



Foundations for the Carbon Market

Legal clarity, accounting, and
other drivers for market scale

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This document does not necessarily represent the views of any of the parties or their representatives.

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Foreword

The voluntary carbon market (**VCM**) is increasingly recognised as a crucial mechanism to crowd in financing to address climate change. Carbon markets are now a core instrument for global climate action.

Across jurisdictions, we see a mosaic of arrangements: compliance systems underpinned by domestic and regional regulation.

Against this backdrop, the traditional boundary between voluntary and compliance markets is blurring as Article 6 mechanisms evolve and selective compliance uses, such as CORSIA, expand across jurisdictions. There is an increasing convergence in standards, methodologies, integrity frameworks, and claims rules.

Clear systemic frameworks are fundamental to VCM scale

Based on interviews with banks, developers, exchanges, investors, insurers, traders, and SSFA, this paper identifies key industry-wide scaling pain points and their financing implications.

Although retirement levels are holding steady, demand for verified carbon credits (**VCCs**) has slowed due to several key barriers to market scale: (1) the complexity of legal regimes, (2) stagnant buyer appetite, (3) a lack of sophisticated secondary market, (4) integrity controversies that heighten greenwashing risks. When coupled with the evolving guidance from organisations such as the Science Based Targets initiative (**SBTi**), the Claims Code of Practice by the Voluntary Carbon Market Integrity Initiative (**VCMI**), and the developing operational framework under Article 6 of the Paris Agreement, these factors create a fragmented environment that underscores the need for greater harmonisation.

In this paper, we explore how having a clear legal and financial accounting characterisation of VCCs can contribute to the scale of the VCM ecosystem and catalyse carbon financing.

Our key conclusions and recommendations for policymakers and regulators are that:

1. **A proprietary classification of VCCs as intangible property** has the potential to strengthen market confidence, facilitating the use of VCCs in trading, collateralisation and financing transactions. Specifically:
 - **Transfer as property:** We suggest that VCCs are sufficiently determinate (i.e. specific and identifiable) to be treated as property. This gives clarity to how market participants think about and manage risks around the sale of VCCs. To unlock market scale in the VCM, we suggest that VCC registries can, similar to registers for immovable property or company shares, implement a notice system that permits title and priority of security interests in VCCs to be checked by third parties.
 - **Security interests:** Where it is clear that VCCs have proprietary character, security interests over VCCs can be enforced by secured creditors. VCCs can thereby serve as a useful form of collateral for the financing of carbon projects.
 - **Custodial arrangements:** Where VCCs are held under a custodial arrangement, the proprietary character of a VCC ensures it can be properly held on trust and segregated from the custodian's own assets, particularly in the event of insolvency.
 - **Insurance:** Clarity over the characterisation of VCCs as property may also further unlock insurance solutions available to carbon ecosystem participants.

This position is supported by general principles from existing case law, particularly in Singapore and the United Kingdom.

Our suggestion that VCCs should be treated as property is also broadly consistent with the work of the International Institute for the Unification of Private Law (**UNIDROIT**) Working Group on the Legal Nature of VCCs.¹

2. **Clear and harmonised private international law rules can further support market scale.** The multi-party and multi-jurisdictional nature of the VCM leads to potential conflicts around: (1) which State's law should apply, and (2) which court should have jurisdiction to hear a dispute. This conflict of laws can be significant especially if, for instance, one State's laws recognise VCCs as property, but another State does not.

A coherent approach to this issue² is equally important for the VCM to scale.

The issue is a vexed one, given the international character of the VCM and the challenging nature of this area of law. **We see multi-lateral consensus among States as the viable long-term solution for market scale.**

3. In addition, while existing accounting standards play a crucial role in the recognition, measurement and disclosure of VCCs in financial statements, **we believe there is room for disclosures beyond accounting standards to provide decision-useful information to stakeholders and VCM participants.**

1. As of the time of writing, the latest meeting of the UNIDROIT Working Group was the Seventh Session of the Working Group on the Legal Nature of Verified Carbon Credits that took place at the seat of UNIDROIT in Rome on 17-19 December 2025. <https://www.unidroit.org/work-in-progress/verified-carbon-credits/#1637156948432-1d04168e-7a08>. The comments in this paper relate to the draft principles and commentaries circulated for the Seventh Session.

2. Especially, as mentioned above, whether the holder of a VCC is considered to own an object of proprietary character, or a set of contractual entitlements.

Call to action

Legal and accounting clarity can have knock-on effects, fostering greater transparency, more liquid secondary trading, hedging opportunities, and enhanced investor and financier confidence. In this regard, effective policy and regulatory leadership can unlock and accelerate private investment and innovation. The VCM stands to benefit from Singapore taking a clear, articulated approach to the legal treatment of VCCs. This will send a strong signal and strengthen market confidence, providing a firm legal foundation as other barriers such as supply integrity, stronger demand, market maturity and secondary liquidity are being addressed.

Reducing fragmentation would be key to the next phase of growth for the VCM. As registries and standards look at different ways to integrate and align, there is a place for States and policy makers to converge as far as possible on the legal treatment of VCCs within their respective systems.

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About this paper

This paper reflects the legal position and publicly available materials as at 13 April 2026, unless otherwise stated. References to draft instruments are to the versions available as at that date.

I. Introduction: Shaping the future of the carbon market

This paper expands on an earlier paper (**2024 Paper**),³ which proposed that:

1. there is sound basis for verified carbon credits (**VCCs**) to be treated as intangible property under Singapore law, and
2. such treatment is aligned with the principles of property law in most common law jurisdictions.

Two years on, as integrity frameworks and claims rules continue to be developed, this paper presents a call for policy makers to provide clarity and confidence to the VCM, drawing from insights and views of industry players.

We have interviewed different segments of stakeholders in the industry – including financial institutions, project developers, exchanges, investors, insurers, traders and members of the

working group of the carbon financing workstream under the SSFA – to get a cross-industry view of the pain points in scaling the VCM and the financing of carbon projects.

In this regard, we have expanded our analysis of the implications that legal and accounting characterisations of VCCs have on carbon financing and the growth of the VCM.

The consensus is that clarity on the legal classification and treatment of VCCs remains a ubiquitous, although not the only, issue to be addressed for the VCM to scale.

