KPMG

Unravelling the Voluntary Carbon Market in Southeast Asia

Challenges and Paths Forward

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KPMG in Singapore

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Contents

Executive Summary

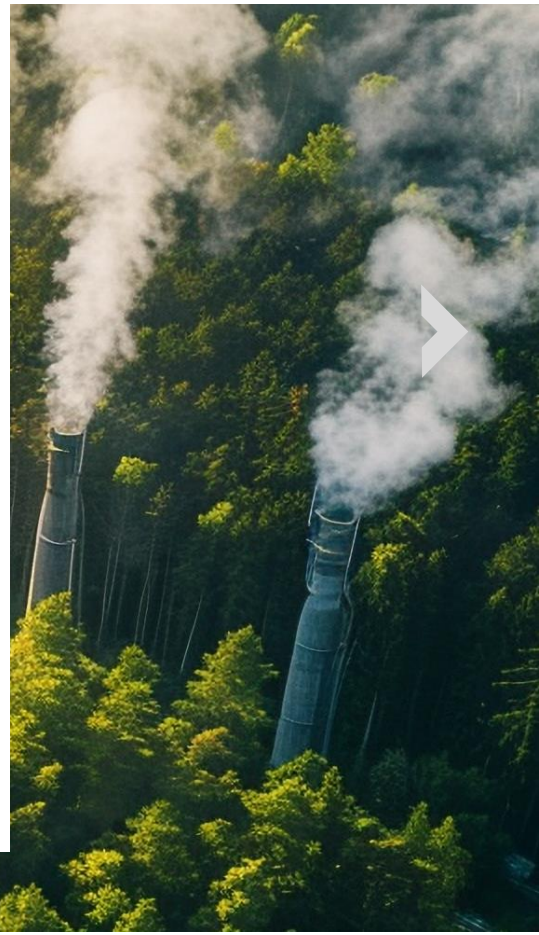
The voluntary carbon market (VCM) stands as one of the most dynamic arenas in the global effort to combat climate change, with its potential for growth and impact becoming increasingly evident. Industry data reveals that the VCM traded nearly 111 million tons CO_2e of carbon credits in 2023. These volumes highlight significant investments by major companies in carbon compensation initiatives and reflect how organisations are integrating these credits into their net zero strategies, aiming to compensate their historical emissions they have produced in the past from the atmosphere.

Looking ahead, the VCM is expected to pivot towards high-quality carbon credits, driven by growing demands for legitimacy and transparency. Organisations will likely prioritise credits from projects that demonstrate verifiable environmental benefits, responding to past scrutiny over the credibility of VCM transactions, which peaked at US$2 billion in transaction value in 2021 but experienced a downswing of over 60 percent by 2023. Without proper oversight, the market risks reputational damage from proliferation of low-quality credits and may face challenges related to price volatility, complicating procurement for less experienced participants.

To mitigate these risks, it is imperative for organisations to engage with established registries, standard bodies, credit verifiers, and professional specialist firms, ensuring that their projects are rigorously evaluated and credible. The evolution of the VCM will likely see leaders emerging from those who champion transparency, innovation, and robust project evaluation—qualities that are becoming imperatives for success in this dynamic and evolving market.

However, the VCM faces potential downsides. Unaddressed, the market could suffer from oversaturation of low-quality credits, leading to price crashes and undermining the credibility of carbon compensation as a whole. Additionally, as the market matures, there may be a tightening of regulations and standards, which could create barriers to entry for smaller players or lead to increased costs for compliance.

In this report, we explore the characteristics of the VCM market, focusing on the developments in Southeast Asia, market challenges, key players, project types, and attributes of different credits. Our analysis also highlights critical considerations for organisations looking to participate in the VCM, emphasising the need for a strategic, well-planned approach to navigate this complex and rapidly evolving landscape.



Introduction to the voluntary carbon market

Climate change represents one of the most complex and pressing challenges facing humanity's future. As greenhouse gas emissions continue to build up in the atmosphere, they exacerbate climate change, with far-reaching consequences for natural ecosystems, economies at both global and local levels, and human health and well-being.

In this context, the VCM is emerging as a crucial component in our fight against climate change. Unlike Compliance Carbon Market (CCM) schemes, which are driven by regulatory mandates, the VCM operates on voluntary participation, offering organisations the opportunity to go beyond mandatory requirements and enhance sustainability efforts. The table summarises the differences between the VCM and CCM.

At its core, the VCM operates as a market where transactions between buyers and sellers directly support climate mitigation efforts. On this market, each credit represents a tonne of carbon dioxide either avoided or removed from entering the atmosphere, due to the implementation of the carbon project. These transactions provide the financial incentives necessary for the development of such projects, fostering environmental stewardship while contributing to economic growth.

This introduction sets the stage for exploring the multifaceted role of the carbon market in mitigating carbon emissions and accelerating climate action. Organisations, governments, and individuals engaging in this market can assist to drive reduction efforts through investment and innovation to address one of the most pressing challenges of our time – climate change.

