters such as SBTi, the Voluntary Carbon Markets Integrity Initiative (VCMI) and the Integrity Council for the Voluntary Carbon Market (ICVCM) have been coordinated and brought into alignment with greenhouse gas accounting and CDP disclosures. While these can be more tightly integrated, there are sufficiently viable standards in place to enable action today.

Meaningful action is urgently needed to avoid the dire consequences forecasted on our current trajectory. Although the VCM's current imperfections – such as lack of strategic incentives or complexity of standards with limited quality transparency – make participation challenging, the world cannot afford not to use any and all viable tools to mitigate the consequences of climate change. Corporations must act now, while simultaneously collaborating with regulatory bodies, standard setters and each other to make structural improvements and help the market reach its full potential in time.

1 The VCM in 2024 and beyond – a vision for future carbon markets

The VCM must evolve to provide more robust systemic guidelines for engagement, but companies need to act now to support that evolution rather than wait for it.

Carbon credits (and markets) are a little over two decades old, however the market is still evolving rapidly. Many regulators, standard setters and market initiatives are working to resolve fundamental challenges, but broader corporate engagement must accelerate in parallel. Growing the market will improve its economics, fungibility and liquidity. Standardization and transparency will improve the quality of supply and integrity of claims.

This chapter presents a vision for the evolution and growth of the voluntary carbon market through six thematic lenses (see Figure 5).

FIGURE 5 **A vision for the future of the VCM seen through six lenses**

Source: Bain & Company

1.1 A new narrative

Carbon credit purchasing by corporations is often seen as a low-cost shortcut to avoid taking meaningful action to abate their value-chain emissions in the face of the climate crisis. Some companies are even facing legal action for making misleading marketing claims ("greenwashing"). Fearing this publicity risk, companies may hide their participation ("greenhushing"). In the first five months of 2023, 45% of all credit retirements issued by Verra did not list a corporate beneficiary, compared to 40% in the same period of the previous year, suggesting a decline in the number of corporations prepared to take ownership of their VCM activities.[27]

Carbon credits should not serve as a substitute for direct abatement and corporations need to be accountable for their claims.[28] However, companies should be incentivized to adopt beyond-value-chain mitigation (BVCM) activities in addition to deep in-value-chain decarbonization. A new narrative must acknowledge and reward the use of high-integrity carbon credits as a supplement, rather than an alternative, to other decarbonization activities.

Reframing the narrative around carbon markets as a critical tool for companies to allocate capital to ecosystem conservation and the development and deployment of technical climate solutions is not a trivial goal. To achieve this in the short timeframe required will require the collaboration of a multitude of stakeholders. Regulators, standard setters, companies and civil society need to acknowledge the urgency of the issue and the widening financing gap, the role that carbon markets can play to close it, and the responsibility that corporates have to contribute.

Without this new narrative, boards and investors lack the rationale for providing capital to the global climate transition at sufficient scale. To have the required impact, this new narrative must be mirrored by regulatory guardrails and social expectations for corporations to act. What is needed is a new way to provide incentives and recognition for companies to channel their creativity, innovation and capital to address the most urgent and far-reaching issue of the 21st century.

> "Regulators, standard setters, corporates and civil society need to acknowledge the widening financing gap and the role that carbon markets can play to close it."

1.2 Strategy, not philanthropy

Today, the VCM is primarily used by corporations philanthropically or to achieve their corporate responsibility agenda. Voluntary ambitions of net zero and biodiversity commitments may be made to enhance brand perception or address shareholder and customer pressure. This results in discretionary VCM participation with limited integration into commercial objectives or strategic vision.

However, a strategic approach to the VCM can have numerous benefits, including managing investment risk in credit projects, being involved in the development of cutting-edge technologies for decarbonization, having access to high-quality credits, and being resilient in the environment of evolving standards and regulations.

The approach should consider all aspects of corporate strategy: from the important price-signalling impact of carbon credit procurement, through a sourcing process that optimizes risk and rewards, to the strategic communication and organizational set-up needed to support execution.

An integrated, strategic perspective on carbon credits emphasizes the use of carbon markets to steer corporate decision-making and can mitigate many of the climate transition risks that corporations face. Consequently, corporations need to implement carbon credits as an integral cost of doing business, rather than viewing such credits as discretionary spending that is unlikely to secure significant committed capital.

1.3 Pragmatic recognition of efforts

Corporations have different emissions profiles, unequal access to decarbonization levers, and are at different stages of the journey to net zero. While some pathways to net zero are straightforward, some companies and sectors rely on technologies or business models that have not yet been adopted at scale or that currently lack economic viability for many emissions. Acknowledging this variability provides scope to tailor "what good looks like" based on industry-specific challenges.

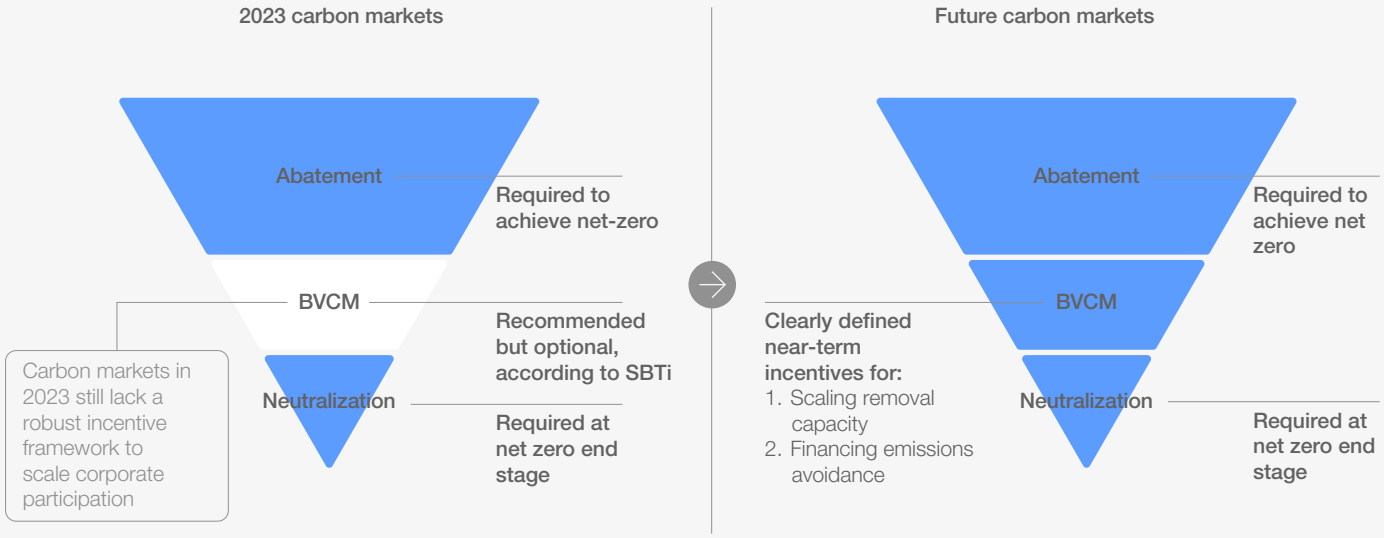
Recognizing these limitations and differences across sectors, regulators and standard setters can design frameworks that provide incentives for companies to allocate capital to mitigation beyond their value chains while retaining the abate-first mitigation hierarchy, for example:

- **Incentives for high ambition:** Some companies – especially in sectors benefiting from mature decarbonization technologies – are on track to achieve their commitments. The right incentives – whether compulsory mandates from governments or, in their absence, sufficiently valuable recognition frameworks from market standard setters – could encourage corporate actions beyond value chains, providing much needed capital to accelerate the global transition and expedite the development of currently unproven technologies.

- **Pragmatic solutions:** Some companies in hard-to-abate sectors lack viable technical options for immediate decarbonization. These companies need to commit to abatement where possible and invest to support technological development for the long term. They can invest through buying commitments, for example the $12 billion of pledges committed by members of the World Economic Forum's First Movers Coalition to commercialize zero-carbon technologies in hard-to-abate industries.[29] Alternatively, companies can directly fund R&D into required technologies – the recent agreement for an R&D hub for plastic waste-processing signed by seven global chemicals companies, incubated by the World Economic Forum, is an example of this.[30] To support more such initiatives, regulators and standard setters could unlock additional capital by offering tangible investment incentives, which in turn can support the development and deployment of new technologies and accelerate flows of capital towards mitigation activities outside company value chains.

Since the Paris Agreement, regulations, stakeholder activism and pressure from customers and employees have driven increased private sector responsibility for direct abatement and a commitment to remove residual emissions at the net-zero end stage. A thriving carbon market in the future will have to find solutions to provide incentives for parallel abatement and investments in beyond-value-chain mitigation.

FIGURE 6 | **Potential evolution of the mitigation hierarchy**[31]



Source: Bain & Company, adapted from SBTi

1.4 Transparent disclosure and claims

Market initiatives across the globe are developing climate disclosure frameworks to bring greater transparency and accessibility to carbon credit usage (e.g. International Sustainability Standards Board, European Sustainability Reporting Standards, the US Securities and Exchange Commission, UK Transition Plan Taskforce).

Concurrently, corporations are under great public scrutiny and sometimes legal pressure. Civil society and the media are increasingly aware of misleading climate claims and are calling out corporate greenwashing that remains widespread.

A 2021 European Commission report found that 42% of corporate environmental claims online are exaggerated, false or deceptive, demonstrating the need for continued vigilance by civil society as well as the need for corporates to maintain high-integrity internal practices.[32] Some critics have also raised concerns around the double-claiming of carbon credits by companies and host countries (see Box 3). Nuanced and pragmatic guardrails controlling the use of carbon credits are required from standard setters to build confidence and support greater adoption.

“ **A 2021 European Commission report found that 42% of corporate environmental claims online are exaggerated, false or deceptive, demonstrating the need for continued vigilance by civil society as well as the need for corporates to maintain high-integrity internal practices.**

BOX 3 Contribution claims and the need for transparency

The discussion of which claims corporations can legitimately make based on the procurement and retirement of carbon credits has heated up during 2023. Some stakeholders argue there is a risk of double-claiming the environmental benefit of carbon credits when making offsetting (or carbon neutrality) claims while a host country simultaneously counts the mitigation. According to this argument, both the host country and the corporate purchaser are taking ownership of the carbon credit—the host country by accounting for the emission reduction in their national carbon balance and the corporation by making an offsetting claim. An additional critique contends that corporate marketing claims around carbon neutrality can create the false impression of a complete elimination of the negative impacts of harmful activities.