3. GenZero and Allen & Gledhill LLP (March 2024), The Legal Character of Voluntary Carbon Credits: A Way Forward: <https://genzero.co/legal-character-of-voluntary-carbon-credits/>

The role of the VCM in addressing climate change

Carbon markets are increasingly recognised as a crucial mechanism to crowd in financing into projects that avoid, reduce or remove emissions; or promote the development and utilisation of low-carbon or carbon removal solutions.

Projects may be issued with VCCs for each tonne of carbon dioxide (or its equivalent) emission that the project has reduced, avoided or otherwise removed from the atmosphere.⁴ Buyers can purchase VCCs as part of their commitments to address their emissions and contribute to the mitigation of climate change.⁵

While the voluntary and compliance carbon markets have historically operated in parallel, with different rules, uses and buyer motivations; they have begun, over the last few years, to converge through shared standards, eligibility pathways and policy design.

For example:

- Singapore allows the use of eligible VCCs to partially address tax liabilities under its domestic carbon tax regime.⁶
- California⁷ and Canada⁸ permit a limited number of approved VCCs to be used as compliance instruments in regulated greenhouse gas (GHG) compliance schemes.

- A provisional agreement between the European Council and the European Parliament in December 2025 includes an approach that allows for the use of eligible VCCs to offset emissions under the EU emissions trading scheme from 2036 onwards.⁹
- The International Civil Aviation Organisation permits a covered airline to use eligible VCCs to address its emissions and comply with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA).

In addition, as the Paris Agreement Crediting Mechanism under Article 6.4, and bilateral State frameworks for transferring mitigation outcomes under Article 6.2 mature, there is also increasing scope for States to use carbon credits (including VCCs) to meet nationally determined contributions (NDC).

As the use of VCCs towards compliance obligations grows, there is expectation that the VCM has the potential to support global decarbonisation at scale.

There are, however, some noteworthy pain points inhibiting scaling of the VCM. Unlocking these barriers – though not necessarily in sequential order – will catalyse the growth of a more liquid, transparent and predictable market. This will encourage the large-scale capital flows required to meet global climate targets.

⁴ In contrast to the compliance market system of capped emissions allowances, the VCM is open-ended: VCCs are created in line with the quantity of emissions verified to have been avoided, reduced, or removed.

⁵ In November 2025, SBTi released a second draft of its Corporate Net-Zero Standard v2 for second public consultation. SBTi updated that its draft Standard is expected to accelerate corporate climate action by introducing a new recognition mechanism to incentivise companies to take early, voluntary action to address the impact of their ongoing emissions (which previously was understood as “beyond value-chain mitigation”) as they transition towards net zero. Some market participants believe it is set to recognise companies using carbon credits to neutralise residual emissions.

⁶ Singapore Carbon Markets Cooperation Singapore’s International Carbon Credit (ICC) Framework: <https://www.carbonmarkets-cooperation.gov.sg/environmental-integrity/eligibility-criteria/>

⁷ California Air Resources Board Sector-Based Offset Credits: <https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program/sector-based-offset-credits>

⁸ Government of Canada, Carbon pricing: compliance options under the federal output-based pricing system: <https://www.canada.ca/en/services/environment/weather/climatechange/climate-action/pricing-carbon-pollution/compliance-options-output-based-system.html> at section “International Offset Credits”

⁹ <https://www.consilium.europa.eu/en/press/press-releases/2025/12/10/2040-climate-target-council-and-parliament-agree-on-a-90-emissions-reduction/>

II. What hinders the growth of the VCM?



Key Highlights

The use of VCCs is crucial for climate change mitigation, complementing compliance-market carbon credits. Its growth is, however, inhibited by a number of factors, including:

1. The complexity of VCC legal regimes across jurisdictions;
2. Challenges to voluntary demand; and
3. The need for further liquidity and price transparency to grow a sophisticated secondary market.

As Article 6 mechanisms evolve and selective compliance uses expand across jurisdictions and programs like CORSIA, the VCM's potential to scale decarbonisation rises. For VCCs to evolve into a true asset class, users must be able to understand and hedge against risks. These include:

- a. Project execution and operational risks;
- b. Standards and methodological risks; and
- c. Counterparty credit and delivery risks.

Supportive legal frameworks, a better understanding of legal and financial tools to manage risk, and harmonised standards are essential to mobilise capital and build a liquid, resilient market.

Complexity of legal regimes

VCCs have existed since the late 1980s, yet the legal nature and treatment of VCCs under both domestic private law¹⁰ and private international law across jurisdictions has yet to be clarified. The applicable legal regime in relation to the VCM is complicated by:

1. The cross-border nature of the transactions. The project as well as the project developer, certification body, registry, intermediaries and end users of the VCCs are likely to be in different jurisdictions.
2. VCCs being a relatively novel form of intangible instrument that is traded internationally. This raises considerations not likely to have been encountered with traditional forms of intangible assets, such as intellectual property rights¹¹ or contractual choses¹² in action.

Harmonisation of the legal treatment of VCCs across key markets will foster certainty and predictability, enhancing confidence for transaction flow. When the legal status of a VCC under private law is clearly established, market participants can engage in transactions with greater confidence in their enforceability.

¹⁰ Private law governs and determines parties' substantive rights. For example, whether a purchaser has breached a contract for sale of goods by failing to pay the seller by the contractual deadline. Private international law broadly is a system of rules by which a court or tribunal determines which jurisdiction's laws apply to a cross-border transaction.

¹¹ For instance, the acquisition of a copyright registered in one jurisdiction by an acquirer in another jurisdiction does not actually result in the copyright moving to the latter jurisdiction.

¹² For instance, notwithstanding the assignment of a contractual claim to an overseas party, the claim remains governed by the proper law of the contract.

Increasing transaction volumes will facilitate the development of a liquid secondary market, offering improved price transparency and liquidity, which in turn supports the advancement of risk mitigation instruments such as hedging, thereby providing the right environment for the market to scale.

Legal and regulatory certainty alone insufficient to scale the VCM



While clarifying the legal nature of VCCs is a critical step, it is not a panacea. Other issues such as demand, cross-border transactions, pricing and liquidity will need to be addressed as well.

Voluntary demand challenges

Participation in the VCM is not generally backed by mandatory regulatory requirements to offset emissions, but is dependent on private entities making voluntary climate commitments.