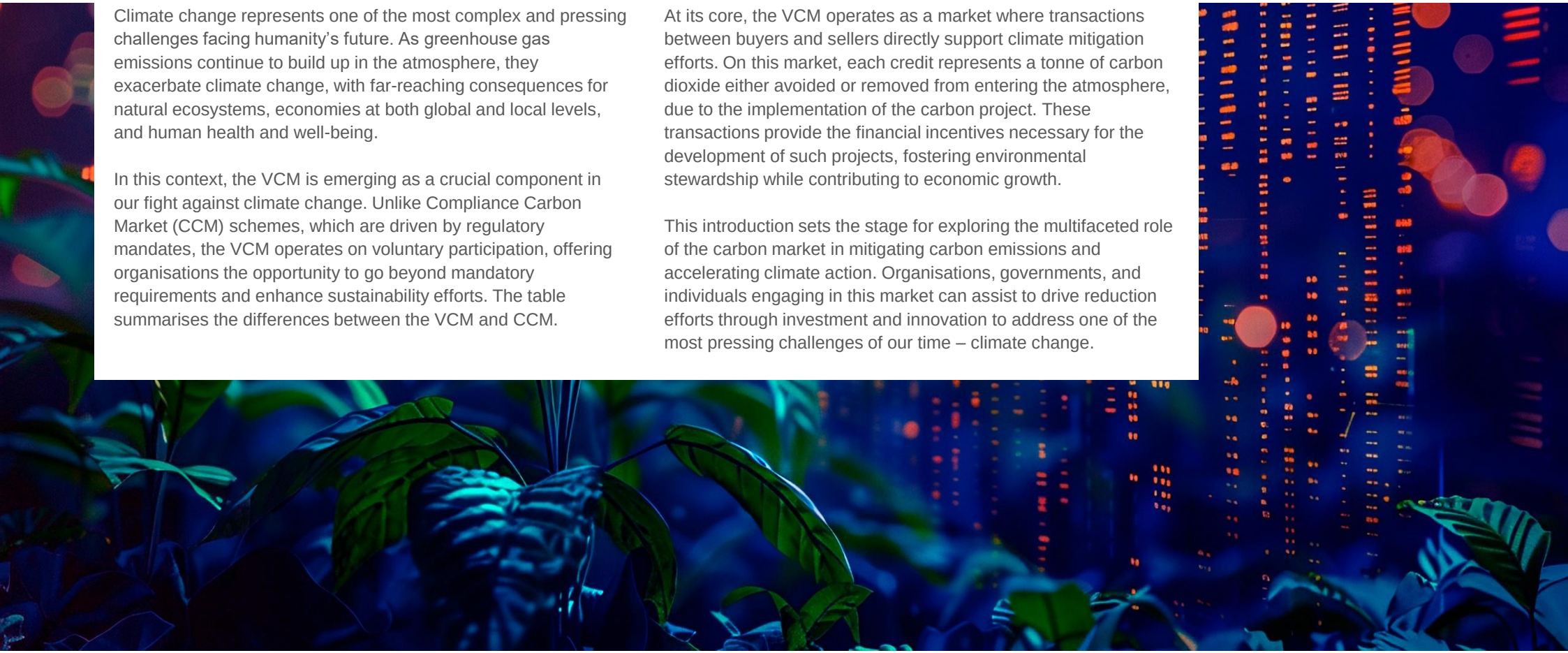


Table 01: Comparison between the voluntary and compliance carbon markets

	VCM	CCM
Description	A marketplace including all transactions of carbon credits that are not part of a regulated carbon market. It includes certified carbon credits purchased to remove or reduce greenhouse gases emitted from their own operations. Participants of the VCM include private actors and/or governments.	A market through which regulated entities obtain and surrender emission permits or allowances or carbon credits for compliance purposes. Examples of compliance markets include cap-and-trade and domestic carbon tax schemes (e.g., European Union Emissions Trading Scheme (ETS) and sectoral schemes (e.g., Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).
Nature	Voluntary	Mandatory
Market mechanism	▪ Focuses on the purchase of carbon credits from projects that avoid, reduce, or remove emissions, with prices determined by market forces of supply and demand where consideration of the project characteristics inform this analysis. ▪ Influenced by governmental climate regulations yet relies on third-party standards and certification bodies to monitor, measure and verify project integrity and carbon credit issuance.	▪ Strictly regulated by government or intergovernmental bodies, governed by rules for emission targets, allowance distributions, and compliance mechanisms.
Size of markets	US$723 million, valued in 2023.[2]	US$949 billion, valued in 2023.[3]

2. From *Voluntary offsets market value tumbles to a third of 2021 peak,* by Eco-Business is Asia Pacific, 2024 *(https://www.eco-business.com/news/voluntary-offsets-market-value-tumbles-to-a-third-of-2021-peak/*). Copyright 2024 by Eco-Business is Asia Pacific.
3. From *Global carbon markets value hit record $949 billion last year* by Reuters, 2024 (https://www.reuters.com/markets/commodities/global-carbon-markets-value-hit-record-949-bln-last-year-lseg-2024-02-12/). Copyright 2024 by Reuters.

Understanding the voluntary carbon market involves recognising the roles of its key stakeholders.

Currently, there are over 8,500 private organisations taking actions, with around 38 percent of them set net-zero targets. This commitment is fuelling the growing demand of carbon credits[4].

Participants of the VCM span a broad spectrum, ranging from multinational corporations and small businesses to individuals passionate about sustainability. This diversity promotes the democratisation of the carbon market, enabling organisations of varying sizes and sectors to engage in the fight against climate change.

Table 2 details the stakeholders that typically engage in the VCM.

Table 02: Stakeholders in the voluntary carbon market

Stakeholder	Role
▶ **Project developers**	Design and implement carbon credit projects, collaborating with local communities and stakeholders to generate sustainable co-benefits. After validation and verification processes of a project, they sell the generated carbon credits to interested buyers.
▶ **Investors**	Provide the capital necessary to finance carbon credit projects. They may include private equity firms, banks, corporations, or individual investors seeking financial returns in the form of carbon credits.
▶ **Third party auditors**	Independent entities that verify and validate the emission reductions claimed by project developers before the projects are registered. They conduct regular monitoring and measurement to ensure compliance with relevant standards.
▶ **Carbon programmes**	Establish standards for carbon credit quality, certify projects, issue carbon credits, and maintain registries to track projects, credit issuance and retirement.
▶ **Credit buyers**	Purchase carbon credits to offset their own GHG emissions or those within their value chain as they transition to net zero as well as to remove any residual emissions at their net zero target dates. These entities may also purchase carbon credits to invest in mitigation beyond their value chains to keep 1.5^{o} C within reach, as part of their decarbonisation strategy.
▶ **Carbon brokers or retailers**	Intermediaries that offer a range of carbon credits and related services to buyers, simplifying the transaction process and reducing complexity.
▶ **Carbon exchanges**	Platforms that facilitate the listing, selling and purchasing of carbon credits, ensuring transparency in pricing and can providing market liquidity.

4. From *Companies Taking Action* article, by Science Based Targets Initiative 2024 (https://sciencebasedtargets.org/companies-taking-action). Copyright by Science Based Targets Initiative 2024.

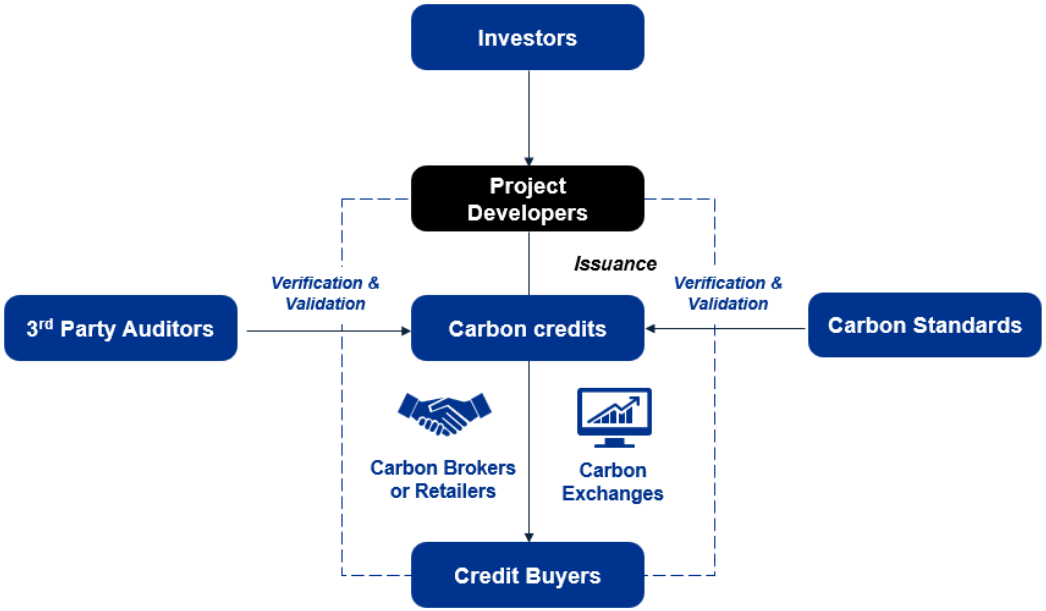
A Southeast Asian Perspective on the VCM Landscape

With its diverse and rich natural ecosystem, Southeast Asia plays a key role in the global push towards achieving net-zero targets. Recognising this, several countries in the region have begun to explore nature-based solutions and into their Nationally Determined Contributions (NDCs). The potential of these nature-based solutions in Southeast Asia is immense, particularly through effective forest protection, which can significantly reduce carbon emissions by sequestering carbon dioxide from the atmosphere.

Southeast Asia is home to millions of hectares of tropical forests, many of which are viable carbon projects with the capacity to sequester substantial amounts of carbon dioxide. These projects present significant investment opportunities, with estimated annual returns potentially reaching billions. Conservative estimates based on a starting carbon price of US$5.80 per tCO2e, suggest around 114 million hectares could be protected as economically viable carbon projects. This initiative could prevent approximately over 835 million metric tons of CO2 emissions from deforestation in the region each year.[5] Given this potential, a regional carbon market would be a valuable mechanism for organisations based in Southeast Asia to facilitate such investments, delivering both economic and environmental benefits.

5. From *Co-benefits of forest carbon projects in Southeast Asia*, by Nature Sustainability, 2022 *https://www.nature.com/articles/s41893-022-00849-0*. Copyright 2022 by Nature.com

Figure 01: Stakeholders in the voluntary carbon market



The region has also made significant strides in advancing the carbon market, particularly through national policy developments. For instance, as of 2023, Singapore is home to more than 100 carbon services companies operating in areas such as project development, measurement, reporting and verification (MRV), standards, and carbon trading. This growth is partly attributable to the country's efforts to enhance its regulatory frameworks, develop robust infrastructure, and forge strategic partnerships with various players in the carbon market.[6]

This progress is reflective of broader trends across other Southeast Asian countries, where several nations are making notable efforts to advance their carbon market initiatives in support of regional and global decarbonisation goals. The following table presents these notable trends, illustrating the progress achieved within the region.