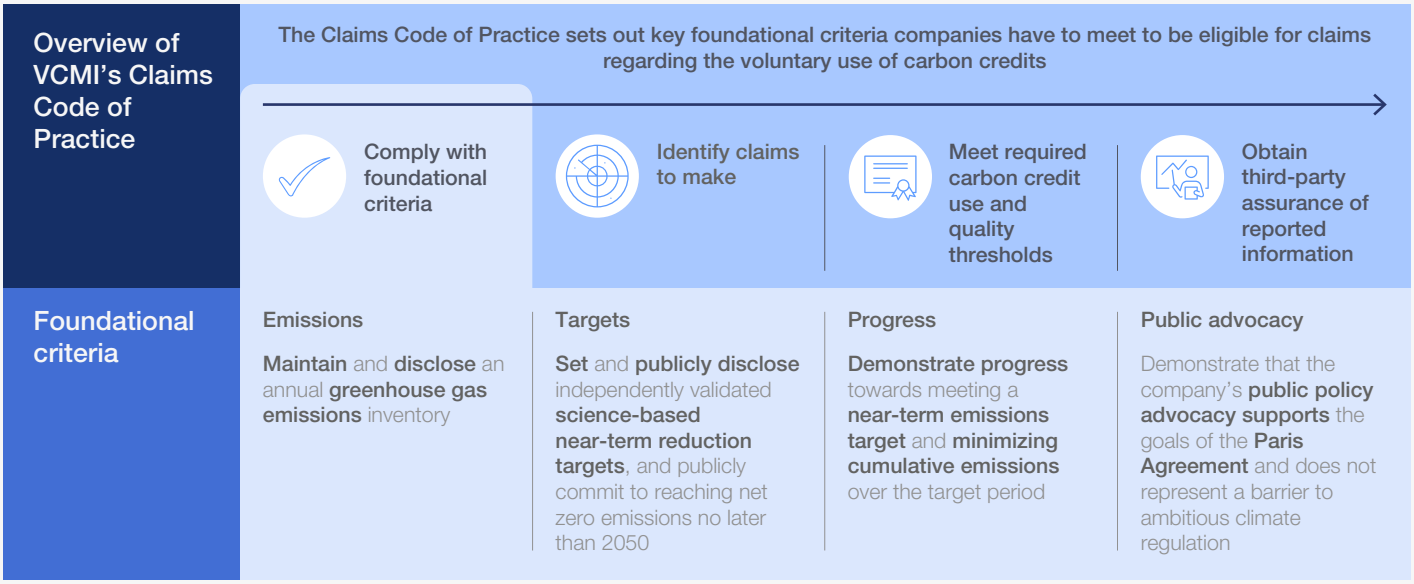
To avoid the risks of double-claiming and misleading marketing messages, some market participants and observers argue for the use of a "contribution claim". By claiming a contribution to the host country's climate targets without claiming carbon neutrality or an offset of emissions, corporations can avoid both pitfalls and ensure full transparency.

Other market participants argue that these double counting concerns are unfounded. According to this argument, the sovereign carbon accounting system is separate from corporate carbon accounting. It is argued that forcing companies to use a claim of climate contributions that is less intuitive and more difficult to quantify risks undermining the appeal of providing capital for climate action.

The verdict on which claims provide the highest level of integrity without reducing the value of buying carbon credits for corporates is yet to be determined.

In the future, corporate claims based on credit procurement must be streamlined, transparent and standardized (with fit-for-purpose assurance) to avoid confusing consumers and ensure credit procurement is not used to mask insufficient decarbonization. The VCMI's Claims Code of Practice[33] provides a basis for communicating corporate action in a standardized way (see Figure 7). However, further work is required to ensure transparency and accuracy of reporting throughout the market.

FIGURE 7 **VCMI's Claims Code of Practice – Foundational criteria**



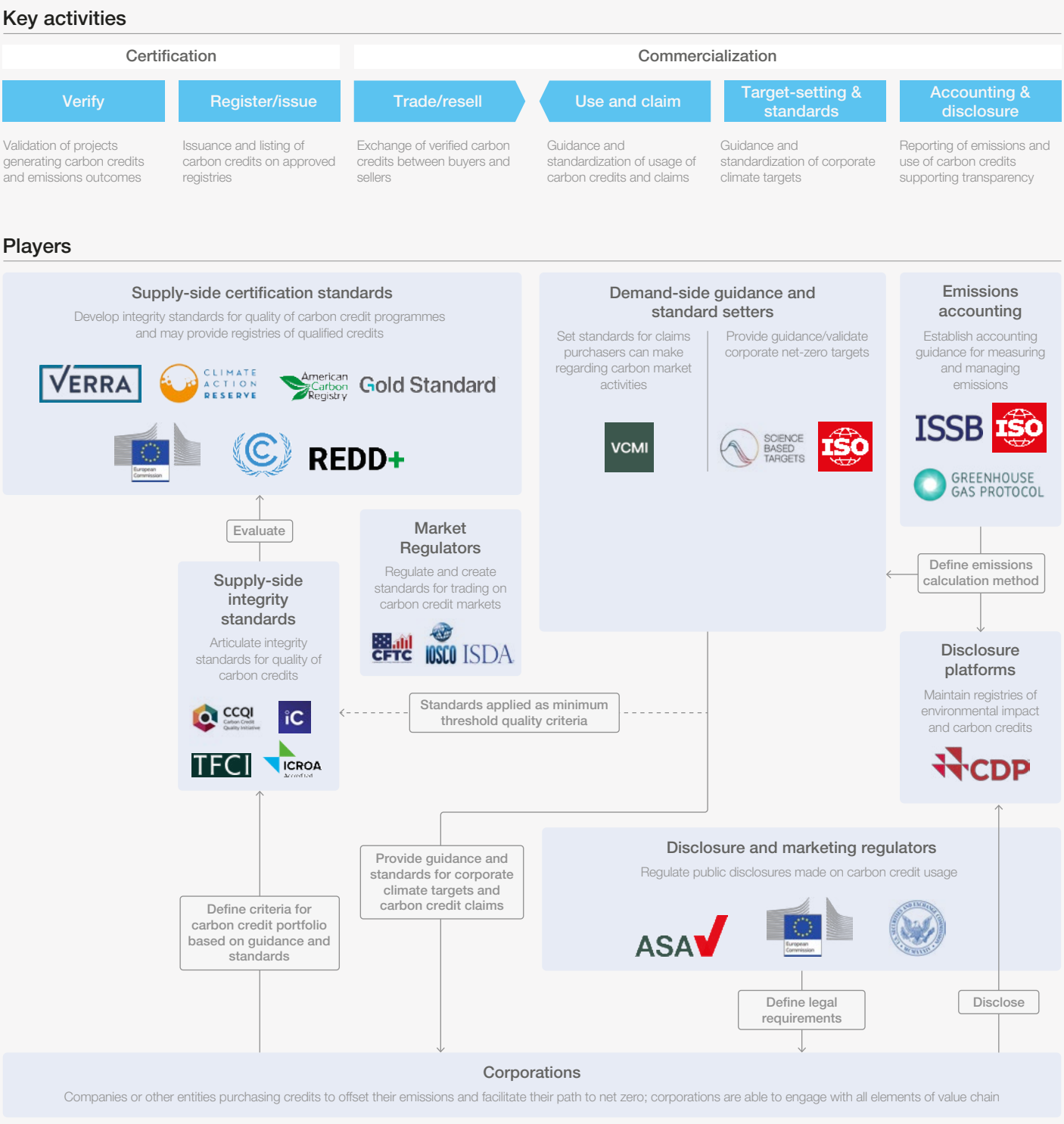
Source: Adapted from VCMI's Claims Code of Practice

1.5 Mature risk management

Mature markets have multiple levels of risk management and quality control. Consider credit markets: capital market regulators manage investor risk via regulations on corporate governance, financial reporting, accredited third-party audits and ratings agencies, such as Sylvera, Calyx, BeZero and Renoster. Beyond regulatory compliance, insurance and derivative securities create liquidity in the market to de-risk participation.

The voluntary carbon market is a complex ecosystem with evolving guidelines and nuances. The next wave of corporate participants will require clear engagement guidelines (see Figure 8).

FIGURE 8 **Engagement guidelines for the voluntary carbon market**[34]



Source: Bain & Company

Future carbon markets should emulate mature systems. For example, projects issuing carbon credits should comply with requirements set by market standard setters, which are themselves subject to evaluation against quality criteria. Data from projects and registries should be governed in distributed ledgers to guarantee transparency and immutability. Projects should undergo frequent audits and ratings agency evaluations to give buyers confidence before making large investments. This infrastructure will help corporations manage carbon liabilities through effective risk distribution and efficient allocation of capital while accelerating global decarbonization.

1.6 Convergence on a global carbon market

Greenhouse gas (GHG) emissions create climate change at a global scale, yet there is no integrated system of global carbon pricing. To meet their Nationally Determined Contributions (NDCs) – the sovereign climate action plans under the Paris Agreement – countries develop independent climate policies that often implement regional, national and subnational carbon pricing systems that co-exist within voluntary and compliance markets. These different markets and tradable units are likely to continue to coexist for the foreseeable future and add complexity to the landscape.

Through eligibility across different compliance systems, such as CORSIA,[35] the cap and trade system in California,[36] or carbon taxes in South Africa[37] and Singapore,[38] carbon credits traded in VCMs could provide an early, albeit weak linkage between compliance and voluntary markets. The development of a global market based on Articles 6.2 and 6.4 of the Paris Agreement[39] is on the horizon and will strengthen the linkage over time. Some countries (e.g. Malaysia) have already begun regulating the VCM.[40] As prices, markets and standards evolve, winning players will continuously monitor developments and adjust their carbon market strategies accordingly.

BOX 4 **Article 6**

Article 6 of the Paris Agreement describes the upcoming carbon trading mechanism, authorized by the UN Framework Convention on Climate Change (UNFCCC), which allows countries to trade international carbon credits against their commitments. The crux of Article 6 is the "Corresponding Adjustment" (CA) – or said simply, the assurance of no double-counting whereby countries must apply carbon debits for carbon credits exported.

While this creates unification in balances and qualities under Paris accounting, countries maintain discretion in their engagement as well as the types of units they will purchase from the centralized UNFCCC registry. Sovereigns may favour some origins or project types, in many ways mirroring the preference-driven heterogeneity that exists today in the VCM but under a Paris-aligned framework.

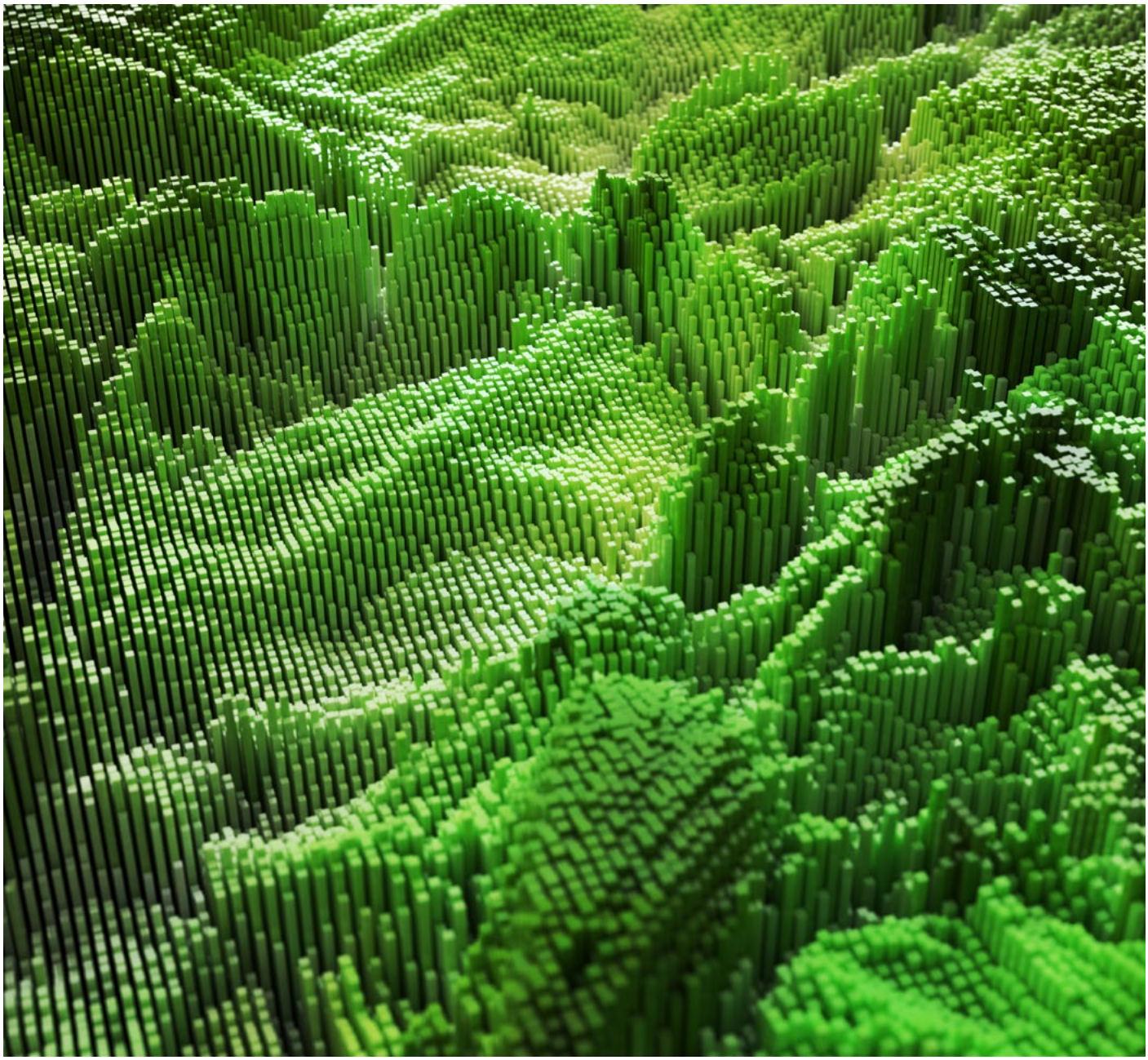
While Article 6 was designed for sovereign actors, the UNFCCC has already prepared for corporate engagement specifically enabling "Mitigation Contribution" emission reductions, which can be purchased by the private sector for results-based climate finance. These emission reductions will not be authorized for sovereign use through a corresponding adjustment, but will be allocated to the host country ledger for robust accounting under Paris.[41]

The VCM will inevitably be intertwined with Article 6 due to its large overlap in credit supply. Registries like Gold Standard and Verra's Verified Carbon Standard are already preparing for Article 6 authorization labels on their standard units,[42,43] and the UNFCCC registry will provide buyers with yet another option. All of these can coexist under the Paris-aligned framework for improved transparency and integrity under the Paris Agreement.