These may include commitments to voluntarily reduce emissions within their supply chains¹³ outside of any compliance obligation and to voluntarily finance the reduction or removal of emissions through the purchase of VCCs. This results in demand that is fragmented and sensitive to sentiment.

Sentiment has been weakened by concerns over project integrity, the verification process, the standardisation of baselines and methodologies across carbon standards, and the risk of greenwashing claims. These concerns increase the cost, risk profile and bankability threshold for financial institutions and corporates looking to fund carbon projects.

These challenges notwithstanding, pricing and demand in the VCM appear to have stabilised in

2025,¹⁴ consolidating around a subset of high-quality credits. This could in part be a positive outcome arising both from the efforts in the market to harmonise integrity standards for VCCs,¹⁵ and the use of independent carbon credit ratings to: (1) assess and compare the underlying risks associated with VCCs across different projects, and (2) inform investment, procurement, and financing decisions.

Other challenges for the VCM



Integrity controversies and reputational risks: Public criticisms of certain methodologies (particularly those based on avoided deforestation) have made corporates wary of greenwashing risks. Procurement teams have also raised the bar on additionality, permanence and baselines; reducing the appetite for low-quality VCCs.

Claims uncertainty: Evolving guidance from initiatives such as SBTi and VCMI, coupled with shifting green claims rules across major jurisdictions, have led buyers to pause until they can make compliant and defensible claims.

Accounting and double-counting concerns under Paris Agreement Article 6: Questions about host country authorisation and corresponding adjustments have created hesitation, particularly for multi-national corporation buyers who want VCCs that will remain valid under future policy or disclosure regimes.

ESG backlash: In some markets, scrutiny of environment claims and litigation risk have encouraged a wait-and-see attitude.

Procurement complexity: As the varying attributes of VCCs increase, the market has splintered into many micro-products – escalating complexity and transaction costs. This makes buyers reluctant to commit to strong volumes without bespoke diligence and legal protections.

13. It is worth noting that previously, Scope 1 and 2 emissions have been the focus of reduction of emissions. If corporates can extend their climate ambition to measure and reduce Scope 3 emissions, the effect of using voluntary carbon credits will go beyond supporting supply chain but value chain of a corporate's business.

14. CREO Family Office Syndicate (January 2026), Leveraging Voluntary Carbon Markets to Fund Nature-based Solutions: Insights from a Changing Market: https://www.creosyndicate.org/wp-content/uploads/2026/01/2026_CREO_Voluntary_Carbon_Markets_NBS.pdf.

15. Initiatives include the ICVCM Core Carbon Principles and Assessment Framework which provides assurance for high integrity VCC methodologies.

Liquidity and price transparency

At present, the VCM is largely focused on physically settled spot and forward transactions, executed over-the-counter directly between counterparties. This reflects the relatively small size of the market, varying degrees of buyer sophistication and the limited fungibility of VCCs arising from differences across project types, standards, methodologies and risk profiles. Price discovery remains fragmented, with limited publicly available pricing information.

“Clear legal treatment of carbon credits can unlock new forms of market liquidity. Across the broader ecosystem, this could support the development of more sophisticated financial applications such as margin trading or collateralised facilities, allowing participants to pledge VCCs to support trading activity and deepen market participation.”

- Climate Impact X

Financial institutions face challenges in valuing and hedging VCC risks



This is primarily due to the lack of established benchmarks, limited historical price data and underdeveloped mechanisms for transparent price discovery.

Based on feedback from industry players, the absence of deep market liquidity and robust price transparency remains a significant barrier. The VCM is currently constrained by a self-reinforcing dynamic in which insufficient demand limits liquidity, and thin liquidity dampens demand. An effective secondary market will support participation from large-scale investors and financial institutions with reliable price discovery, real-time valuation, and predictable monetisation of credits for effective risk assessment and management.

Financial institutions surveyed noted that many carbon projects struggle to meet bankability thresholds. A key factor is the limited ability to take VCCs as collateral due to the nascency of the secondary market for VCCs, resulting in challenges for a financial institution in pricing VCCs and assessing the risks associated with holding the VCCs as collateral. This stands in contrast to other types of project finance – for instance energy or commodities – where the project’s output is eligible to be held as collateral. The lack of legal clarity on VCCs (particularly on validity and enforceability of security) exacerbates these challenges, contributing to a vicious cycle for the dearth of carbon project financing.

III. Legal foundations for a robust carbon market



Key Highlights

Legal clarity is one of the barriers to market scale. Questions that arise include:

1. **The categorisation of VCCs under a particular system of law.** This impacts whether a VCC is treated as a property asset, or simply a personal right of action. The latter (unlike a property right) attaches to a party or specific circumstances and does not automatically pass to a new party.
2. **The system of law that should govern a transaction or dispute.** For instance, parties to a sale or transfer of VCCs might be in different jurisdictions, with the host country of the VCC project in a third jurisdiction, and the registry in a fourth jurisdiction. There are possibly four different systems of law which could apply, and there should be a coherent means to determine the most appropriate applicable law.

This is a difficult area of law for which we see multi-lateral State consensus as the long-term solution for market scale.

If one likens the VCM to a wheel, there are many spokes required to support its scale and attract the financing required to address increasingly challenging climate targets.

One spoke is legal certainty as to the treatment of VCCs. Various efforts and initiatives are underway internationally to study and recommend paths towards this. There is growing consensus that VCCs can be the object of proprietary rights, but there are varying schools of thought as to the type of property VCCs can be (e.g., whether intangible property or some other category of property entirely).¹⁶

Another spoke is a harmonised approach to the cross-border challenges for the VCM.¹⁷ Some fundamental questions include:

1. Which law governs the legal character of VCCs (including whether it is property, when it comes into existence, how it is transferred and how competing claims are prioritised)? Is there a place to consider different application of rules for intangible assets such as VCCs?
2. Do the laws (or violation thereof by a project) of a host country have effect on VCCs issued in relation to that project? If a host country retroactively cancels authorisation of a project, for instance, should the laws of the host country impact the existence or other proprietary aspects of the relevant VCCs?

These questions require a transparent, principled and inclusive resolution, taking into account the concerns of each stakeholder, including local communities, project proponents, carbon standards, registries and financial participants, in relation to their rights.