6. From *Southeast Asia's carbon markets: Three ways companies can seize opportunities from Singapore,* by Singapore Economic Development Board, 2023 (https://www.edb.gov.sg/en/business-insights/insights/southeast-asias-carbon-markets-three-ways-companies-can-seize-opportunities-from-singapore.html). Copyright 2023 by Singapore Economic Development Board.
7. From *Ministry of Sustainability and the Environment, 2024* (https://www.mse.gov.sg/resource-room/category/2024-05-27-press-release-singapore-signs-implementation-agreement-ghana-carbon-credits). Copyright 2024 Ministry of Sustainability and the Environment.

Table 03: Carbon market trends in Southeast Asia

Country	Status as of 2024
▶ **Singapore**[7]	Under the Singapore Carbon Pricing Act, Singapore government has implemented carbon tax since 1 January 2019. From 2024 onwards, carbon tax liable facilities in Singapore will be allowed to use high quality international carbon credits to compensate up to five percent of their taxable emissions. To facilitate this, Singapore has signed implementation agreements (IAs) with a couple of countries. These partnerships aim to ease collaboration on carbon projects and collectively advance global climate action towards the Paris agreement and Article 6. Singapore has also signed agreements with organisations including Verra and Gold Standard to enable Singapore's carbon tax liable facilities to utilise carbon credits issued by these organisations to fulfill portions of carbon tax obligation on carbon credits. Singapore has made progress in the carbon exchange space since 2021, with developments aimed at enhancing the VCM. Efforts have included offering services such standardised spot contracts and facilitating the trading of millions of tonnes of carbon credits. Furthermore, plans have been announced for Singapore to develop a carbon futures contract, enabling more efficient risk management and price discovery mechanisms within the VCM.

Table 03: Carbon market trends in Southeast Asia *(continued)*

Country	Status as of 2024
▶ **Indonesia**[8]	The Indonesia Carbon Exchange (IDX Carbon) was launched in the second half of 2023 under the provision of the Financial Service Authority Otoritas Jasa Keuangan (OJK). This exchange is particularly relevant for compliance companies that are subject to emission quotas set by the relevant ministries, requiring them to reduce their greenhouse gas emissions. This initiative is a key part of Indonesia's commitment to reducing emissions by over 30 percent by 2030 and ultimately achieving net-zero emissions by 2060. Operating within a cap-and-trade framework, the exchange regulates pollution levels and allows organisations to trade emission allowances within Indonesia and cross-border. The exchange mandates that its operator must be an Indonesian entity, albeit allowing for up to 20 percent of its voting shares to be owned, directly or indirectly, by foreign entities.
▶ **Malaysia**[9]	In 2022, The Bursa Carbon Exchange (BCX), a voluntary carbon market exchange, was set up to enable the trading of high-quality carbon credits via standardised carbon contracts. Currently allowable projects include nature-based solutions (NBS) or technology-based solutions (avoidance or removal), following methodologies from both Verra and Gold Standard. The BCX has introduced multiple trading modes, including auctions, continuous trading, and off-market transaction. BCX has also auctioned renewable energy certificates (RECs) and Malaysia Carbon Credits in June and July 2024, respectively. The Malaysia Nature-based Carbon Credits Plus (MNC+) for Kuamut Rainforest Conservation Project was successfully auctioned at RM50 per contract.
▶ **Thailand**[10]	To drive the country toward its pledged climate goal of achieving net-zero emissions by 2065, the Department of Climate Change and Environment under the Ministry of Natural Resources and Environment, arranged a series of public hearings on the draft of Thailand's Climate Change Act from 14 February to 27 March 2024 . This Act will be an enabler to drive many national climate actions mechanisms, such as establishing a national climate institution along with a national climate master plan, initiating an EMS, laying the foundation for a carbon tax system and legalising the voluntary carbon credit scheme as the national crediting scheme. This Act not only outlines mitigation actions but also mandates relevant government agencies to be responsible for climate impact adaptation. Thailand's first Climate Change Act is expected to come into force by 2026.
▶ **Vietnam**[11]	Vietnam has been making significant strides towards green growth. Efforts are underway to strengthen environmental regulations among organisations and enhance community awareness of sustainable development. Vietnam is currently developing a legal framework for operating and monitoring a domestic carbon market, with targets for pilot operation of the carbon credit exchange from 2025. Vietnam's progress in carbon credit issuance is noteworthy, with approximately 29.4 million credits issued from 276 projects under the Clean Development Mechanism (CDM) by November 2022. Additionally, the emergence of the voluntary carbon market, signifies a promising avenue for further environmental impact. By end of December 31, 2023, Vietnam had 71 projects registered with GOLD standard and 52 registered with VCS standards, with a total of over 7 million and 2 million issued credits respectively.[12]

8. From *Carbon Reduction Commitment*, by IDXCarbon, 2024 (https://www.idxcarbon.co.id/). Copyright 2024 by IDXCarbon.
9. From *Introducing Bursa Carbon Exchange*, by Bursa Carbon Exchange, 2024 (https://bcx.bursamalaysia.com/web). Copyright 2024 by Bursa Malaysia Carbon Market Sdn Bhd.
10. From *DCCE is accelerating preparation of draft Climate Change Act, opening for public hearings in 6 regions* by *Department of Climate Change and Environment (DCCE), Ministry of Natural Resources and Environment, 2024 https://www.dcce.go.th/news/view_public.aspx?p=17825. Copyright 2024 by DCCE Thailand*
11. From *ETS Description,* by International Carbon Action Partnership, 2022 (https://icapcarbonaction.com/en/ets/vietnam). Copyright 2022 by International Carbon Action Partnership.
12. From *Voluntary Registry Offsets Database,* by University of California, Berkeley, 2024 (https://gspp.berkeley.edu/research-and-impact/centers/cepp/projects/berkeley-carbon-trading-project/offsets-database/). Copyright 2024 Richard & Rhoda Goldman School of Public Policy, University of California, Berkeley

Identifying frictions and solutions in the voluntary carbon market

The role of carbon market in corporate decarbonisation strategy is increasingly under scrutiny. A growing consensus among scientists, civil society and corporate guidance initiatives suggests that organisations should avoid the purchase of carbon credits as a replacement for climate mitigation within their value chains. Instead, they advocate for a model where carbon credits supplement to science-based abatement measures to reduce emissions.

However, some argued that given the complexity and challenges of implementing emission reduction measures, particularly in hard-to-abate sectors, carbon credits should be permitted to reduce an organisation's value chain emissions. Proponents of this view highlight the importance of carbon credits in supporting the 1.5°C pathway by providing the necessary capital for carbon reduction and removal projects, which have historically been underfinanced in the Southeast Asia.

Regardless of the stance taken, integrity and credibility are still of paramount importance in the carbon markets. The VCM has faced criticism for poor environmental integrity, greenwashing and lack of price transparency. Without strong integrity, the VCM risks falling short of its potential and could undermine global decarbonisation efforts, enabling misleading environmental claims or greenwashing.

To address these concerns, a shift is needed to enhance the integrity of both the demand and supply sides of the market, thereby building trust and credibility in the VCM. Recent years have seen innovations in technology, standards, policy, and governance aimed at improving the market's reliability. For example, satellite imagery is used to monitor nature-based carbon projects, blockchain technology enhances transparency and traceability in transactions, and initiatives like the Integrity Council for the Voluntary Carbon Market (ICVCM) and Voluntary Carbon Markets Initiative (VCMI).