2

Playbook: How corporations can navigate carbon markets

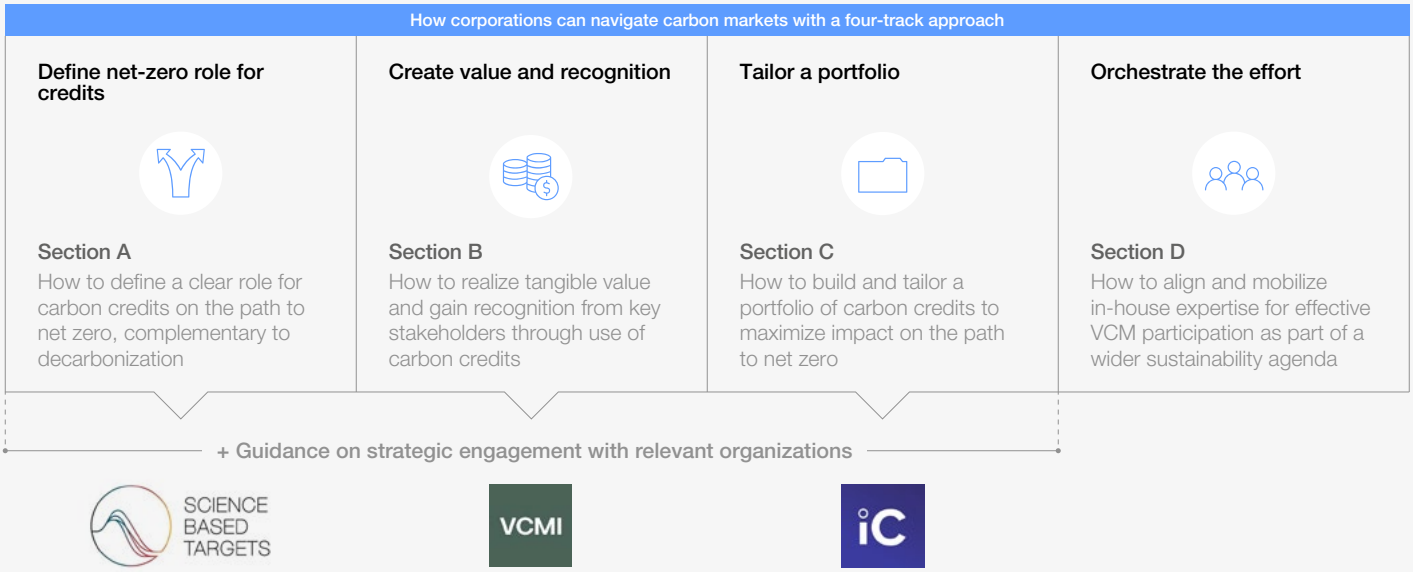
A systematic approach for corporations to deliver meaningful climate impact through the VCM



Efforts to develop a well-defined market structure are underway, but new entrants can learn from early adopters. This playbook lays out a systematic approach for corporations to deliver meaningful climate impact through VCM participation, based around four tracks of work (see Figure 9):

1. Define a net-zero role for credits
2. Create value and recognition
3. Tailor a portfolio
4. Orchestrate the effort

FIGURE 9 **VCM Playbook: Four tracks to address carbon market challenges**



Source: Bain & Company

2.1 Define net-zero role for credits

Corporations should define a clear role for carbon credits on the path to net zero, complementary to decarbonization. This requires quantifying baseline emissions, setting science-based targets, developing a decarbonization pathway and defining the role of credits within this pathway, both during the transition and at net zero.

Climate action departure

Achieving net zero is a multi-decade journey requiring a structured approach. Carbon abatement should lead, complemented by carbon credits. To create a net-zero strategy, companies must first baseline their full emission scope (Scopes 1, 2 and 3). Then, companies must set near- and long-term targets (e.g. emission reduction targets, net-zero commitments, or science-based targets in alignment with the Paris Agreement).

Corporations need to consider both concrete ambition and aspirational goals with near-term quantifiable outcomes. As part of this process, they should incorporate co-benefits into decision frameworks that facilitate the execution of their climate commitments. The VCMI Claims Code of Practice foundational criteria provide guidance for setting and using targets which include the VCM (see Figure 7).

Decarbonization pathways

Corporations can employ strategic, operational and compensation and neutralization levers to realize their ambition (see Figure 10).

FIGURE 10 | **Three types of levers to reduce corporate emissions**[44]

Source: Bain & Company

To assess the effectiveness and actionability of these decarbonization levers, corporations can evaluate them against the following criteria (see Figure 11):

- Lever importance (abatement potential for Scopes 1, 2 and 3)
- Financial considerations (e.g. costs, return on investment)
- Operational considerations (e.g. disruption, time to deployment, gap to technological maturity, reliance on external partners)

FIGURE 11 | **Criteria to evaluate effectiveness of decarbonization levers**

Evaluation dimension	Criteria	Description
Lever importance	Scope 1 impact	Abatement potential on industry Scope 1-2-3 emissions by pulling the lever
	Scope 2 impact	
	Scope 3 impact	
Financial considerations	ROI	Directional return on investment for each lever
	OpEx heavy	Whether the cost of pulling the lever is primarily OpEx- or CapEx-driven
	CapEx heavy	
Operational considerations	Operational disruption	The level of operational impact or disruption caused by pulling the lever
	Reliance on external partner	The extent that the lever relies on the actions of parties outside of the target company's control
	Time to deployment	The time it would take to fully implement and operationalize the lever
	Gap to tech maturity	The gap in availability of the technology, going from commercially available at scale to purely nascent stage

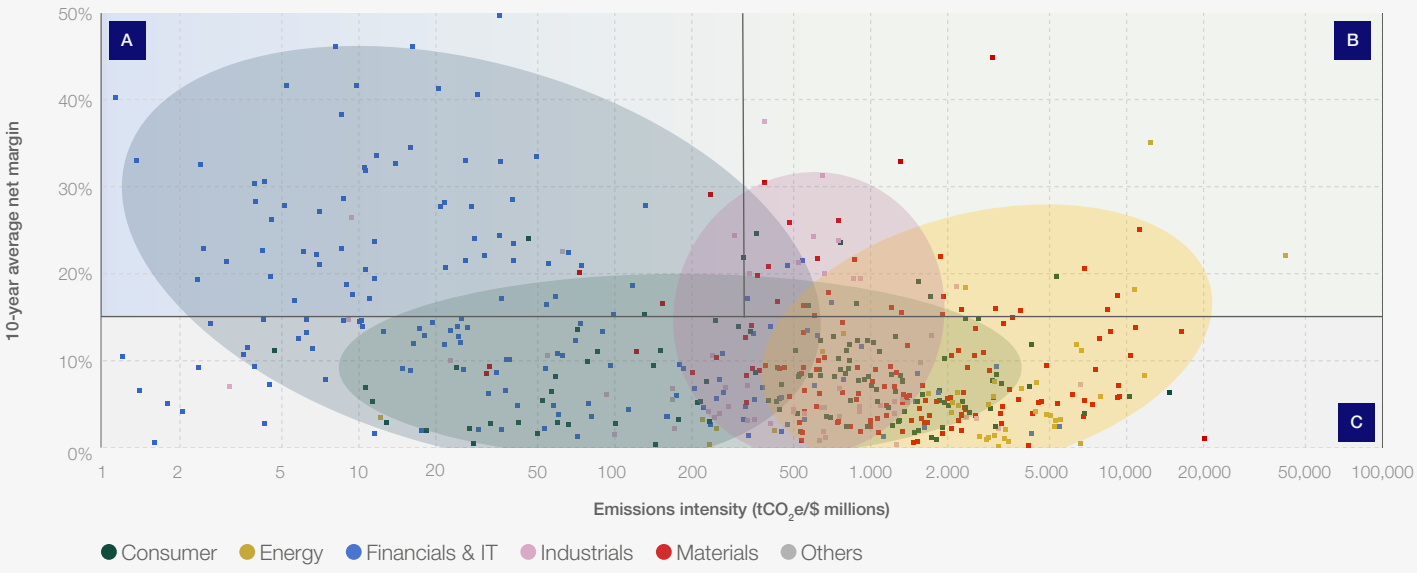
Source: Bain & Company

Corporations can tailor their implementation of levers to achieve net zero depending on their industry. Differing Scope 1, 2 and 3 emissions profiles of various sectors require unique considerations. Scope 3 often constitutes significant but difficult-to-control categories of emissions along corporate value chains. Corporations could follow SBTi's "expansive boundary"[45] approach (or similar frameworks) for Scope 3 emissions, with the objective to accelerate Scope 3 decarbonization efforts over time. In the near term, corporations can prioritize abatement levers based on their return on investment and ability to implement.

Role of carbon credits

The overall role of carbon credits differs by industry, ultimately depending on corporations' emission intensity and profitability (see Figure 12). Companies in category A, primarily financial and information technology (IT) sectors, benefit from high profitability and relatively low emissions intensity, suggesting they have the means to invest more ambitiously beyond their value chains. By contrast, companies in category B, primarily industrials and energy & materials sectors, experience high profitability but with high emissions intensity. They should therefore focus their efforts on decarbonization, while also proving they are compensating for some of their remaining emissions in the meantime. Companies in category C, primarily retail and consumer products sectors, have relatively low profitability and varying emissions intensity. They are more likely to use their constrained financial resources to focus on decarbonization and view carbon credits as a long-term supplement to meet the net-zero end state.

FIGURE 12 **Corporate emissions intensity and profitability by sector**[46]



A **Societal role**
Carbon credits mostly used as "sword"

Companies can do a lot more beyond decarbonizing and compensating for their own/current emissions. Includes mostly financial services, technology and professional services.

B **Meaningful role in transition and at net zero**
Carbon credits mostly used as "shield"

Companies need to show clear efforts toward decarbonization while also proving they are compensating for some of their remaining emissions in the meantime. Mostly includes companies within specialty chemicals, tobacco, diversified metals & mining, oil & gas exploration and production.

Selective role in transition, mostly used at net zero
Mix of "sword" and "shield"

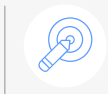
Companies focus on decarbonization and consider carbon credits a long-term solution given their limited ability to purchase credits in the interim. They might use credits in the near term for branding/regulatory purposes. Mostly includes companies within retail, food products, electronic & technology hardware manufacturing, automobiles, mining, oil & gas (integrated, storage & transportation, refining & marketing) and diversified & agricultural chemicals.