16. For example, the England and Wales Property (Digital Assets etc) Act 2025 states: "A thing (including a thing that is digital or electronic in nature) is not prevented from being the object of personal property rights merely because it is neither— (a) a thing in possession, nor (b) a thing in action"

17. In general in every international transaction, there lie questions around: (1) which State's law will apply (the Applicable Law Question), (2) which court or tribunal will have jurisdiction in event of a dispute (the Jurisdiction Question), and (3) what mechanisms are available for a successful party to enforce its rights (the Enforcement Question). These questions grow in complexity with the number of parties and jurisdictions involved.

International and national legal initiatives

The following are some of the steps taken globally on the legal front to resolve the uncertainties around VCCs.

A. International Institute for the Unification of Private Law (UNIDROIT)

The UNIDROIT Working Group on Legal Nature of VCCs was established in May 2023 to develop international law principles on the legal nature and other private law aspects of VCCs.¹⁸

Its Draft Principles on the Legal Nature of VCCs (the **Draft Principles**) are a monumental leap towards the maturation of global carbon markets, drawing upon the collective expertise of international jurists, environmental scholars and financial market practitioners.

Focusing on the property law aspects of VCC transactions, the Draft Principles are intended to be technology-, business model- and jurisdiction-neutral; and to be used as a reference framework for States to adopt into their domestic legal systems, whether those systems are common law or civil law regimes.

To date, the Working Group has published several iterations of the Draft Principles. The project is slated to complete in 2026, with the adoption of the Principles by the UNIDROIT Governing Council.

The Draft Principles recognise VCCs as a form of intangible asset that can be subject to proprietary rights¹⁹ – essentially intangible property.

In relation to the private international law question of which State's laws should apply to govern and interpret the proprietary law issues in respect of VCCs, the Draft Principles propose that the law of

the State of the registry should apply to resolve all proprietary questions of law pertaining to VCCs.²⁰ This means the applicable law would be that of the country where the registry operator is incorporated, or has its statutory seat or central administration, or from which the registry is maintained.

The Draft Principles is a potentially significant step towards the harmonisation of private law treatment of VCCs, although their impact ultimately depends on domestic implementation. Without multi-lateral consensus on the contents of the Draft Principles, the time taken for legislative implementation and possible variations in adoption between States could instead perpetuate jurisdictional fragmentation and divergence.

B. International Swaps and Derivatives Association (ISDA)

Another organisation that has opined on this topic is ISDA, which takes the view that the market in VCCs already operates on the basis that the legal status of VCCs amounts to a form of intangible property.

ISDA published a paper in November 2022 titled “The Legal Nature of Voluntary Carbon Credits: France, Japan and Singapore”, in which it elaborated that VCCs:

- Should be construed as a form of intangible property under French law;
- May be more appropriately deemed a form of intangible property under Japanese law, which would accord with most market participants' understanding and the current settlement practice, although further legislative action to provide clarity as to the legal nature of VCCs would be highly recommended; and

18. Draft Principles, Principle 2(1)

19. Draft Principles, Principles 2(2) and 3(1)

20. Draft Principles, Principle 4(1)

- Should be capable of being recognised as a form of intangible property based on case law in Singapore; although pending an authoritative statement, there is currently a degree of perceived or residual uncertainty over the characterisation of VCCs under Singapore law.

C. International Organization of Securities Commissions (IOSCO)

In November 2024, IOSCO published its “Final Report on Voluntary Carbon Markets” with the observation that significant legal and regulatory uncertainty regarding the creation and use of VCCs is affecting the development of the VCM. In many jurisdictions, there is a lack of a common understanding of the legal treatment of VCCs for various purposes. This impacts how VCCs are created, bought, sold and retired. There are also consequences to the rights that holders may assert over the credits, including security interests, tax or accounting treatment and treatment upon insolvency.

IOSCO did not prescribe a specific legal definition or treatment for carbon credits but emphasised the importance of providing clarity on the legal nature and regulatory classification of carbon credits in each jurisdiction.

D. Hague Conference on Private International Law (HCCH)

An Experts’ Group (**EG**) was established by the Council on General Affairs and Policy of the HCCH in March 2025 to study the private international law issues arising from carbon markets.²¹ To date, the EG has held three meetings, with an initial focus on providing input on the applicable law rule to be included in the Draft Principles.

The significance of the HCCH’s involvement lies in its unique mandate to resolve jurisdictional uncertainty. By developing a harmonised private international law or conflict of laws framework, it seeks to provide market participants with clarity on which country’s law governs ownership and transfer.

The timeline for consultation and discussion by the EG with member States is not clear to the authors.²²

E. National Regulatory Initiatives

We are also aware that several governmental bodies such as the Law Commission of England and Wales, and the United States Commodity Futures Trading Commission have been discussing and engaging industry players and stakeholders on the question of the legal nature of VCCs. In this regard, it is also helpful that some countries like Bhutan have come forward to signal a policy intent to recognise VCCs as a form of property.²³

21. Hague Conference on Private International Law (November 2024) Report: Private International Law Aspects of Voluntary Carbon Markets: <https://assets.hcch.net/docs/291b5b6a-7f59-4176-b509-b8e108a074a1.pdf> at section V

22. UNIDROIT has been informed that the HCCH EG will step back from its work with UNIDROIT on its work on Principle 4 on “Applicable Law”: <https://www.unidroit.org/wp-content/uploads/2025/12/Study-LXXXVI-W.G.7-Doc.-2-rev.-Secretariats-Report.pdf>. at para. 43

23. See Carbon Markets Framework for the Kingdom of Bhutan 2025, <https://www.moer.gov.bt/wp-content/uploads/2025/12/Carbon-Market-Framework-A5.pdf>

A call for VCCs to be recognised as property



Key Highlights

Property has traditionally been divided under common law into real (immoveable) property and personal property.

Personal property can be further divided into two categories – things in possession (tangible goods one can hold) and things in action (intangible rights enforced through legal action, like a debt). Recent case law in Singapore and other common law jurisdictions has been prepared to recognise new types of assets like digital assets as capable of recognition as property.

In this regard, our view is that existing general principles of Singapore property law support a proprietary classification of VCCs (i.e. that they are intangible property) as they satisfy the criteria set out by the UK House of Lords in **Ainsworth**,²⁴ being:

1. Definable and identifiable;
2. Capable of assumption by third parties; and
3. Having a degree of permanence and stability.