Despite these advancements, challenges persists, particularly around the perceptions and practices of market participants. While the market has diversified, it still relies heavily on corporate demand, necessitating broader engagement from various sectors. Setbacks and criticisms in recent news, have driven improvements due diligence and governance practices.

As the market evolves, frameworks like the Science-Based Targets Initiative (SBTi) are revising their standards, potentially allowing carbon credits for Scope 3 abatement[13]. This presents a pivotal moment where rigorous project qualifications and transparency will be critical. Acknowledging past shortcomings, the focus remains on leveraging lessons learned to foster a more robust and credible carbon market aligned with global climate goals.

As these changes unfolds, it is important for organisations to stay informed about new programmes and best practices within the country to make informed decisions about incorporating carbon credits into their sustainability strategies. International frameworks like Article 6 are pivotal in shaping international cooperation and standard convergence across carbon markets on the basis of voluntary cooperation. Article 6 would facilitate cross-border transactions and sets criteria for eligible activities and acceptable credits, which may involve private organisations. Understanding these mechanisms that takes place on a governmental level as outlined in Article 6 will also be essential for the VCM participants as they navigate the evolving carbon market landscape, fostering informed and responsible engagement.

The following chapter discusses how buyers can futureproof and benefit from the procurement of carbon credits.

13. From *Statement from the SBTi Board of Trustees on use of environmental attribute certificates, including but not limited to voluntary carbon markets, for abatement purposes limited to scope 3*, 2024 (https://sciencebasedtargets.org/news/statement-from-the-sbti-board-of-trustees-on-use-of-environmental-attribute-certificates-including-but-not-limited-to-voluntary-carbon-markets-for-abatement-purposes-limited-to-scope-3). Copyright Science Based Targets Initiative 2024.

Integrating carbon credits integrity into a sustainability strategy

Integrity in the carbon market is critical concern in today's landscape, drawing significant attention from both the media and among organisations. Challenges across the market value chain underscore the need for proper due diligence. One major risk is "over crediting," where credits may not reflect to actual emissions reductions, exposing buyers to accusations of greenwashing. To mitigate these reputational risks, it is important to implement rigorous processes that ensure purchased credits align with verifiable reductions.

Efforts to strengthen integrity are already underway, with initiatives such as Singapore's push for greater transparency in carbon markets. As newer standards evolve, such platforms offer a unified source of credibility, which is vital for increasing market participation. For stakeholders, it is imperative to adhere to both international and domestic regulations, meticulously screen project methodologies, and align with internal policies. This level of diligence ensures that purchased credits meet ethical standards and contribute to genuine emission reductions.

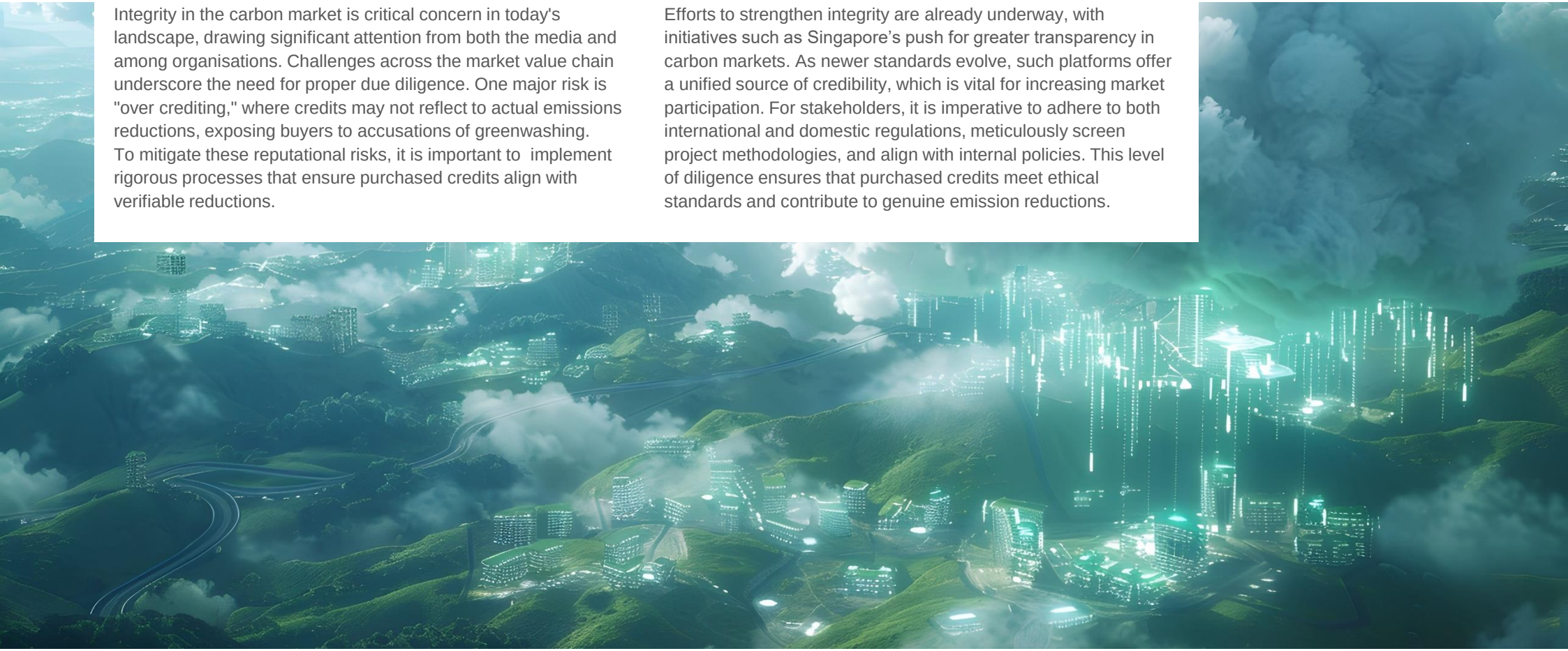


Table 04: Three pillars of ESG

Pillars	Environment	Social	Governance
▶ **Descriptions**	Management of natural resources and the organisations' impact on the environment	Ways in which organisations engage with their employees and communities	Policies to govern organisations and relevant decision-making processes
▶ **Examples**	▪ Climate change ▪ Greenhouse gas (GHG) emissions ▪ Natural resource depletion ▪ Waste and pollution ▪ Deforestation ▪ Hazardous materials ▪ Biodiversity	▪ Working conditions, including labour and human rights ▪ Impact on local communities ▪ Health and safety ▪ Employee relations and diversity	▪ Executive pay ▪ Bribery and corruption ▪ Political lobbying and donations ▪ Board diversity and structure ▪ Tax strategy ▪ Cybersecurity