C

Source: Refinitiv, Bain analysis

In this context, corporations can integrate carbon credits as part of their recurring investment decision process. Internal carbon pricing is a strategic tool that can inform investments while delivering multiple corporate benefits (see Figure 13).

FIGURE 13 **Benefits of internal carbon pricing**



Allocate finance for carbon reduction

Generate necessary funds to finance low-carbon alternative to achieve carbon reduction target

Enable prioritization of green investments

Compare alternatives for sustainable investments and enable prioritization based on expected impact

Drive behavioural change

Help make trade-offs by putting a financial weight on CO_2 savings and influencing decision making that goes far into future

Boost sustainability in value proposition

Include in customer value proposition to educate customers and monetize

Help navigate regulatory changes

Use internal carbon pricing to better understand short- and long-term risks and costs associated with climate regulation

Source: Bain & Company

CASE STUDY 1

Indigo Ag

High-integrity use of VCM drives innovation and accelerates decarbonization in key industries (such as agriculture) for societal net zero.

The capacity of sustainable agriculture to capture and store carbon in the soil represents one of the biggest and most rapidly scalable solutions to combat climate change. This solution has the potential to remove up to 4 gigatonnes of CO_2e annually by 2030, equating to approximately 7% of global net anthropogenic GHG emissions.[47] The work of Indigo Ag, a US-based agricultural technology company, is an example of the role the VCM can play in accelerating the decarbonization of a crucial global supply chain.

Realizing this potential requires durable annual financial incentives for growers to adopt and sustain practice changes. As a farmer grows different crops (which mostly have different off-takers) in the same field over the course of the crop rotation cycle, securing an assured annual return for adopting practices is critical for both farm earnings and durability of the change.

In 2019, Indigo Ag pioneered a programme to engage US farmers in scaling the adoption of regenerative growing practices, including the consistent use of cover crops, crop diversity and the reduction of soil disturbance through reduced or no tillage. From the onset, Indigo Ag worked with registries like the Climate Action Reserve and Verra to enable farmers to monetize adoption of these practices through high-quality carbon credits, independently verified and certified, with the required monitoring and assurance processes.

Through this work, Indigo Ag has used the VCM to provide consistent earnings to farmers at scale, becoming the first company in the world to generate high-integrity agricultural soil carbon credits. As the programme scales up, it provides a significant opportunity for Scope 3 decarbonization for food, feed and fibre companies.

CASE STUDY 2

Swiss Re

Swiss Re leverages internal carbon pricing to drive emission reductions and fund the transition to 100% high-quality removals.

The global reinsurer Swiss Re is committed to achieving net-zero emissions across the company by 2050. For its own operations, the company is focusing on a dual strategy of reducing emissions to the greatest extent and as swiftly as possible while gradually moving from 100% carbon avoidance certificates in 2020 to 100% carbon removal certificates by 2030 to compensate remaining emissions. Carbon certificates are funded by raising a real internal carbon price, which increases from $100 to $200 per tonne of CO_2 between 2021 and 2030. At this triple-digit level, the carbon steering levy, as Swiss Re calls it, fosters emission reductions in the first place.

Swiss Re's emissions compensation strategy relies on the timely availability and affordability of high-quality carbon certificates. Early engagement in the voluntary carbon market helps unlock the investments that are necessary to scale up supply. By securing the funding for their own engagement via a multi-year carbon pricing policy, Swiss Re can plan ahead on how to source certificates meaningfully and efficiently. For example:

1. By entering **long-term purchase agreements** with strategic partners, such as direct air capture provider Climeworks.

2. By participating in the **buyers' club** NextGen, which Swiss Re helped to establish. Buyers' clubs aggregate demand from several smaller buyers and place it in the carbon market, yielding better prices and diversification at lower transactional cost.

3. By conducting **over-the-counter transactions** in market places such as Puro.earth or Carbonfuture at year-end to match remaining funds with the actual compensation need.

FIGURE 14 | **Swiss Re's channels to source carbon credits**

Long-term offtake agreements, to maximize business impact

Buyers' clubs, to minimize transaction costs

Over the counter, to flexibly cover remaining compensation needs at year end

Source: Bain & Company interviews with company

This section has examined the three dimensions of a company's net-zero pathway. Recommendations are summarized in Figure 15.

FIGURE 15 | **Define net-zero role for credits – Summary of recommendations**

Climate action departure

- ☐ Align your point of departure with the four foundational criteria of VCMI's Claims Code of Practice
  - Maintain and disclose an annual greenhouse gas emissions inventory
  - Set and publicly disclose independently validated science-based near-term reduction targets and publicly commit to reaching net-zero emissions no later than 2050
  - Demonstrate progress towards meeting a near-term emissions target and minimizing cumulative emissions over the target period
  - Demonstrate that the company's public policy advocacy supports the goals of the Paris Agreement and does not represent a barrier to ambitious climate regulation

Decarbonization pathways

- ☐ Define your pathway to net zero (acknowledging pathways may differ depending on industry and geography)
  - Deploy a combination of strategic, operational and compensation levers
  - Choose those levers based on different assessment criteria (e.g. Scope 1-2-3 importance, financial and operational considerations)

Role of carbon credits

- ☐ Ensure clear messaging of the different purposes carbon credits will serve in transition (compensation for part of the emissions) and at net zero (neutralization of residual emissions)
- ☐ Create a carbon credit strategy for usage during transition based on industry and geography specifics, emission intensity, profitability and willingness to use credits
- ☐ Further incentivize participation in voluntary carbon markets across stakeholders (e.g. requiring suppliers to take climate action, linking sales to customers to credit purchase)
- ☐ Establish credits as an official part of the regular budgeting process (e.g. through use of an internal carbon price) to support achievement of committed targets and potentially bring new investment opportunities

2.2 Create value and recognition

Companies face uncertainty regarding the long-term value of carbon credits to their businesses, as well as concerns about the credibility of carbon credit projects. Facing potential accusations of misrepresentation or legal challenges, some companies have paused or reduced engagement with the VCM.

This section looks at how corporations can use high-integrity carbon credits to create tangible, recognizable value for key stakeholders. Realizing the full value of carbon credits requires corporations to adopt a strategic approach to carbon credits rather than simply managing cost. This can be facilitated through the integration of carbon costs into financial planning processes, and establishing transparent communication about the role of carbon credits within a company's overall net-zero pathway (emphasizing the complementarity of credits with emissions reduction). Aligning claims to an established rulebook (such as the VCMI's Claims Code of Practice) provides further opportunity for external recognition and credibility.

Value creation through VCM activities

The VCM can generate value for corporations, their stakeholders and the broader ecosystem in a number of ways (see Figure 16). Highlighting the value carbon credits can bring is critical to scaling up the market.

FIGURE 16 **Attributing more tangible value to carbon credits**

Value for corporations/business

Regulation risk mitigation
Build carbon capability in anticipation of future regulatory changes (e.g. for potential carbon tax/cap and trade schemes)

Carbon credits as financial investments
For which there can be price discovery and value assignment

Build capability to source and/or develop and manage portfolio of credits/projects (i.e. analogous to financial instruments or operational assets)

Value for stakeholders

Stakeholders along the value chain
Create both tangible and intangible benefits in stakeholder engagement

Suppliers
Support suppliers' emission reduction to secure supply and improve brand image

Employees
Offer sense of purpose for employees, improving acquisition, retention and productivity

Customers
Satisfy nature-conscious clients through enhanced value proposition, uplift sales and premiumization

Value for the broader ecosystem

Climate action
Remove GHG emissions from the atmosphere and support limiting global temperature increase to 1.5°C

Co-benefits
Prevent biodiversity loss, create sustainable jobs and spur innovation necessary for a sustainable economy

Sustainable growth
Ensure the availability of natural capital resources and sustainable technology critical for long-term economic growth

Lower tangible value today → Higher tangible value today

Source: Bain & Company

However, this value can be difficult to quantify and translating it into a clear financial incentive for the company remains a challenge. And while the cost is borne by a specific corporate entity, the benefits such as the climate action or environmental and social co-benefits are often enjoyed by a larger group of stakeholders and viewed as corporate philanthropy. Meanwhile, even well-intentioned efforts may provoke criticism for mistakes made in environments with nascent regulation if not communicated transparently.

Many obstacles hold companies back from realizing value for carbon credit use – from media and NGO criticism around greenwashing to inconsistencies between regulators and standard setters as to how carbon credits can be used (see Figure 17).

Recognizing the risk of operating in an unregulated environment, regulators and independent standard setters have begun to move towards providing more external clarity, including VCMI, SBTi, the US Securities and Exchange Commission (SEC) and the International Organization of Securities Commissions (IOSCO). All are working to clarify market guardrails.

Yet, it is important for corporates to manage part of the risk of greenwashing accusations themselves.

Only through transparent communication on the use of carbon credits and the education of their stakeholders can they create buy-in for their activities and give stakeholders peace of mind that their investments are not greenwashing, but well-intended climate action. This will not only mitigate the risk of confusion and – in the worst case – accusations of greenwashing in an uncertain external environment; it will also create the basis for tangible recognition after regulators and standard setters provide more robust frameworks.

FIGURE 17 **Obstacles preventing companies from realizing value for carbon credit use**

Underdeveloped incentives

Emerging guidance from standard setters
Corporates don't have sufficient incentives to invest in carbon credits during the transition. However, recently published work (e.g. VCMI Claims Code of Practice) is beginning to address this

Regulators/countries hold varying positions
Inconsistencies between jurisdictions have implications for broader adjustments (e.g. EU ETS stopped allowing international carbon credits after 2020, while Canada allows 80% GHG reduction obligation to be compensated)

Companies worry about greenwashing accusations

Many companies fear "front page risk"
In the absence of clear legal definitions for claims like net zero, carbon neutral, etc. some companies' lack of intention and prudence in purchasing carbon credits results in "greenwashing" criticisms from the press and NGOs, keeping other companies on the sidelines

Mixed consumer perception of credits
Many consumers are sceptical about carbon-neutral products and have negative impressions of the use of carbon credits

Source: Bain & Company

CASE STUDY 3

American Express Global Business Travel (Amex GBT)

Amex GBT has demonstrated how the VCM can be used to create customer value, broadening the range of solutions and enabling climate action from key stakeholders to advance societal net-zero ambitions.

American Express Global Business Travel (Amex GBT) is a leading corporate travel management company, specializing in end-to-end business travel solutions in approximately 140 countries across the globe. It offers a range of solutions to help reduce emissions from business travel and, through engagement with the VCM, to compensate for emissions where abatement is not possible.

Amex GBT acknowledges that aviation is a hard-to-abate sector. In partnership with Shell, Amex GBT allows clients to invest in Sustainable Aviation Fuel (SAF). SAF offers significant potential for decarbonization without the need to modify existing infrastructure – when used neat it can reduce lifecycle emissions by up to 80% compared to conventional jet fuel.[48] While SAF is a high-potential emerging technology, it will require additional investment before deploying at scale.

Amex GBT actively engages with the VCM in two ways. First, the company has compensated for its own business travel emissions since 2019, purchasing carbon credits that predominantly support forest conservation projects. Second, Amex GBT offers its customers the opportunity to implement their own internal carbon price on business travel booked through Amex GBT, and to invest those funds in mitigation beyond their supply chains via independently verified carbon credits that promote wider ecosystem and socio-economic benefits, contributing to the advancement of the UN Sustainable Development Goals.[49] Carbon offset credits are made available through CHOOOSE, a partner that offers technology solutions for integrating climate action with customer experience. By facilitating carbon credit purchases, Amex GBT is paving the way for a more sustainable future through initiatives to reduce its own carbon footprint, as well as generating value for clients and the industry at large.