This status underpins clearer title and secure transfer of ownership, perfected security interests, priority risk mitigation where a security over VCCs is registered in a registry that recognises security interest, and insurance solutions covering loss or impairment of VCCs. These aspects increase ability to assess and mitigate risks and bankability for project finance.

The question of the nature of a VCC raises some fundamental and important legal issues:

1. Can a VCC be properly treated as property and, if not, is it instead to be treated at law as a mere contract, or a disclosure for sustainability reporting purposes?

2. If a VCC is property, is it a chose in action or another form of intangible property, and what follows from that?
3. Can a VCC be held on trust, for example through a custodian or other intermediated holding arrangement that enables more cost-effective trading?
4. Can security, such as a mortgage or charge, be granted over a VCC?

Answers to these questions have implications for the kinds of transactions that can be undertaken in relation to VCCs and the legal remedies that may be available.

A person who rents a storage locker merely has a licence to use the storage space and may only assert contractual rights against the provider of such storage space. This can be likened to treating VCCs as a bundle of rights. If, however, a person buys a title to land, such person will have rights that run with the land. If VCC is considered property, it will be a *right in rem* (Latin for “right in or to a thing”). This legal right attaches to a specific piece of property (whether physical or intangible) and is enforceable against the world at large, rather than against a specific person or group.



For one, transactions in respect of VCCs along the entire value chain depend on the ability of market players (from project developers to carbon credit end-users and intermediaries) to ascertain the ownership of, and security interests in, the VCC (including understanding the risks associated with fraudulent transfers).

Further, collateral arrangements in respect of VCCs would only function if market participants have confidence in the legal soundness and viability of such arrangements. For instance, participation in the wholesale debt market requires financiers to be able to take VCCs as collateral. Collateral arrangements may enable value to be recognised from otherwise underutilised assets.

24. National Provincial Bank v Ainsworth [1965] 1 AC 1175 (Ainsworth). The criteria in Ainsworth has been accepted and applied by the Singapore Courts.

VCCs can be classified as intangible property under Singapore law

The 2024 Paper highlighted that there was sound basis for VCCs to be treated as intangible property under Singapore law, citing by analogy Singapore and common law cases dealing with, among other things, EU carbon emissions allowances, UK milk quotas and digital assets. We expand briefly on the principles discussed.

Under Singapore law, property is classified into real (or immovable) property and personal (movable) property. Personal property is further divided into:

1. An object capable of physical possession (called a “*thing in possession*”); or
2. A personal right to property that can only be claimed or enforced through legal action (called a “*thing in action*” or “*chose in action*”).

This categorisation is a fundamental concept in common law.

In modern times, particularly with the advent of novel forms of assets, questions have arisen whether there is a third category of intangible property or whether the term “things in action” encompasses all forms of intangible property.

Developments in the landscape of intangible property, particularly relating to digital assets, test the fundamental notions of what things can be said to have proprietary character. In relation to VCCs, the question is whether they are a form of intangible property,²⁵ a thing to which personal property rights can relate²⁶ or a bundle of contract rights.²⁷ The recently passed UK Property (Digital Assets etc) Act 2025²⁸ does not resolve the question, leaving it open for later judicial resolution.²⁹

Category	Real (immovable)	Personal (movable)	
		Tangible movable property (Things in possession)	Intangible rights (Things in action)
Type	Land and interests fixed to land	Physical, touchable, movable assets	Legal rights enforceable only by action
Examples	Land, buildings, fixtures	Vehicles, furniture, machinery, jewellery, goods	Intellectual property, data, shares, software, contracts, debts

25. ISDA (December 2021) Legal Implications of Voluntary Carbon Credits: <https://www.isda.org/a/38ngE/Legal-Implications-of-Voluntary-Carbon-Credits.pdf> at pp 13.

26. United Kingdom Law Commission (28 June 2023) Digital Assets: Final Report: <https://cdn.websitebuilder.service.justice.gov.uk/uploads/sites/54/2025/12/Final-digital-assets-report-FOR-WEBSITE-2.pdf> at para. 4.69

27. Ibid., Chapter 3

28. The Act comprises a short substantive provision: “A thing (including a thing that is digital or electronic in nature) is not prevented from being the object of personal property rights merely because it is neither (a) a thing in possession, nor (b) a thing in action.” It does not list which digital assets are property or define the exact rights they confer. This reflects a deliberate policy choice to avoid a prescriptive list. Question is whether this keeps open the question of whether VCCs will satisfy the criteria for property under common law, without clearer statements

29. See also Explanatory Notes to the Property (Digital Assets etc.) Bill [HL], para. 19

We express no view as to whether VCCs can be categorised as digital assets such as cryptocurrency,³⁰ save to observe that:

1. They appear to both be things to which personal property rights can relate, yet not easily placed within the traditional categories of personal property cited above;³¹ and
2. The foundational principles that common law courts have used in approaching the issue (of whether a thing is personal property) appear to be consistent.

In the **AA case**,³² cryptocurrencies were regarded as property but were not classified as things in action.³³ The UK court found that cryptocurrencies met the criteria for property set out in the **Ainsworth case**³⁴ in that they were (i) definable, (ii) identifiable by third parties, (iii) capable of assumption by third parties³⁵ and (iv) have some degree of permanence or stability.³⁶

This means cryptocurrencies have legal recognition as property under English law, even though they do not fit neatly into the two traditional categories of property.

In the 2024 Paper, we highlighted other instances of English courts treating new intangible assets, such as milk quotas³⁷ and European Union Allowances (**EUAs**),³⁸ as property – without finding that these assets fall within the category of “things in action”.

The court in Hong Kong, in **Re Gatecoin Limited (in liq)**,³⁹ a case concerning the winding up of a cryptocurrency exchange platform, also found that cryptocurrencies are not things in action, as they do not give their owner an enforceable legal right against a third party.

VCCs may likewise be regarded as proprietary in character, yet they do not constitute a “thing in action”. Although issued and recorded under a contract, they confer no right to payment or performance from another party, and their value is not grounded in any legally enforceable right or claim against a third party.⁴⁰

Should there be a new category of property under the law?