Overview of organisations' sustainability strategy

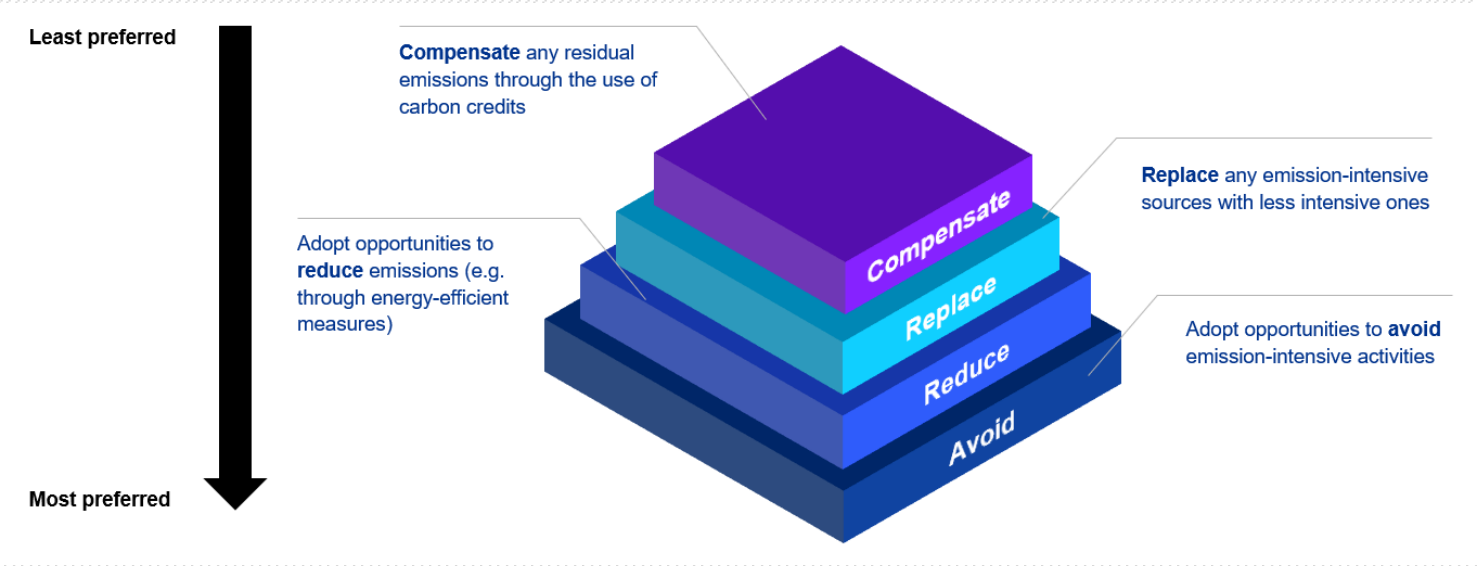
An organisation's sustainability strategy is a holistic approach that aligns with the business objectives to foster long-term value for all its stakeholders. This strategy enhances organisational resilience by enabling companies to proactively address emerging and evolving trends in ESG regulations, stakeholder behaviours and expectations as well as the demands of lenders, investors, and insurers. When developing a sustainable strategy, it is crucial to consider the organisation's ESG ambition level and integrate key factors such environmental stewardship, social responsibility, and governance. Table 4 provides an elaboration of these 3 pillars.

Role of the VCM in sustainability strategy

As the world strives to meet the objectives set out in the Paris Agreement - to limit global temperature rise to 1.5°C above pre-industrial levels - the call to achieve net-zero greenhouse gas emissions by 2050 is more urgent than ever. This underscores the critical need to reduce emissions and balance any residual emissions with carbon removal projects.

The importance of a comprehensive and robust sustainability strategy has never been greater for organisations. This is driven by regulatory changes, increased scrutiny from governments, investors and organisation's sustainability commitments, a growing emphasis on sustainable consumerism, and the rise in sustainable financing mandates. It is considered best practice for organisations to prioritise and emphasise carbon emission reduction within their own operations (see Figure 2). However, existing technological and economic constraints make it challenging for organisations to fully achieve net zero using only these levers. The VCM offers a viable pathway for organisations to meet net-zero goals while channelling financing into carbon reduction and removal projects across the world, or in Southeast Asia. The carbon credits obtained in the VCM can complement organisations' efforts to reduce direct emissions within their operations, which could often be achieved through the procurement of Renewable Energy Certificates (RECs), while also allowing them to explore other avenues to compensate their indirect emissions outside of those operations.

Figure 02: Carbon mitigation hierarchy



The VCM provides organisations with the means to take tangible steps toward reducing their carbon footprint beyond regulatory requirements, demonstrating environmental leadership and responsibility to stakeholders, including customers, investors, employees, and communities. The strategic use of the VCM allows companies to further extend their sustainability efforts beyond immediate operational boundaries, filtering these efforts through their value and supply chains to contribute to global climate action efforts. There are several compelling reasons for companies to integrate carbon credits into their sustainability strategy:

- **Enhancing organisational reputation**
  Integrating carbon credits into the organisation's strategy offers a valuable opportunity to enhance brand reputation and competitiveness in an increasingly eco-conscious market. Companies that voluntarily compensate their carbon emissions credibly and transparently demonstrate a clear awareness of their environmental impact and a commitment to mitigating it. When executed with integrity, this commitment enhances the organisation's reputation and fosters trust among the eco-conscious consumers and stakeholders.

  By publicly committing to net-zero targets and backing these commitments with actionable plans, companies can showcase their environmental stewardship and differentiate themselves from their peers. This would translate to increased customer loyalty, improved investor confidence, and access to new partnerships and markets, leading to long-term business resilience and growth.

- **Mitigating climate risks**
  Climate change presents significant risks to organisations, including supply chain disruptions, regulatory challenges, and reputational damage. Proactive participation in the VCM allows companies to address these risks by taking concrete steps to reduce their carbon footprint. This not only enhances organisational resilience but also positions the organisation as a leader in sustainable practices.

- **Attracting and retaining talents**
  Employees, particularly those from younger generations, place a high value on working for environmentally responsible companies. Participating in the VCM enhances an organisation's attractiveness to top talent, bolstering recruitment efforts and fostering employee loyalty.
  A sustainability-focused workplace also boosts employee morale and engagement.

- **Macroenvironmental advantages**
  While the VCM is voluntary, organisations that participate position themselves to adapt more seamlessly to potential future regulatory changes. Organisations can stay ahead of evolving environmental regulations and minimise the impact of compliance-related challenges by effectively addressing carbon emissions and integrating sustainable practices. Organisations play a direct role in achieving international climate goals by aligning their actions with the broader global agenda for a sustainable future and supporting projects that reduce or remove carbon emissions.

Despite the significant benefits offered by the carbon market, challenges and reservations persist within the private sector. Recent issues involving the VCM have spotlighted the buy-side - the companies purchasing the carbon credits – highlighting potential reputational and legal risks. This scrutiny has led to the rise in “greenhushing”, where companies delay or even cease publicly disclosing their sustainability strategies, including their carbon credit purchases, as a response to the increased scrutiny on the VCM in news reports or environmental groups.

In this next section, we outline some key steps and considerations for organisations looking to invest in or purchase carbon credits.

Steps for participating in the VCM

Step 1: Aligning the VCM strategy with the organisation’s sustainability framework

The VCM strategy should seamlessly integrate with the organisation’s overall sustainability objectives, serving to complement and accelerate its decarbonisation objectives. organisations with existing climate targets and decarbonisation plans must carefully assess how carbon credits will integrate and align with their broader strategy and commitments. For organisations that have yet to embark on their sustainability journey, the initial step is to measure their carbon emissions (Scope 1, 2 and 3), before setting climate targets and developing a decarbonisation strategy.

A comprehensive decarbonisation strategy should include several key elements: identifying critical emission reduction opportunities, detailing the implementation processes, outlining budget requirements, setting implementation timelines, and establishing accountability structures to monitor and track progress. Organisations should also anticipate and plan for potential technological and financial challenges, as well as evolving market trends over the course of the implementation.

A decarbonisation strategy is a dynamic process that required ongoing review and refinement. Organisations can ensure their strategies adhere to best practices by aligning with global standards and frameworks, even if these standards are not mandatory in their operational markets:

- International Sustainability Standards Body (ISSB) : a global sustainability reporting standard requiring a reporting organisation to disclose their carbon emissions as well as any planned carbon compensations efforts.
- Greenhouse Gas Protocol’s Corporate and Accounting Standards : a standard to scope, measure and monitor an organisation’s carbon emissions, including their Scope 1, 2 and 3.
- SBTi : a standard for companies to set and monitor their near-term and net zero targets.
- VCMI : a framework for companies to claim the use of carbon credits. VCMI has outlined 4 key steps when an organisation wants to make a VCMI Claim, as shown on Figure 3.

A comprehensive decarbonisation strategy should then be supported by a strong governance structure, inclusive of Board and Management oversight, ensuring the effective execution and continuous improvement of the strategy.