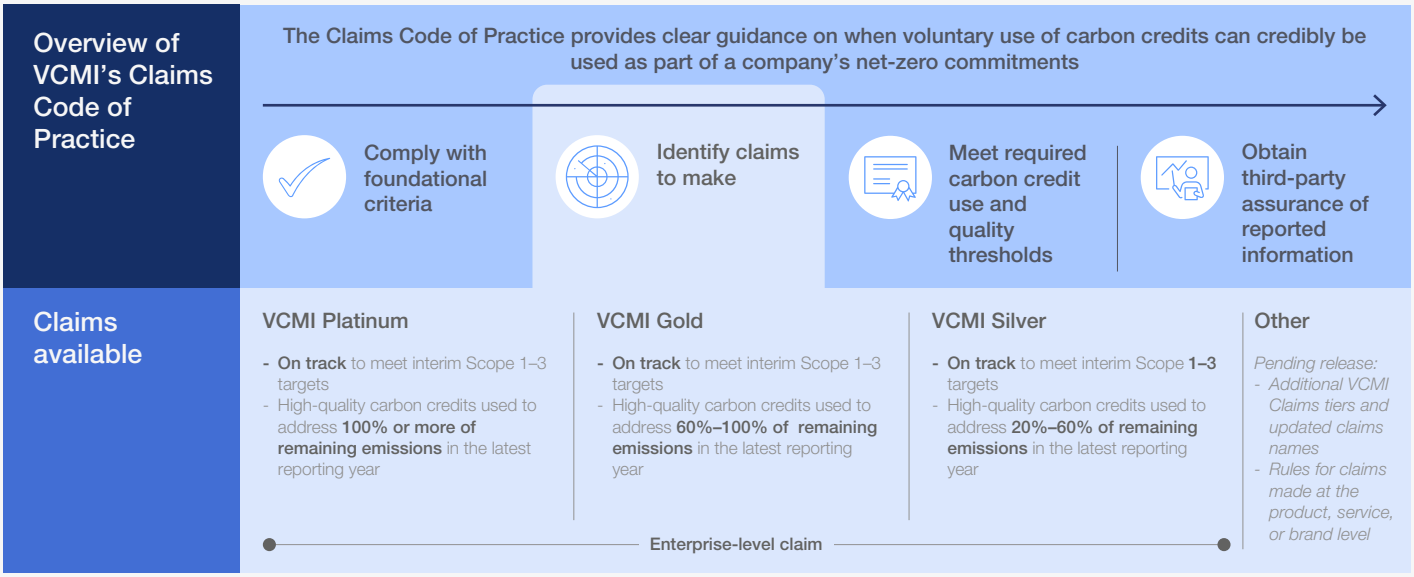
New narrative

Companies need to communicate transparently with all stakeholders and disclose details on the carbon credits purchased, including emissions impact, carbon financing and co-benefits. An example of the type of guide available to enhance communication and disclosure is the VCMI Claims Code of Practice, referenced in Chapter 1. Launched in June 2023, the Claims Code is a rulebook for organizations navigating the complex landscape of carbon markets. It focuses on how companies can use carbon credits and make credible climate claims involving those credits as part of their net-zero commitments.

The Claims Code allows entities to claim one of three enterprise level designations: silver, gold or platinum. To qualify for any of these levels, organizations must first be on track to meet their interim Scope 1-3 carbon abatement targets. Each level then recognizes an organization's efforts to address remaining emissions using high-quality carbon credits. For silver, the bar is set at 20-60% of remaining emissions, for gold it is 60-100% and for platinum it is 100% or more (see Figure 18).

The VCMI's Claims Code of Practice can therefore help corporations communicate their efforts and derive value from the validation of their progress. Companies are expected to be able to make a VCMI claim by November 2023, when VCMI will release additional guidance specifically on the VCMI Measurement, Reporting and Assurance (MRA) framework, additional claim tiers and claim names.

FIGURE 18 **VCMI's Claims Code of Practice – Identify claims to make**



Source: Adapted from VCMI Claims Code of Practice

CASE STUDY 4

Salesforce

Corporations can drive positive value creation and gain recognition by clearly communicating specific, tangible outcomes of VCM action with stakeholders.

Salesforce is a global customer relationship management (CRM) software provider, offering cloud-based solutions for businesses. The company has a robust climate action plan that spans its products, services, operations, supply chain, capital and influence. The plan includes ambitious short- and long-term decarbonization targets, which aim to reduce full value chain emissions (Scopes 1, 2 and 3)[i] by 50% in 2030 and to near zero by 2040.

Since 2022, Salesforce has compensated annually for 100% of unabated emissions, through a combination of renewable energy and high-quality carbon credit purchases. Salesforce evaluates these credits against its own quality criteria (aligned with ICVCM's Core Carbon Principles) and also assesses them using project quality ratings and insights provided by independent companies such as Sylvera, BeZero and Calyx Global.[ii] The company emphasizes that its decarbonization and compensation targets are linked but separate, which means that its measures to compensate for emissions do not diminish its focus on decarbonization.

However, the challenging media and public discourse around carbon credits, including instances of carbon credit abuse and justified criticism of other companies, has meant that communicating the impact of Salesforce's high-integrity compensation actions has not been straightforward—particularly given the debate around net-zero and carbon-neutral terminology. The company communicates its impact through publications, including its climate action plan and annual stakeholder report,[50] using the phrase "net zero residual emissions", which it continues to evaluate as guidance evolves. Salesforce has found that, while there are disagreements about the high-level name given to the use of carbon credits, there is widespread support for the company's approach to reducing emissions and compensating for unabated emissions as part of a holistic climate action strategy.

Trying to find the perfect claim or commitment should not hold companies back. In Salesforce's experience, its decade-long journey of reporting climate disclosures, engaging suppliers to reduce emissions and establishing sustainability as a core company principle has fostered value across all stakeholders, including employees, customers, investors and regulators.

[i] Via location-based carbon accounting

[ii] Salesforce on Carbon Credits: A Just Transition to a Net Zero, Nature-Positive World, https://www.salesforce.com/content/dam/web/en_us/www/assets/pdf/reports/carbon-markets.pdf.

This section has examined how companies can create value and recognition through engaging with the VCM. Recommendations are summarized in Figure 19.

FIGURE 19 **Create value and recognition – Summary of recommendations**

Value creation

- [ ] Clearly define the role of carbon credits on your journey to net zero, to create meaningful value for organization, stakeholders and the broader ecosystem
  - Ensure carbon credits are an additional tool on the science-aligned pathway to decarbonization
- [ ] **Overcome the obstacles in realizing value by:**
  - Collectively advocating for a clearer regulatory environment around high-quality carbon credits and agreeing on guardrails to avoid greenwashing
  - Collaborating with the existing ecosystem (regulators, financial institutions, market initiatives and other corporations) rather than reinventing the wheel

New narrative

- [ ] To the extent feasible, leverage the VCMI's Claims Code of Practice to design high-integrity processes and derive value from the validation and clear communication of progress
  - Comply with foundational criteria
  - Identify claims to make
  - Meet required carbon credit use and quality thresholds
  - Obtain third-party assurance of reported information

2.3 Tailor a portfolio

To complement their primary abatement efforts, corporations can build a portfolio of carbon credits that maximizes the impact on their transition strategy. This involves designing a portfolio of high-quality credits tailored to their business, with a short-term focus on avoided emissions that transitions towards carbon removal in the long term.

The Oxford Offsetting Principles illustrate how beyond-value-chain mitigation is likely to evolve as global efforts transition from avoiding emissions in the short to medium term towards nature-based and engineered carbon removal in the long term (see Figure 20).

BOX 5 **Avoidance and removal**

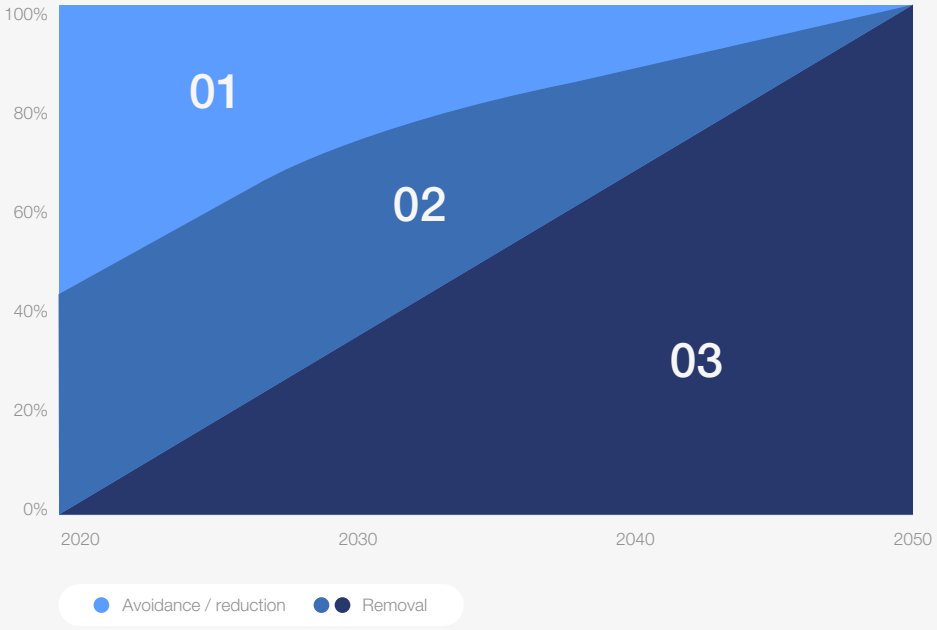
Avoided emissions include projects such as the deployment of renewable energy to replace planned fossil fuel power plants, programmes to update inefficient cook stoves, and the destruction of potent greenhouse gases like methane and nitrous oxide before they reach the atmosphere.

In contrast, carbon removals are offsets generated by projects that remove carbon dioxide directly from the atmosphere. Examples include biological carbon sequestration (e.g. planting trees, soil carbon enhancement), bioenergy with carbon capture and storage (BECCS), direct air capture with geological storage (DACCS), or converting atmospheric carbon back into rock through remineralization.

Source: Oxford Offsetting Principles

FIGURE 20 **Proposed percentage breakdown of carbon credit portfolio (2020-2050)**

/ILLUSTRATIVE



01 **Nature-based and engineered avoidance**
Cut emissions and, in the short term, use high-quality avoidance credits (e.g. from conservation)

02 **Carbon removal with short-lived storage**
Shift the portfolio towards nature-based removal, (e.g. afforestation/ reforestation)

03 **Carbon removal with long-lived storage**
Carbon removal with long-lived storage (e.g. engineered removals or afforestation/ reforestation if reversal can be ruled out)

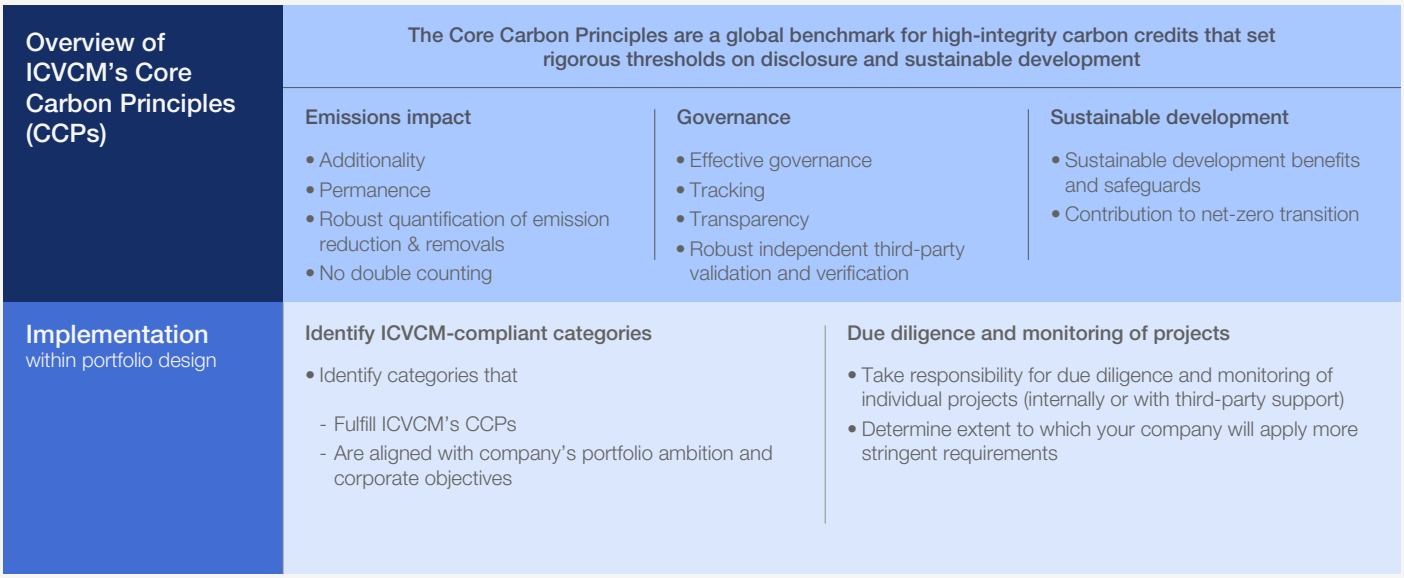
Source: Adapted from the Oxford Offsetting Principles[51]