The rise of digital assets – such as crypto and VCCs – has sparked debate over whether the law should:

- a. Treat everything that are not things in possession (physical) simply as **choses in action** (enforceable right);
- b. Use a **broad category called ‘intangibles’** for everything that is not things in possession (physical); and
- c. Create a **brand new third category of property** sitting alongside things in possession and things in action.

It is submitted that option (b) is the most defensible and practical. It preserves the traditional idea that a “thing in action” involves a right enforceable against someone else, while at the same time recognising that many modern assets do not fit that narrow definition. Folding “things in action” into a broader category of “intangibles” avoids unnecessary complexity and better reflects how property law is developing.

30. See, for instance, under Principle 2 of the UNIDROIT Principles on Digital Assets and Private Law where digital assets are defined as “an electronic record which is capable of being subject to control”.

31. UK Law Commission, Digital Assets: Final Report, at para. 2.6

32. AA v Persons Unknown [2019] EWHC 3556

33. The case also challenged whether English law really needs to be limited to just those two categories of personal property in this digital age.

34. National Provincial Bank v Ainsworth [1965] 1 AC 1175

35. A thing is said to be capable of assumption where: (1) third parties recognise the rights of the holder / owner, and (2) when the asset is valuable or desirable to third parties

36. See also Ion Science Limited & another v. Persons Unknown (21 December 2020, Butcher J) where it was held that it was a serious question to be tried that crypto assets were property, and Osbourne v Persons Unknown [2022] EWHC 1021 (Comm) that non-fungible tokens were arguably property under English law.

37. Dairy Swift v Dairywise Farms Ltd [2000] 1 WLR 1177

38. Armstrong v Winnington [2012] EWHC Civ 37

39. [2023] 3 HKC 401

40. Notwithstanding that a VCC is issued, allocated and reflected in a register pursuant to contractual arrangements (e.g. contractual services provided by the carbon crediting programme or registry operator), VCCs can be said to have intrinsic value not derived from any contractual relationship. A VCC does not, for instance, constitute a right to receive payment or obtain performance of an obligation from another person.

Notwithstanding the theoretical challenges associated with the traditional personal property framework, the Singapore courts have taken a practical approach:

1. In the **B2C2**⁴¹ case, the Singapore International Commercial Court suggested that cryptocurrencies met all requirements of the definition set out in *Ainsworth* and should be treated as property, even if it was unclear which type.⁴²
2. In the **ByBit** case,⁴³ the High Court went further to hold that:
 - Crypto assets meet the general legal test for property in *Ainsworth*;
 - Even though crypto assets do not involve a right against a specific person, the category of ‘things in action’ has expanded over time;
 - Crypto assets can be recognised as a form of incorporeal (non-physical) property, analogous to how law and society evolved to accept banknotes, shells or beads as money; and
 - The approach reflected a commercial reality that cryptocurrency was being actively traded for value and commercially accepted as a proprietary asset.

In the **Armstrong** case,⁴⁴ the court noted that trying to separate “things in action” from other kinds of intangible property does not make a practical difference. This approach is consistent with the Singapore High Court’s comments in the **Chefpierre**

case.⁴⁵ The Court acknowledged that terms such as “things in action” and “intangible property” are not clearly defined, but observed that the modern trend is to focus on the *Ainsworth* criteria for determining whether something is property and to focus less on labels.

Applying the *Ainsworth* criteria (which has been recognised under Singapore law), it is our view that **VCCs can be regarded as property**, without definitively addressing what kind of property they should be classified as, or whether VCCs satisfy other definitions of digital assets.

1. **VCCs are definable and identifiable by third parties.** Each VCC is created with a unique identifier or registration number and the entry in the registry records the VCC’s existence.⁴⁶
2. **VCCs are capable of assumption by third parties.** VCCs can be transferred along with rights and entitlements.⁴⁷ The transfer also immediately deprives the transferor of the VCC. This means a VCC cannot be double spent and cannot be under simultaneous control of different persons. VCCs are not merely transferable but are rivalrous, in the sense that the holding of it by one person necessarily prevents another from holding the same VCC at the same time.
3. **VCCs have a degree of permanence and stability.** Once issued, a VCC remains in the registry account of the holder in the relevant VCC registry until it is cancelled, revoked, retired or transferred to another account.

41. B2C2 Limited v Quoine PTC Limited [2019] SGHC (I) 03. The court also noted that the precise nature of the property right was the subject of academic debate.

42. Quoine Pte Ltd v B2C2 Ltd [2020] 2 SLR 20

43. ByBit Fintech Limited v Ho Kai Xin [2023] SGHC 199

44. Armstrong v Winnington [2012] EWHC Civ 37

45. Janesh s/o Rajkumar v Unknown Person (Chefpierre) [2022] SGHC 264. In *Chefpierre*, the Singapore High Court recognised non-fungible tokens as property and a proprietary injunction may be issued by the Court to prevent the dissipation of non-fungible tokens (NFTs).

46. Save where a registry adopts a mutualisation scheme whereby mitigation outcomes from one project can be used to address reversals in another project, which we note has drawn debate as to whether it is possible for one property to be sacrificed to sustain another. See, for instance, the commentary to Principle 9 of the Draft Principles at [9.3].

47. The standard terms of major crediting bodies and registries like Verra and Gold Standard currently do not evidence title or confer title. The terms expressly state that the registry account does not confer ownership. See, for instance, Clause 9 of Verra’s Terms of Use: <https://verra.org/wp-content/uploads/2024/10/verra-registry-tou-oct-2024.pdf>; Clause 12 of Gold Standard’s Terms of Use: <https://globalgoals.goldstandard.org/t-preview-registry-app-terms-of-use/>.

Positive implications of classification as property

On the premise that VCCs should be regarded as property under Singapore law, we consider various proprietary implications.

A. Transfer of proprietary rights

The VCM is a market-based approach to climate change mitigation. At a high-level, it involves the transfer of VCCs, which are intended to represent verified mitigation outcomes, from projects and project developers to corporate buyers, either directly or through intermediaries.

Each transfer may involve moving issued credits (each with a unique serial number) or a block of credits (with specific serial number ranges) from the seller's registry account to the buyer's registry account. Upon transfer, registry records reflect a change in account holder, and the credits remain live (not yet used) until permanently retired or cancelled. In some cases, credits are retired on the buyer's instruction, raising the question of whether, and at what point, legal title is transferred.