Figure 03: Four steps to making VCMI claims

Step 2: Developing an internal VCM strategy and criteria

Organisations can choose from a diverse range of carbon credit projects. Carbon projects cover an array of initiatives aimed at reducing or removing greenhouse gases from the atmosphere. Each carbon project addresses specific emission sources or enhance carbon removal efforts, contributing to global climate change mitigation on local, regional, and global scales. These projects typically fall into two main categories: removal and avoidance projects.

It is recommended for organisations to diversify their carbon credit portfolios by procuring credits from a variety of project types. This diversification helps mitigate risks and enhances overall impact of their carbon offsetting strategy. Furthermore, prioritising credits from a more recent vintages is recommended, as these likely to adhere to the most updated emission reduction and removal methodologies, reflecting the latest science and technologies or processes development.

Table 05: Types of carbon projects (list not exhaustive)

Project type	Description	Example
▶ **Removal**	1. Biochar carbon removal: engineered solutions to amplify natural processes in removing and storing carbon, preventing the release of carbon dioxide. 2. Direct air capture (DAC): tech-based solutions involve on pulling carbon dioxide out of air using technological and chemical processes resulted in stored carbon that can prevent its release to atmosphere. 3. Nature-based solutions: involve conserving, restoring, or sustainably managing natural ecosystems that can potentially remove GHG emissions	1. Turning biomass to biochar through pyrolysis. 2. Solid and liquid DAC plant. 3. Reforestation, forest conservation or avoided deforestation, improved forest management.
▶ **Avoidance**	1. REDD+ AUD: Reduce Emissions from Deforestation and forest Degradation (REDD+) Avoided Unplanned Deforestation (AUD) is a nature-based solutions which protects forests from, often illegal, deforestation activities. 2. Renewable energy: tech-based solution projects that facilitate the flow of financing to renewable energy projects reducing reliance on fossil fuels. These projects typically occur in Least Developed Countries (LDCs) due to their higher likelihood of demonstrating additionality, meaning they would not occur without external support. 3. Waste to energy: often engineered-based solutions turning waste into affordable, clean, and sustainable energy, reducing emissions which would result from incineration practices. 4. Community Projects: Introduce energy-efficient methods or technology to communities in Southeast Asia.	1. Financial supports to local communities, illegal deforestation monitoring. 2. Building or maintaining solar, wind, hydro or geothermal sites. 3. Building biogas digesters, Landfill Gas (LFG). 4. Fuel switching, clean cookstove

A carbon credit procurement strategy should include the overall vision and objectives of the strategy. This should be further enhanced by detailed due diligence on the carbon projects and resulting credits, monitoring, and managing usage, and a well-developed communication plan to ensure all stakeholders are transparently informed.

Define objectives

To define objectives, organisations must clearly understand their emission reduction targets and how carbon credits fit into the overall sustainability strategy. It is imperative for organisations to ask a few fundamental questions:

- What is the role of carbon credits in meeting the organisation's climate targets?
- How should the organisation leverage carbon credits, to complement other emission reduction solutions?
- In which context should the organisation use carbon credits, whether in or beyond their value chain and how they should claim the use of carbon credits?

Defining the procurement plan

Organisations need to determine the procurement plan, whether through spot-market, forward contracting or equity investments. These different transactions have varying opportunities and risks to the buyer, as summarised in the table below.

Table 06: Different transaction structures for carbon projects[19]

	Spot-market	Forward Purchase	Investment
Definition	Buyers would purchase and retire the carbon credits on the spot, with immediate payment to the seller.	Both buyers and project developers agree on the upfront price of carbon credits. The carbon credits are delivered and retired at a future date.	A buyer or investor may invest into a carbon project, in exchange for future, discounted carbon credits or a guaranteed quantity of carbon credits
Opportunities	Higher certainty on the carbon credit's level of impact, as only ex-post credits can be traded and retired.	▪ Project developers have an up-front flow of financing as the buyer has committed to a long-term agreement. ▪ Ensure a guaranteed price of carbon credits.	▪ Provides a defined quantum of capital for the project developer. ▪ In the future, the investor or buyer can opt to sell the credits at a higher price for a profit.
Risks	▪ Future price of carbon credit may change, so buyers are subject to changing carbon credit prices. ▪ Ex-post carbon credits may be more limited in supply.	As ex-ante credits are sold through forward purchase, there is a risk that the credits cannot be delivered.	▪ As ex-ante credits are sold through investment, there is a risk that the credits cannot be delivered. ▪ Investors may be reluctant to invest in smaller projects.

19. From *Different ways to buy carbon explained: from spot purchases to multi-year agreements, by Lune, 2023* (https://lune.co/blog/different-ways-to-buy-carbon-explained-from-spot-purchases-to-multi-year-agreements). Copyright by Lune Climate Ltd, 2024.

Due Diligence

A strategy to purchase carbon credits should include a sound and detailed due diligence process for screening, selecting, and buying the credits. In the context of the VCM, a high-quality carbon project is characterised by its integrity and quality, with integrity referring to the project's dedication to providing well-evidenced carbon impact data and quality relating to the evident additional benefits beyond carbon reduction or removal. High-quality projects often invest more in robust MRV systems, incorporate a diversity of native species in reforestation efforts and allocate a significant portion of the projects economic benefit to local communities. These projects are also likely to command higher prices by demonstrating these attributes.

When assessing the integrity and quality of carbon offset projects, several critical indicators must be considered to ensure the credibility and effectiveness of these initiatives:

- **Additionality:** Ensuring the projects exceed the GHG emissions reductions required by applicable laws, regulations, and legally binding mandates and those occur in business-as-usual scenarios
- **Non-leakage:** Preventing the displacement of emissions where projects' emissions reductions result in material emissions increases outside the project area
- **Permanence:** Guaranteeing long-term benefits from carbon emissions reductions or removals and do not pose reversal risks to current mitigation
- **Transparency:** Employing conservative baselining to accurately reflect emission savings and uphold rigorous MRV practices for a transparent and accurate outcome assessment
- **Co-benefits generated:** Generating co-benefits for Indigenous Peoples and Local Communities (IPLCs), biodiversity and ecosystem health.

In addition to the five quality criteria, organisations can opt for additional criteria to further enhance their due diligence process. The ICVCM has established a definitive global benchmark standard for high integrity carbon credits. This benchmark is based on solid science and clear, measurable, and verifiable data. In consultation with stakeholders across the market, the ICVCM has developed ten Core Carbon Principles (CCPs) setting out key criteria[20]. The CCPs are a set of interlinked principles to define a threshold standard to ensure integrity in the VCM.

20. From *The Core Carbon Principles*, by The Integrity Council for the Voluntary Carbon Market, 2024(https://icvcm.org/core-carbon-principles/). Copyright 2024 by ICVCM.

Table 07: Ten core carbon principles set by the ICVCM

A. Emissions impact	▪ **Additionality**	The GHG emission reductions or removals from the mitigation activity shall be additional, i.e., they would not have occurred in the absence of the incentive created by carbon credit revenues.
	▪ **Permanence**	The GHG emission reductions or removals from the mitigation activity shall be permanent or, where there is a risk of reversal, there shall be measures in place to address those risks and compensate reversals.
	▪ **Robust qualification of emissions reduction and removals**	The GHG emission reductions or removals from the mitigation activity shall be robustly quantified, based on conservative approaches, completeness, and scientific methods.
	▪ **No double counting**	The GHG emission reductions or removals from the mitigation activity shall not be double counted, i.e., they shall only be counted once towards achieving mitigation targets or goals. Double counting covers double issuance, double claiming, and double use.
B. Governance	▪ **Effective governance**	The carbon-crediting programme shall have effective programme governance to ensure transparency, accountability, continuous improvement, and the overall quality of carbon credits
	▪ **Tracking**	The carbon-crediting programme shall operate or make use of a registry to uniquely identify, record and track mitigation activities and carbon credits issued to ensure credits can be identified securely and unambiguously.
	▪ **Transparency**	The carbon-crediting programme shall provide comprehensive and transparent information on all credited mitigation activities. The information shall be publicly available in electronic format and shall be accessible to non-specialised audiences, to enable scrutiny of mitigation activities.
	▪ **Robust independent third-party validation and verification**	The carbon-crediting programme shall have programme-level requirements for robust independent third-party validation and verification of mitigation activities.
C. Sustainable development	▪ **Sustainable development benefits and safeguards**	The carbon-crediting programme shall have clear guidance, tools, and compliance procedures to ensure mitigation activities conform with or go beyond widely established industry best practices on social and environmental safeguards while delivering positive sustainable development impacts.
	▪ **Contribution to net zero transition**	The mitigation activity shall avoid locking-in levels of GHG emissions, technologies or carbon-intensive practices that are incompatible with the objective of achieving net zero GHG emissions by mid-century.