Portfolio design tools

When building a portfolio of high-impact credits, corporations can apply a multi-layer approach to follow the latest guidance on the quality of credits and mitigate risks from individual projects:

- **Category level:** In an increasingly complex landscape of carbon standards, methodologies and mitigation activities, not all carbon credits are suitable for every buyer. A category level approach involves assessing groups of credits with consistent mitigation activities, quantification methods and geographic or technical features. The ICVCM has recently published its first iteration of the Core Carbon Principles (CCPs),[52] which contains guidelines for quality assurance at the category level that can be used as a baseline for this assessment.
- **Project specific:** Project-level risk profiles within a particular category vary significantly. Buyers can perform project-specific diligence or rely on third-party diligence. The growth of carbon credit rating agencies provides an option for diligence and quality control that simplifies the process for corporate buyers and mitigates the risk of procuring low-quality credits, particularly for corporations without extensive in-house carbon expertise.

FIGURE 21 **Design portfolios that comply with ICVCM's Core Carbon Principles**



Source: Adapted from ICVCM's Core Carbon Principles

Until the ICVCM issues a broad range of credit approvals with wide market coverage, corporations need to use other means to assess credit quality for their portfolio construction, paying particular attention to:

- Baselines associated with emissions reduction calculations
- Transparency around profit distribution between the project developer and intermediaries

CASE STUDY 5

Salesforce

Define clear goals and leverage external resources to source high-quality credits, then maximize portfolio impact through forward purchasing agreements to scale up carbon project supply and enable new technology development.

Salesforce compensates for its residual Scope 1, 2 and 3 emissions on an annual basis with a significant portfolio of high-quality carbon credits, totalling around 1Mt of CO_2e credits retired in 2022.[53] Credits are currently focused on nature-based projects that also deliver co-benefits, including reduced deforestation, improved forest management, clean cookstoves, peatland conservation and mangrove restoration.

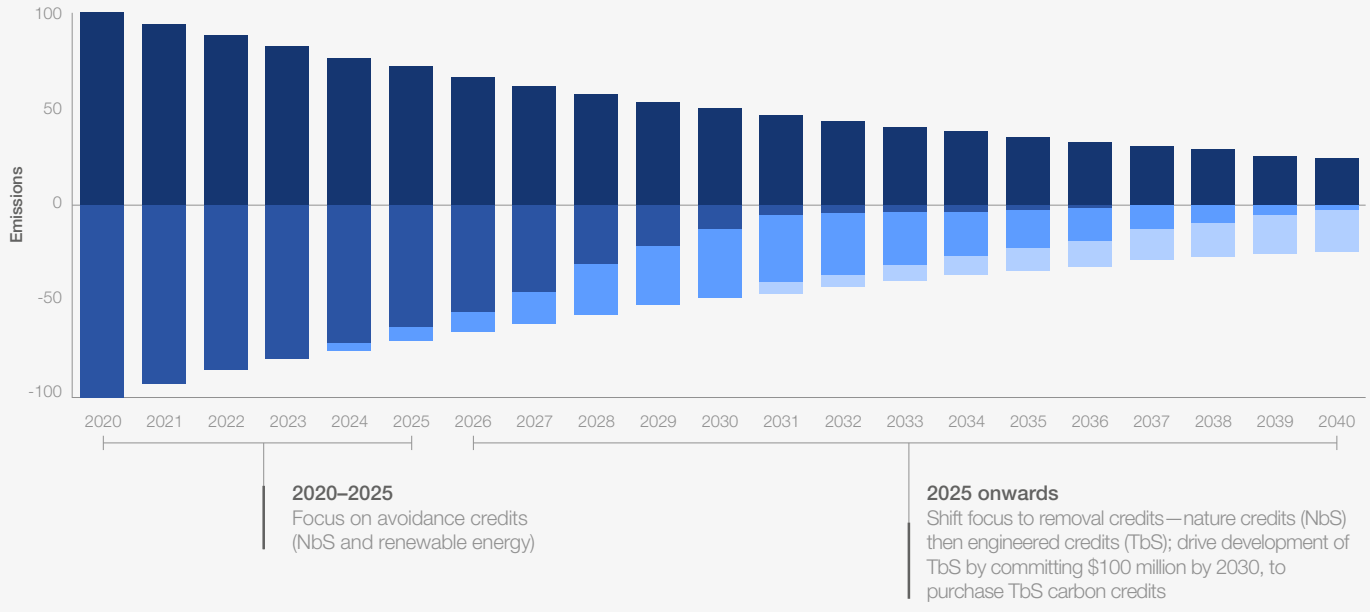
Salesforce's experience developing and managing this portfolio highlights three recommendations for companies looking to enter the market:

1. **Define clear goals:** Determine what you want to achieve, such as carbon sequestration, co-benefits and other facets of sustainable development.
2. **Use external specialists** to provide support in procuring high-quality carbon credits: Salesforce has benefited from independent third-party ratings agencies such as Sylvera, BeZero Carbon and Calyx Global.
3. **Aim for a diversified portfolio** that mitigates concentration risk: individual projects should typically constitute a small proportion of the overall portfolio.

Salesforce believes companies can maximize the impact of their carbon credit portfolio by utilizing various purchasing approaches, such as longer-term purchases, forward purchase agreements and offtake agreements. These approaches help secure future carbon credit supply, while providing the consistent, sustainable funding or demand signals required to catalyse the development of new and high-quality projects. This, along with a progressive portfolio shift towards nature- and engineered-based removal credits in line with science, can help to expand high-quality mitigation outcomes, as well as accelerate the development of novel CDR approaches.

FIGURE 22 **Salesforce maintains a diversified portfolio and aims to progressively shift to removals and technology-based solutions**

Example high ambition net-zero journey /ILLUSTRATIVE



Source: Salesforce[54]

CASE STUDY 6

Heineken

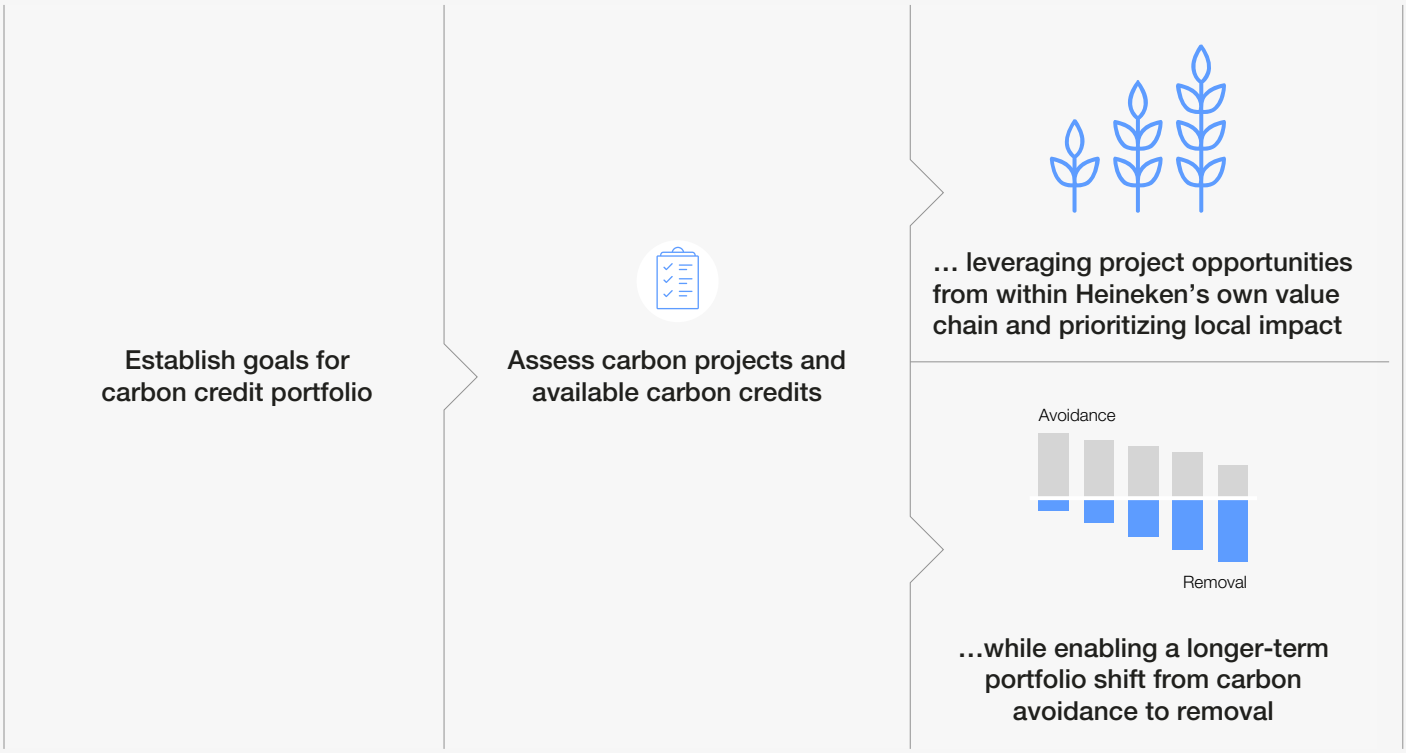
Heineken recognizes the strategic importance of carbon credit portfolios and aims to use credits as part of a science-based approach to mitigate emissions and drive positive nature and societal outcomes in the communities where it operates.

Heineken is a global brewing company based in the Netherlands with operations in over 70 countries and consumers around the world. Heineken has embedded sustainable initiatives into its corporate strategy for many years. In 2009, it introduced the "Brew a Better World" programme, dedicated to improving its environmental and social impact and promoting responsible consumption of its products. Heineken is a signatory to the UN's "Business Ambition for 1.5°C" pledge and in 2021 it announced its 2030 net-zero targets to reduce Scope 1 and 2 emissions by 90% and Scope 3 emissions by 21% (compared to 2018). The Dutch brewer aims to reach net zero "from barley to bar" by 2040.[55]

Heineken anticipates that future carbon pricing, taxation and emissions trading schemes are likely to affect business. The company therefore views its climate strategy as both an environmental imperative and a key risk mitigation tactic to minimize effects to the business from increased carbon regulation. In conjunction with the release of its 2022 year-end results, Heineken announced that in 2023 it plans to submit its 2040 targets to SBTi and develop an approach to identify the right carbon removal strategy that generates credible, meaningful, high-quality carbon credits to address residual emissions.

In planning for its future carbon credit portfolio, Heineken is defining a set of key purchasing criteria (KPCs) to assess carbon projects and available credits. These KPCs will help Heineken decide whether to use credits from projects within its own value chain (e.g. its business has access to agricultural land where carbon credit projects are possible) or to invest in external projects, as well as how to maximize the co-benefits of such projects for local communities. It has mobilized internal and external resources to develop design principles that incorporate commercial considerations and tailored approaches for distinct components of its footprint, as well as a dynamically evolving mix of solutions to shift from avoidance to full removal over time.