While the precise formalities may differ in different jurisdictions and as between different registries, VCCs on the registries are fairly specific and identifiable; and the registries provide a system of notation that permits the prima facie holder of the VCCs to be known – this is a key step to establishing enforceable use of the VCC to the exclusion of others,⁴⁸ and priority against the world in relation to a particular asset.

“Carbon project finance is a secured lending problem. A developer needs capital before a project generates revenue, and that capital must be secured against something. In most asset classes, lenders take a perfected security interest in the asset and have an established enforcement path if the borrower defaults. In carbon markets, none of that infrastructure exists — and the reason is foundational: carbon credits do not have a settled legal nature. As such, lenders cannot perfect a security interest in them, cannot register an encumbrance that binds third parties, and have no tested enforcement pathway.”

- GCMU

48. Also referred to as “rivalrousness”. See UK Law Commission, Digital Assets Consultation Paper, 28 July 2022, at [2.62 – 2.69]. See also *Tulip v van der Laan* [2023] ESCA Civ 83, at [24], relating the concept of “rivalrousness” to the limb of being “capable of assumption” in the Ainsworth test.

B. Security interests

As the VCM grows and transaction volumes increase, VCCs are likely to become increasingly contemplated as a form of collateral to facilitate project financing. Clarifying that VCCs are intangible property to which property rights, including security interests, attach is important to increase confidence in VCCs as an asset and unlock financing for the carbon markets. Where VCCs take a proprietary character, with the ability of secured creditors to enforce their security rights, VCCs can serve as a useful form of collateral for the financing of carbon projects.

Security interests are proprietary interests that a creditor acquires in a debtor's property, typically to support the repayment of loans. Security interest usually provides the secured party with basic rights:



1. The right to seize and sell or realise the value of the encumbered asset;
2. The right to apply the proceeds realised from the seized asset in satisfaction of the obligation; and
3. The right to enforce the security interest against third parties who acquire proprietary rights in the assets.

Two crucial advantages of security interests are:

- A creditor's security interest may persist notwithstanding a change in ownership of the asset; and
- In insolvency, a secured creditor can take the encumbered assets out of the pool available for distribution to the rest of the debtor's creditors

Security interests must be perfected in whatever way the domestic law demands for the security in issue. How the security must be perfected depends on the nature of the grantor (whether incorporated or not), the type of security interest and the nature of the property over which it is taken.

Singapore law recognises various types of security interests, including pledges, liens, mortgages and charges. These are commonly used in other countries as well. Mortgages and charges are especially relevant for intangible property such as VCCs, because the creditor does not take physical possession of the asset.



A floating charge is especially flexible and important in commercial secured transactions. It is usually granted by a debtor over its circulating assets, while still allowing the debtor to continue to use those assets in the ordinary course of business. The charge typically only crystallises if the debtor defaults.

Under Companies Act 1967 of Singapore (the **Companies Act**), certain charges over a company's property or undertaking must be registered within 30 days of its creation, failing which the charge is void against a liquidator and other creditors.⁴⁹

Clarity on the proprietary nature of VCCs would therefore give certainty as to whether a security interest created over VCCs must be registered within 30 days after creation to be enforceable. While the requirement for registration⁵⁰ may seem burdensome, registration increases transparency of security interests and ensures registered charges take priority based on date of registration. This mechanism avoids priority risks and bolsters financing attractiveness.

The current list of assets requiring registration of a charge does not include VCCs. A floating charge on the undertaking or property of a company is, however, listed as a registrable charge. If VCCs are recognised as property, this would mean a floating charge over the company's assets would: (1) encompass the company's VCCs, and (2) be registrable within 30 days of its creation.

49. Registration is done with the Registrar of Companies, who is appointed by the Minister of Finance, in consultation with the Singapore Accounting and Corporate Regulatory Authority, Section 131, Companies Act 1967 of Singapore.

50. While most nature-based projects may be located in Global South countries, a project developer, investor or buyer that is incorporated in Singapore and offering VCCs as financing collateral will be subject to registration rules under the Companies Act.

Alternatively, and in addition to the position for a floating charge over VCCs, regulators could consider specifying VCCs as a type of asset for which the creation of a charge must be registered. In Singapore, this would require an amendment to the Companies Act. Such a measure would strengthen market certainty by:

- **Supporting accurate due diligence:** Lenders need to know whether VCCs offered as collateral are already subject to earlier security interests. Most VCC registries do not label credits as subject to security or otherwise record such interests, so lenders cannot rely on them to check for any encumbrance. If VCC charges were registrable under the Companies Act, lenders could verify whether a VCC is already subject to a charge.
- **Indicating clear priority of claims:** Registration puts third parties on constructive notice of the charge and provides greater certainty about priority in default or insolvency.
- **Evidencing authenticity and timing:** Registered charges carry clearer evidence of timing and reduce the risk of backdated documents, helping establish which security interest was created first.
- **Providing transparency on encumbered assets:** Registration with a company or carbon registry helps creditors, investors, analysts and others understand the extent to which a company’s assets – including VCCs – are encumbered, and which assets remain available in an insolvency.

“The form of security is ultimately a function of the legal, accounting, regulatory, and tax indicators that enables one to ascribe a greater value or to assign a lower risk.”

- Rubicon Carbon

The Draft Principles propose a specific rule of asset priority that is intended to take precedence over established rules of priority under domestic law.⁵¹ In particular, where the security holder⁵²:

- Becomes the registered holder of that VCC (Draft Principle 19); or
- Enters into a control agreement (Draft Principle 20),

the commonly understood first-in-time rules of priority are proposed to be “displaced”.⁵³

The standard terms of the major crediting bodies and carbon registries do not recognise security interests over VCCs⁵⁵ and mostly state they will only act on the instructions of the account holder.



The market has seen an emergence of some registries recognise that account holders can hold title to the VCCs in their accounts⁵⁶ and that security interest created over VCCs in those accounts can be reflected and recognised in the registry.

In our view, the full practical implications of this proposal are not clear. Potential conflicts may arise where security rights in a VCC are made effective in accordance with Draft Principles 19 and 20 but are also required under domestic legislation to be registered.⁵⁴

We express some hesitation over the idea that a later-in-time creditor should, by virtue of a privately executed pledge or control agreement, be accorded priority over prior creditors. For the sake of simplicity and certainty, it may be preferable to adopt the conventional first-in-time approach to priority, subject to legal exceptions such as notice, registration or perfection requirements.