Projects that meet rigorous quality criteria not only play an important role in combating climate change but also contribute significantly to the sustainable development and welfare of local communities. These high-quality carbon projects in the voluntary market embody the dual mission of environmental stewardship and social responsibility.

When choosing carbon offset projects, organisations should look for projects that are not only effective in reducing emissions but also provide additional environmental, social, and economic benefits (co-benefits). Factors such as location, project type and the communities it impacts should be considered. The projects and methodology should be verified under carbon-crediting programmes that are CCP-eligible, such as the Verified Carbon Standard (VCS) managed by Verra and Gold Standard. These certifications ensure that the project's emission reductions are real, quantifiable, permanent, and additional, providing credible and trustworthy basis for carbon offsetting.

Furthermore, the due diligence should not only evaluate the project itself but also scrutinise the project developer. This can be done through a verification of the project developers work history, prior transactions, media profile, financial health, and any other potential avenues where risks could concentrate.

Communication plan

It is essential for organisations to carefully claim the use of carbon credits, especially relating the concept of net-zero emissions. To reduce risks, buyers can adhere to the VCMI and SBTi frameworks for global best practice, including how to communicate and claim carbon credits' use in their net-zero and neutrality strategy. A communication plan should also be as transparent as possible and include supporting evidence as available.

Table 08: Comparison between VCMI and SBTi for making carbon credit claims

	VCMI	SBTi
Criteria when using carbon credits	Four steps to make a VCMI claim, as shown in Figure 3.	Four steps to design and implement a Beyond Value Chain Mitigation (BVCM) strategy: 1. Set and work to deliver a net-zero target. 2. Establish a BCVM pledge. 3. Take action to deliver BVCM. 4. Report BVCM activities and outcomes
How organisations should claim the use of carbon credits	Depending on the VCMI claims, organisations must purchase and retire certain amounts of carbon credits: ▪ **Silver** - equal to >10% and <50% of the unabated carbon emissions (Scope 1, 2 and 3) ▪ **Gold** – equal to >50% and <100% of the unabated carbon emissions (Scope 1, 2 and 3) ▪ **Platinum** – equal to >100% of the unabated carbon emissions (Scope 1, 2 and 3)	SBTi's BVCM extends beyond just carbon credits. The guidance suggests organisations to apply an internal carbon price to unabated emissions to measure a 'financial budget' to fund BVCM projects. Organisations should use the budget to deliver mitigation outcomes equivalent to at least 50% of the organisation's remaining Scope 1, 2 and 3 emissions.

Securing stakeholder buy-in for carbon credit strategies

Purchasing carbon credits should be part of an organisation's comprehensive sustainability strategy. To ensure the success of this initiative, it is essential to socialise, align, gather feedback, and secure buy-in from internal stakeholders. These internal stakeholders span various departments from the organisation, including finance, accounting, procurement, legal, marketing and communications, investor relations and management.

Each stakeholder groups will have different priorities, concerns, and perspectives when it comes to carbon credit strategy. Engaging with this diverse viewpoints ensure a more holistic approach and strengthens the overall strategy. Therefore, developing a strong, consistent communication plan that clearly explains how the carbon credit strategy ties into the overall organisation's strategy is crucial. This approach will help solidify the business case and build the necessary internal support.

Step 3: Initiating carbon credit procurement

Organisations looking to purchase carbon credits, several pathways are available:

Request for proposal (RFP)to registries and project developers

An RFP process allows buyers to gain a deep understand of the project developer, the carbon project, the contractual agreement, and the pricing. While this method requires more resources, personnel, and time, it is invaluable for selecting high-quality projects that align with the organisation's sustainability goals. to screen and select the right projects. Working with experienced brokers or consultants can help navigate the complexities of the carbon credit market, conduct thorough due diligence, and ensure the selection of high-quality projects that align with their sustainability goals.

Carbon credit brokers

A carbon credit broker acts as an intermediary between the buyer and seller. Buying carbon credits through an experienced broker can minimise the risks for a new buyer, who may not be familiar with carbon credits and over-the-counter transactions. A broker can also facilitate the due diligence process to screen high-quality carbon projects and/or credits. However, buyers remain responsible for ensuring that the credits they purchase meet their standards for quality and integrity. As with any brokerages, carbon credit brokers will charge a commission fee for their services.

Carbon credit exchanges

Carbon credit exchanges collaborate with various carbon originators and registries to streamline carbon trading transactions for eligible buyers and sellers. These tech-enabled, decentralised platforms cater to organisations' decarbonisation efforts, facilitating easier transactions without intermediaries. Carbon exchange platforms leverage electronics technologies to ensure transparency, security, and traceability in the trading process. The digital platform is designed to be accessible for the VCM participants. Similar to financial markets, carbon exchange aims to deepen liquidity and enables price discovery, aiding efficient trading and capital allocation decisions.

After selecting and vetting the projects, it is important for organisations to understand the legal implications, including ownership of the carbon credits and the rights to claim emission reductions. Contracts should clearly outline the terms of carbon credit purchase, use and retirement.

To effectively manage and accrue long-term outcomes, organisations can consider forward purchases and investments as strategies for acquiring carbon credits. This would require agreement to purchase credits at a future date and price, securing certainty and locking current rates to hedge against future price increases. Alternatively, investing directly in carbon projects can generate carbon credits overtime to ensure continuous streams of credits aligned with the organisations' sustainability strategy and carbon emissions reduction objectives.

Step 4: Planning, managing, monitoring and reporting the outcomes

For buyers who have procured carbon credits through forward purchase or investment, diligent planning, management, monitoring, and reporting of the project's progress is crucial. This involves diligent planning and oversight throughout the project's lifecycle, up to the point where carbon credits are eventually retired.

Due to nature of these transactions, which involves a lag between the purchase and retirement of credits, there is a risk that the credits may not be delivered as expected. Continuous planning, management and monitoring are thus necessary to ensure the project's progress and the fulfilment of the stated carbon credits. In contrast, spot-market transactions involve immediate payment and retirement of carbon credits, thus do not require this.
To ensure effective management and monitoring, organisations can outsource these activities to a validation and verification body (VVB). The VVB ensures that emissions reductions have occurred as claimed and that the project complies with the chosen standard.

Regardless of the transaction structure, buyers should eventually report on the credits procured to ensure transparency and accountability. For example, the Corporate Sustainability Reporting Directive (CSRD) mandates for organisations to disclose their carbon credit use. Additionally, voluntary guidelines like those from VCMI are shaping best practices for reporting, even where it is not legally required. This trend towards mandatory and standardised reporting is making the carbon credit market more transparent. Generally, information disclosed would include the specific project financed, credit type, evaluation processes, scalability, cost-effectiveness, and third-party verification. For forward purchase and investment agreements, detailed updates on project progress, challenges encountered, and corrective actions taken would also be relevant.

Overall, by diligently managing, monitoring, and transparently reporting on carbon credit projects, buyers can ensure the integrity and success of their carbon reduction efforts while preserving trust with their stakeholders.