FIGURE 23 **Heineken's approach to building a carbon credit portfolio**



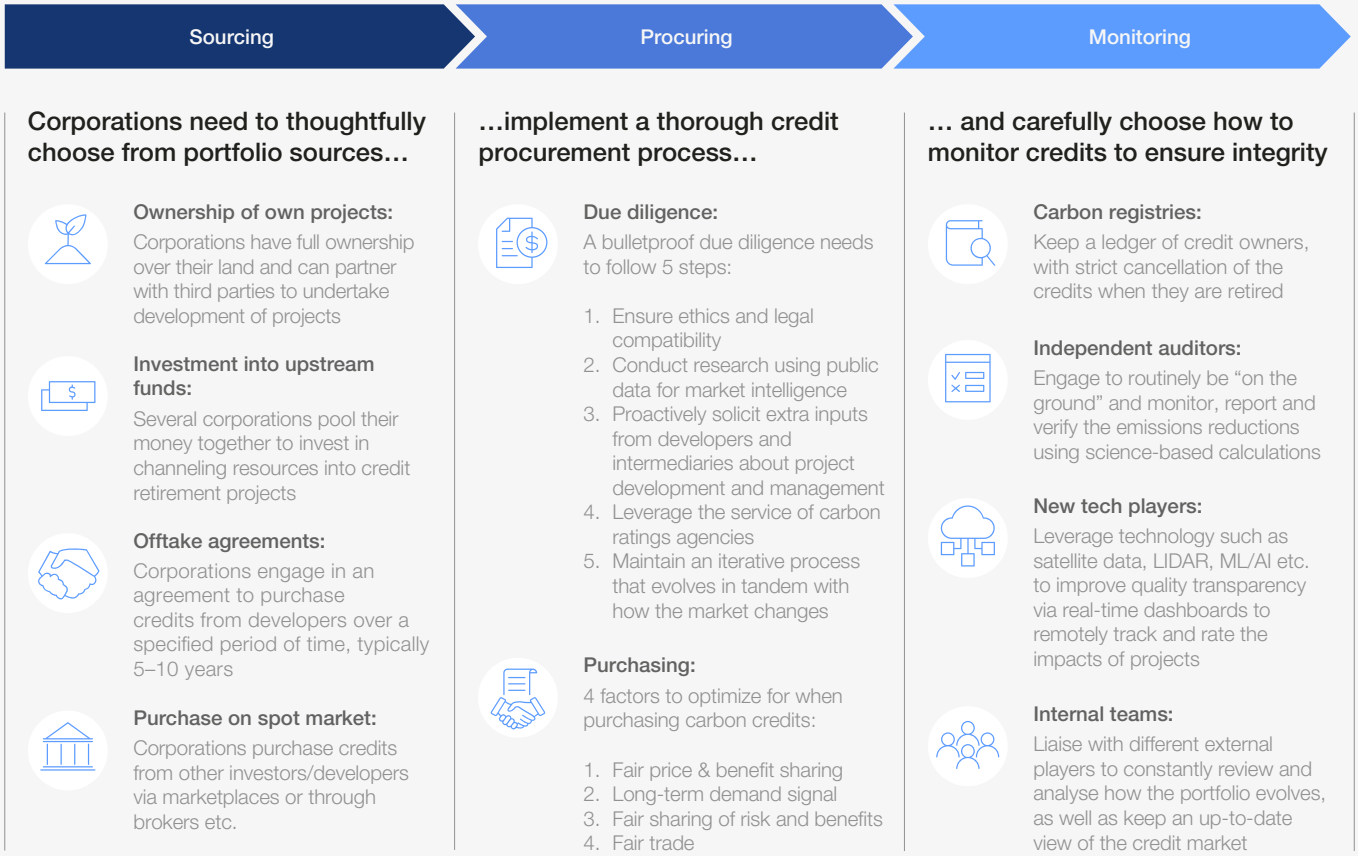
Source: Bain & Company interviews with company

Portfolio management

Corporations can manage their portfolio of carbon credits continuously to deliver optimal climate impact and derive maximum value by focusing on:

- **Sourcing**: Carefully consider opportunities including the use of company-owned assets, investing in upstream funds, engaging offtake agreements and purchasing through secondary exchanges.
- **Procuring:** Set up robust terms, conduct thorough due diligence and enforce ethical purchasing.
- **Monitoring:** Observe projects to ensure standards are maintained; where possible, leverage carbon registries, independent auditors, tech innovators and internal teams to ensure integrity throughout credit life cycle.

FIGURE 24 **Carbon credit portfolios – life cycle management**[56]



Source: Bain & Company

New business opportunities

In addition to carbon credit procurement, corporations can explore opportunities to innovate commercially, create additional value and accelerate climate action. These opportunities include investing in the development of nature- or technology-based solutions, driving project development to create credits and supporting market liquidity through exchange platforms.

CASE STUDY 7

SAP

In the absence of a clear market standard, corporations must establish their own high-integrity framework that they can defend and communicate clearly.

SAP is a German multinational enterprise and the world's largest provider of enterprise application software, operating in approximately 130 countries.

In January 2022, SAP committed to achieving net zero across its value chain by 2030 in alignment with SBTi standards and the mitigation hierarchy: first to avoid emissions, second to reduce emissions and third to compensate for emissions that cannot yet be avoided or reduced. SAP secures funding for credit purchases through a variety of initiatives, including a fixed carbon price for all business flights. By applying a variable internal carbon price of up to $400 per tonne of CO_2 depending on flight duration, SAP helps to "penalize" shorter flights where more sustainable alternatives are often available. This facilitates emission reductions by internalizing the climate impact of aviation and encouraging the use of more sustainable mobility options. The company's engagement in both voluntary and mandatory carbon markets influences its internal view of the price of carbon.

To construct a credible portfolio of high-quality carbon credits, a team headed by SAP's chief sustainability officer is responsible for conducting due diligence to ensure credits meet defined quality criteria. Projects must provide evidence of removal permanence, monitoring and additionality, and they must fulfil SAP's portfolio objectives regarding, for example, location and project maturity. The portfolio focuses predominantly on high-quality credits from nature-based solutions, such as those verified by Gold Standard or the equivalent. However, SAP is also conducting due diligence into ways of shifting to technology-based solutions over time.

SAP views communication as a key pillar of portfolio management, with a high degree of internal transparency required to effectively engage stakeholders and demonstrate the role of their credit portfolio within a wider sustainability agenda.

CASE STUDY 8

Ørsted

Early engagement with regulators and purchasers can facilitate long-term business partnerships and advance new technology at scale.

Ørsted, a leading Danish renewable energy company, operates in six countries. The company has set SBTi-validated targets for decarbonizing its value chain while also committing to be carbon-neutral in Scopes 1 and 2 by 2025 by offsetting residual emissions. In addition to reducing its Scope 1-3 emissions in line with a 1.5°C pathway, Ørsted has built internal resources and capabilities for VCM project development to provide the certified high-quality solutions to meet its carbon neutral commitment.

As well as developing solutions to meet its own goals, Ørsted has leveraged its internal project development capabilities and existing assets to build a carbon credit business that develops tech-based projects incorporating new technology such as bioenergy carbon capture and storage (BECCS). The key enabler for Ørsted in establishing and scaling its carbon credit business and new technology has been early engagement with regulators and purchasers to build long-term business partnerships and financial commitments.

This has resulted in the Ørsted Kalundborg Hub Carbon Capture and Storage (CCS) project announced in May 2023 with long-term agreements for high-quality carbon removal, including a partnership with the Danish Energy Agency to remove 8.6 million tonnes of CO_2e over 20 years, primarily financed by carbon removal certificates.

FIGURE 25 | **Ørsted's twin approach to the VCM generates new business opportunities**

As a company with project development capabilities and relevant assets, Ørsted's transition strategy incorporates carbon credits in two ways

Developing nature-based carbon credits with partners to offset residual emissions after meeting science-based reduction targets

Benefits

- Reduces reputational risks
- Secures supply of high-quality credits for future
- Ensures that the projects deliver benefits for climate, nature and local communities

Creating high-quality engineered solutions for sale, from BECCS projects

Benefits

- Leverages existing facilities (e.g. bioenergy plants)
- Provides funding opportunity, through credit sales, to innovate nascent technology needed for the transition

Source: Bain & Company interviews with company

This section has examined how companies can build a portfolio of carbon credits that maximizes the impact on their transition strategy. Recommendations are summarized in Figure 26.

FIGURE 26 | **Tailor a portfolio – Summary of recommendations**

Portfolio design tools

- ☐ Build/enable development of **net-zero-aligned carbon credit portfolios** that progressively shift from avoidance to permanent removals for both engineered and nature-based solutions with variation depending on **ambition, needs and ability to buy**
- ☐ **Apply ICVCM's minimum thresholds** for purchase/supply of high-impact credits that include contribution to net-zero transition, **quantification, additionality, long-term storage, stringent procurement process and co-benefits**
- ☐ **Create a tailored portfolio** according to your unique emissions profile (e.g. by scope, by origin of emissions) and your overall company characteristics/strategy (e.g. **activities, production footprint, brand values/customer base**)

Portfolio management

- ☐ **Carefully source, procure and monitor carbon credits throughout their life cycle** to maximize impact and mitigate risk

New business opportunities

- ☐ Recognize sources of value **beyond procurement (e.g. technology development, credit sale and trading support) or invest in internal projects (e.g. climate technology, nature positive projects, or insetting projects) that create new sources of value in the voluntary carbon market**

2.4 Orchestrate the effort

Corporations can mobilize their organizational expertise for effective VCM participation in a manner consistent with their wider sustainability agenda. Their operating model should be designed for the desired level of VCM participation and be supported by engagement and incentivization of the relevant employee populations.

Organizational structure

There are different operating models for engaging with the VCM. Corporations can choose according to their ambition and the extent to which they expect to externalize or internalize their carbon market capabilities (see Figure 27). Based on their model, corporations require different in-house capabilities to deliver their carbon markets ambition. The role of a central team as opposed to separate business units will vary according to the operating model, internal carbon-related capabilities and company-specific idiosyncrasies (see Figure 28).

FIGURE 27 **Different operating models for engaging with the VCM**

Externalized → Internalized

		Purchaser	Partner	All-in business builder
VCM ambition		Purchase credits from the market via brokers	Strengthen and secure offset supply by forging strategic alliances with developers to meet organizational demands	Build new businesses, e.g. through large-scale project development and active trading engagement
		Only external sourcing, through trading brokers	**A mix of external sourcing** via direct purchases and internal sourcing	**Trading**, both purchase and development of carbon credits
What you get	Secure supply	✓	✓	✓
	Support market build	✓	✓	✓
	Realize upside	✗	✓ (Optionality building only)	✓
Size of a starting team (Excluding technical implementation FTEs)		**<10 FTEs** focusing on purchasing high-quality offsets via exchanges, resellers and forward contracts	**~10–20 FTEs** focusing on building strategic partnerships and sharing capabilities besides purchasing	**20+ FTEs** building a large-scale business, generating value from trading and from company-owned project pipeline

Note: FTE (full-time equivalent) is a unit of measurement that indicates the workload of an employed person

Source: Bain & Company interviews with market participants

FIGURE 28 | **Required in-house carbon capabilities, by VCM operating model**

Functions	In-house carbon capabilities	VCM operating models: Purchaser	Partner	All-in business builder
Strategy & partner management	Develop and deliver compensation strategy alongside key partners	✓	✓	✓
	Align ESG strategy with corporate strategy	✓	✓	✓
Finance	Carbon accounting	✓	✓	✓
	Carbon asset management	✓	✓	✓
Communications /public affairs	Communicate compensation target, approach, activities and progress (internally and externally)	✓	✓	✓
	Communicate with government to shape regulation	···	···	✓
Procurement	Define, project and validate potential compensation demand	✓	✓	✓
	Procure carbon credits, including price and quality review	✓	✓	✓
Project development & project partnership management	Set and adhere to guidelines for carbon credit development		✓	✓
	Identify and scope carbon credit projects		✓	✓
	Identify and establish commercial partnerships and coalitions		✓	✓
	Deliver and track carbon credit projects, including partnerships		✓	✓
Credit commercialization	Identify product development opportunities		···	✓
	Create and approve bundled products			✓
	Sell and track offsets sold as product bundles			✓
Trading	Trade carbon credits through registries and third parties			···

✓ Required capability ··· Optional

Source: Bain & Company

CASE STUDY 9

Banco Bilbao Vizcaya Argentaria (BBVA)

Centralizing VCM expertise and quality standards while empowering the broader organization with embedded sustainability experts and tools to leverage these capabilities (e.g. through internal carbon prices and monitoring tools) facilitates execution and drives commercial outcomes.