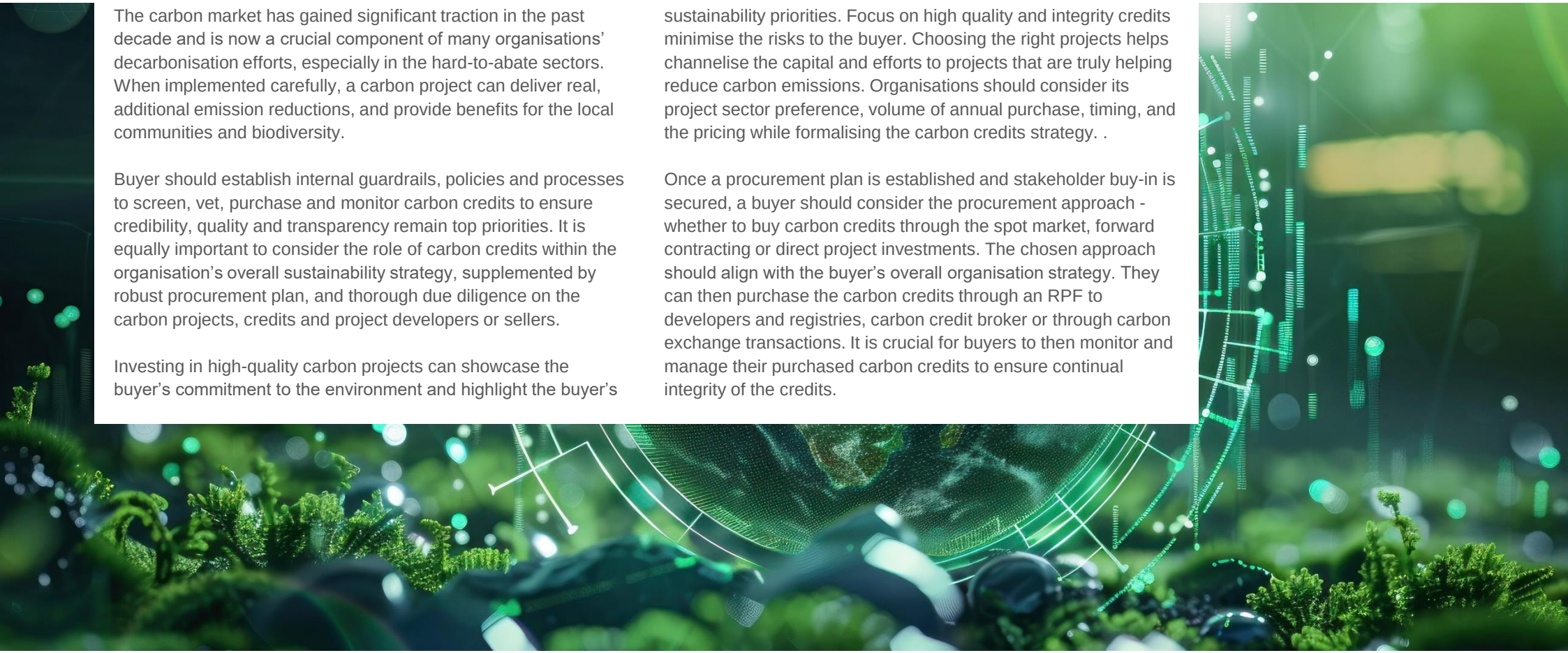
Conclusion

The carbon market has gained significant traction in the past decade and is now a crucial component of many organisations' decarbonisation efforts, especially in the hard-to-abate sectors. When implemented carefully, a carbon project can deliver real, additional emission reductions, and provide benefits for the local communities and biodiversity.

Buyer should establish internal guardrails, policies and processes to screen, vet, purchase and monitor carbon credits to ensure credibility, quality and transparency remain top priorities. It is equally important to consider the role of carbon credits within the organisation's overall sustainability strategy, supplemented by robust procurement plan, and thorough due diligence on the carbon projects, credits and project developers or sellers.

Investing in high-quality carbon projects can showcase the buyer's commitment to the environment and highlight the buyer's sustainability priorities. Focus on high quality and integrity credits minimise the risks to the buyer. Choosing the right projects helps channelise the capital and efforts to projects that are truly helping reduce carbon emissions. Organisations should consider its project sector preference, volume of annual purchase, timing, and the pricing while formalising the carbon credits strategy. .

Once a procurement plan is established and stakeholder buy-in is secured, a buyer should consider the procurement approach - whether to buy carbon credits through the spot market, forward contracting or direct project investments. The chosen approach should align with the buyer's overall organisation strategy. They can then purchase the carbon credits through an RPF to developers and registries, carbon credit broker or through carbon exchange transactions. It is crucial for buyers to then monitor and manage their purchased carbon credits to ensure continual integrity of the credits.



In summary, there are many considerations, guardrails, and mechanisms in the process of buying quality carbon credits. In Southeast Asia, the carbon credit market presents an opportunity for both buyers and sellers to engage in voluntary mechanisms that drive decarbonisation efforts across the region. Despite corporate demand driving the bulk of carbon credit purchases, greater private sector participation is needed to accelerate investments into Southeast Asian carbon projects.

Despite the potential, carbon credits remain underutilised as a financing tool in Southeast Asia, indicating untapped opportunities to integrate market mechanisms into sustainability strategies effectively. The region's journey towards sustainable energy transitions underscores the pivotal role of strategic financing in achieving regional goals, amid challenges such as low prices and complex regulatory landscapes. Initiatives like Singapore's taxonomy and bilateral agreements on carbon credits demonstrate promising progress.

Major organisations are actively advancing decarbonisation efforts across their supply chains, influencing broader industry trends towards sustainability in Southeast Asia. Positioned as a hub, Southeast Asia can mobilise immediate financing and leverage its ecosystem to attract investments and facilitate transactions. Its leadership in sustainability and finance makes it a potential impact financing hub, supporting global efforts towards achieving net zero emissions.

KPMG, as a global professional services firm, is uniquely positioned to assist clients in navigating and engaging with carbon markets. Our extensive global presence and cross-functional approach enable us to identify high-integrity reduction opportunities and manage the complexities of international transactions effectively. We have earned the trust of some of the world's largest clients by designing robust strategies for their carbon market engagements.

Furthermore, KPMG teams collaborate globally with non-governmental organisations, governments, and other stakeholders to advocate for the development of rules and standards. KPMG’s advocacy ensures that transparency and integrity within carbon markets continue to evolve, facilitating efficient market and participation for all stakeholders.

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List of acronyms

AUD	Avoided Unplanned Deforestation
BCX	Bursa Carbon Exchange
BVCM	Beyond Value Chain Mitigation
CCM	Compliance Carbon Market
CCPs	ICVCM 10 Core Principles
CDM	Clean Development Mechanism
CIX	Climate Impact X
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CSRD	Corporate Sustainability Reporting Directive
DAC	Direct Air Capture
EDB	Economic Development Board
ETS	Emissions Trading System
FTI	Federation of Thai Industries
IA	Implementation Agreements
ICVCM	The Integrity Council for the Voluntary Carbon Market
IDX Carbon	Indonesia Carbon Exchange
ISSB	International Sustainability Standards Body
IPLC	Indigenous Peoples and Local Communities
LDCs	Least Developed Countries
LFG	Landfill Gas
MRV	Measurement, Reporting and Verification
NBS	Nature-based solutions
NDC	Nationally Determined Contributions
NEA	National Environment Agency
OJK	Otoritas Jasa Keuangan
RECs	Renewable Energy Certificates
REDD+	Reduce Emissions from Deforestation and forest Degradation
RFP	Request for Proposal
SBTi	Science-based Target Initiative
SGX	Singapore Exchange
T-VER	Thailand Voluntary Emission Reduction Program
VCM	Voluntary Carbon Market
VCMI	Voluntary Carbon Markets Initiative
VCS	Verified Carbon Standard
VVB	Validation/Verification bodies

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