BBVA is a multinational banking group offering a wide range of financial services in more than 25 countries across Europe, the Americas and Asia. The group has identified sustainability as a strategic priority both in terms of the services it offers customers as well as its own business operations.

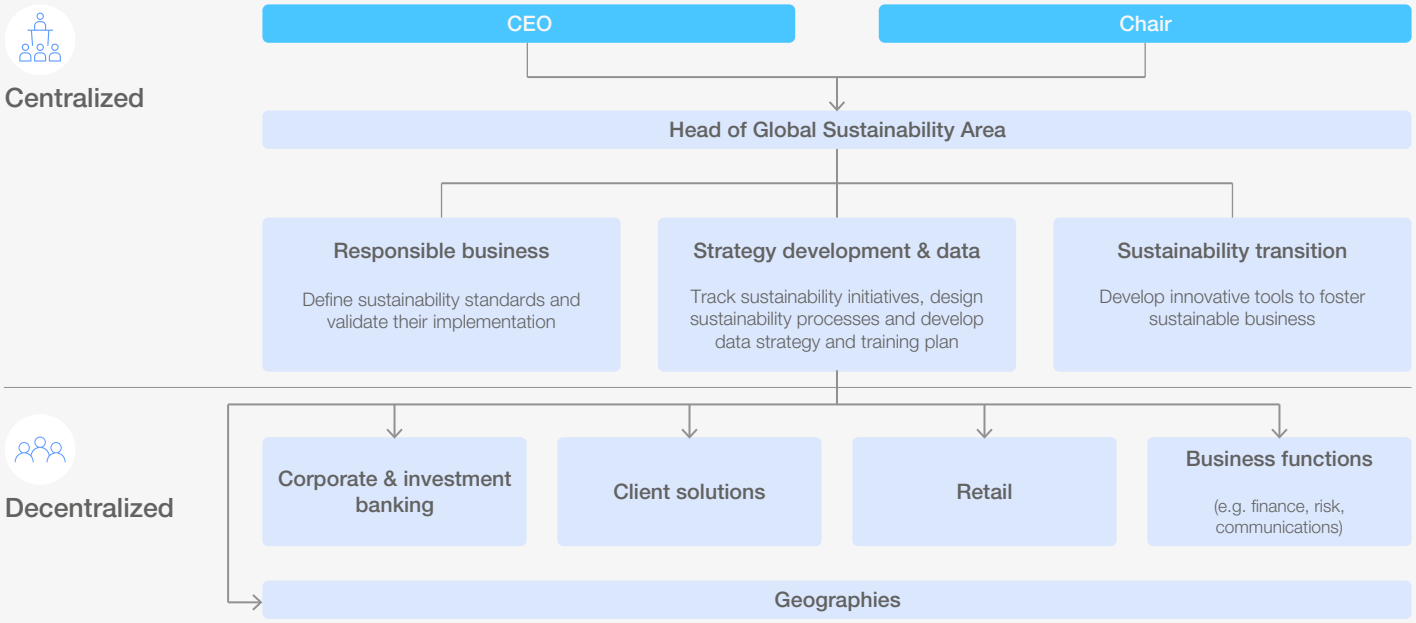
BBVA has developed end-to-end carbon capabilities and a governance structure designed to execute internal carbon strategy as well as to drive commercial opportunities with clients. BBVA has created a global sustainability area, whose group head reports directly to the CEO and Chair, elevating the strategic mandate to the highest corporate level and providing sufficient top-down organizational support to enable effective execution. Meanwhile, sustainability experts and specialists are embedded within each business unit and functional vertical and across each geography, providing decentralized, matrix coverage (see Figure 29).

BBVA has also implemented a pilot internal carbon pricing programme to track the carbon footprint of each business unit. Through this programme, the central sustainability area provides tracking and reporting tools while the individual business units retain the autonomy to manage their carbon "budget". They can select carbon credits associated with high-integrity projects that meet centrally defined quality standards while offering the most compelling co-benefits within their specific geographic region.

This structure balances the need for technical, centralized expertise and guidelines with the desire to embed sustainability experts within business functions and across individual geographies. The model gives each business unit ownership of its sustainability initiative and the flexibility to develop its carbon credit purchasing criteria within the guidelines set to ensure high integrity across the organization.

As an all-in business builder, BBVA's organizational structure supports its effective engagement in the VCM while providing it with the expertise to create further value for its clients by helping them participate in the VCM (see Figure 30).

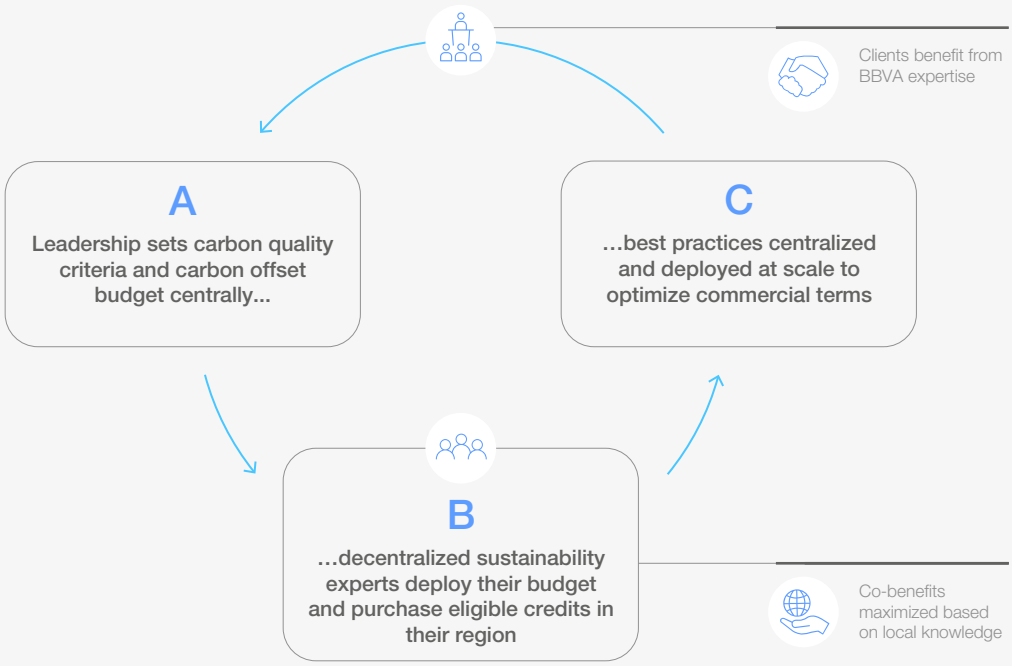
FIGURE 29 **BBVA's sustainability structure – centralized leadership and decentralized specialists**



Sustainability experts and specialists are embedded within each of the three business units and the business function verticals, as well as within each geography, providing decentralized, matrix coverage

Source: Bain & Company interviews with company

FIGURE 30 | **BBVA's organizational structure enhances impacts and benefits clients**



Source: Bain & Company interviews with company

CASE STUDY 10

Iberdrola

Unlocking new opportunities and de-risking the sustainability agenda are compelling arguments for building project development capabilities in-house.

Iberdrola is a global energy leader committed to clean energy for more than 20 years and supplying energy to ~100 million people in dozens of countries. The company has a vision for sustainable energy, underpinned by two key goals:

- SBTi-approved targets to achieve net-zero emissions before 2040
- Net-positive effect on biodiversity by 2030

The company established a new business venture in 2023, Carbon2Nature, with the ambition of generating high-quality carbon credits by either developing its own carbon nature-based projects or co-investing in existing projects within the VCM ecosystem. As well as enabling Iberdrola to better control carbon projects and carbon credit quality, this business harnesses synergies between Iberdrola's climate and biodiversity targets by building on its internal nature restoration projects.

Carbon2Nature will operate as a separate business line, developing nature-based projects with high sustainability impact based on carbon finance, enabling Carbon2Nature to offer green solutions to customers through carbon credits.

By identifying synergies and bringing project development capabilities in-house, Iberdrola has been able to de-risk its involvement in the VCM and source a mechanism to expand and finance its nature restoration projects, making them more viable while developing a new business line to materialize opportunities in the green economy.

This section has examined how companies can orchestrate their in-house carbon capabilities according to the operating model they use to engage with the VCM. Recommendations are summarized in Figure 31.

FIGURE 31 | **Orchestrate the effort – Summary of recommendations**

Overall sustainability agenda

- [ ] Design and implement a comprehensive sustainability operating model that clearly outlines the role of carbon markets in your corporation's net-zero transition to successfully orchestrate participation in VCMs

Organizational structure

- [ ] Select carbon credit operating model archetype, choosing your VCM ambition and industry/geographic context as an input to the balance between internalization and externalization of carbon-related activities
  - Assess opportunity to transition from being a purchaser (externalized) to project developer (internalized) as the market matures
- [ ] Determine required internal capabilities and role of central leadership versus business units to manage carbon-related activities

Conclusion: The imperative for action and incentives

Today, the voluntary carbon market is an established lever that could rapidly mobilize billions of dollars to finance projects that protect nature and reduce emissions or remove carbon from the atmosphere. The urgent demands of dire climate change and nature loss require solutions today, not tomorrow. The VCM is one of the few viable financing levers that could be activated and scaled up quickly. Its role is a direct complement to carbon abatement, it can help support communities and ecosystems in need, and it provides a financing tool to channel funds towards emerging climate technologies with the highest potential. If implemented well, the VCM could unlock many benefits and deliver the impact the world needs.

Current frameworks support early adopters and companies already on an accelerated trajectory to net zero, but they do not provide clear guidance or incentives for hard-to-abate industries, limiting their ability to promote growth. To drive change at the required scale and to spur corporate decision-makers into action, the VCM will need clear business incentives that provide a strategic rationale for use of carbon credits. Current incentives that rely on enhancing licence-to-operate or societal value will not drive action at scale in today's market.

This is not a simple issue to solve. The potential for abuse exists, market structures are fluid and evolving and the primary focus on abatement demands clear guardrails and sector specificity for any incentives.

Yet, without changes today, corporate boards and investors lack a rationale to invest at the scale required—billions per year, not millions—and natural capital will be lost, communities further affected and early investment in solutions needed for the road to net zero will not be made. Put simply, moving the carbon market up the S-curve of wider corporate adoption requires rethinking incentives and recognition, as the catalysts that motivated early adopters are not sufficient to drive the wider corporate community of the next 500 or 1,000 companies to invest and act at scale.

The public sector, private sector and civil society all have a constructive role to play in finding a solution. From market infrastructure providers, there is a need to drive integrity through increased transparency and accessibility. From standard setters there is a need for nuanced and pragmatic guardrails to allow corporations to allocate greater capital to urgent projects and build tangible incentives in a voluntary environment. From regulators, there is a need to provide incentives for the net-zero transition while maintaining a level playing field. From NGOs and media communities, there is a continued need for constructive criticism that builds integrity while recognizing the ambition of those acting in good faith. Finally, from corporations, there is a need to set ambitious science-based climate targets, act through all available channels and be willing to learn in the open to enable others to take similar action at scale.

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56. LIDAR stands for “laser imaging, detection and ranging”; ML/AI refers to “machine learning and artificial intelligence”.

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