51. Draft Principles, Principle 21.

52. Draft Principles, Principles 19 and 20.

53. UNIDROIT Working Group (December 2025) Draft UNIDROIT Principles on the Legal Nature of Verified Carbon Credits: <https://www.unidroit.org/wp-content/uploads/2025/12/Study-LXXXVI-W.G.7-Doc.-3-rev-Draft-Principles-and-Commentary.pdf> at para. 21.1

54. This may be a source of potential fragmentation where jurisdictions with security registration requirements applying to VCCs may choose not to recognise or adopt Draft Principles 19 to 21.

55. The standard terms of major crediting bodies and registries like Verra and Gold Standard currently do not evidence title or confer title. The terms expressly state that the registry account does not confer ownership. See, for instance, Clause 9 of Verra’s Terms of Use: <https://verra.org/wp-content/uploads/2024/10/verra-registry-tou-oct-2024.pdf>; Clause 12 of Gold Standard’s Terms of Use: <https://globalgoals.goldstandard.org/t-preview-registry-app-terms-of-use>.

56. See, for instance, Global Carbon Market Utility (GCMU) and Northern Trust, which the authors understand to adopt a different operational model as standalone registries without an affiliated standards body. By contrast, Verra and Gold Standard both develop and administer the methodologies governing carbon projects, issue VCCs, and the associated registry for such VCCs.

C. Custodial arrangements

In the VCM, there is no universal custodian like a central securities depository.

Currently, the primary entities responsible for providing basic record keeping of transfers and retirement of carbon credits are the carbon registries such as Verified Carbon Standard (Verra), Gold Standard, ACR and Climate Action Reserve (CAR).

While the United Nations Framework Convention on Climate Change Clean Development Mechanism (CDM) has an international registry linked to other domestic registries, the CDM and all its related registry functions will be fully wound down by June 2026. Concurrently, the landscape is expanding with the emergence of several new standards bodies, independent innovative registries and data platforms such as the Climate Action Data Trust (CAD Trust). These organisations operate the ledgers that function as the core record-keeping system for the market. Transfers and retirements are effected within and between these registries (subject to program rules and any linkages).

As the market matures, some banks and specialised carbon service companies may begin to offer administrative custody, escrow and retirement services.

In the context of tokenised carbon credits (where credits are converted into digital tokens on a blockchain), the underlying credits can be held in a registry account controlled by a trustee, special purpose vehicle or service provider; while a digital asset custodian may manage the private keys to the tokens.

The Draft Principles envisage a custodial model under which a custodian maintains VCCs on behalf

of clients with the custodian holding legal title and each client retaining a beneficial interest recorded in the custodian's records.

The Draft Principles go on to suggest that VCCs of the same description could be held in an undivided pool for several clients.⁵⁷ This reflects the concept of fungibility – one unit of the same asset can be freely exchanged for another unit of the same asset. In mature financial markets, a custodian may hold assets on behalf of multiple clients in a pooled account under such an omnibus custody structure. Individual entitlements are tracked in the custodian's internal records. This model is commonly used in securities clearing and brokerage systems for operational efficiency and ease of settlement.

While fungibility of VCCs should enhance their utility and increase market liquidity, our view is that current market realities do not support assuming full fungibility of VCCs. Investors and buyers have differing requirements such as project type, methodology, geography, presence of meta-standard labels (e.g., ICVCM Core Carbon Principles label) or corresponding adjustments under Article 6 of the Paris Agreement.⁵⁸ Even VCCs from the same project but of different vintages may vary in price. This is likely to pose difficulties for custodians to treat VCCs as a fungible undivided pool.

The issue of fungibility is not critical to custodial arrangements. The primary concern for any client is preservation of beneficial ownership and ensuring VCCs are held in trust, safely segregated from the custodian's own assets. Given market realities, it is in our view more practical at present to have custodians obtain the agreement from each client to treat its VCCs as an undivided pool with VCCs of other clients. Regulatory guidance can be developed as the market matures.

57. What constitutes VCCs 'of the same description' is, according to UNIDROIT, a matter of market practice.

58. A corresponding adjustment under Article 6.2 of the Paris Agreement is an accounting adjustment made by a host country to its NDC to prevent double counting when a mitigation outcome is authorised for international transfer to another country. Not all VCCs are so authorised.

D. Revocation, reversal or retirement

A VCC can cease to exist or be cancelled in several circumstances: (1) a reversal in a carbon mitigation project, (2) a revocation, or (3) when it is retired. Upon each event, the VCC would cease to be the object of proprietary rights.⁵⁹

Discussions at the UNIDROIT Working Group point to an understanding that reversal occurs when a VCC no longer meets the criteria to be a VCC because of post-issuance events, e.g., a forest fire leading to the loss or reversal of the environmental benefits of a forestry project.

By contrast, revocations are the result of events pre-issuance of the VCCs that resulted in VCCs that never met the definition of a VCC, i.e., VCCs were not validly created to begin with.

Retirement refers to the process of voluntarily removing the VCC from circulation, ensuring that it cannot be transferred again. A holder of VCCs typically does so to address unabated emissions either on its own behalf or on behalf of another party.

Some issues arise for consideration:⁶⁰

1. Who has the authority to proceed with a cancellation for reversal or revocation?
2. At what point in time does a cancellation for reversal or revocation take effect?

3. How does the market practice of using substitution arrangements, such as buffer pools for reversal events, reconcile with property law principles, which generally do not permit one property to be sacrificed in order to sustain/preserve another?
4. Does the VCC holder have any legal recourse if the cancellation for reversal, revocation or retirement is wrongly made?

In our view, cancellation of a VCC should occur in accordance with the rules of the relevant crediting body or registry under which the VCC is issued (in the case of reversal or revocation) or held (in the case of retirement). In each instance, the holder of a VCC has contractually agreed to the applicable registry or programme rules that provide for the specific circumstances – including revocation, reversal or retirement – that can result in the VCC ceasing to exist.

It is further open to a competent court to interpret the rules of a crediting body or registry and, where appropriate, make orders enforceable against such crediting body or registry. A VCC holder may likewise challenge an alleged wrongful cancellation.⁶¹ The competent court would, in our view, typically be the jurisdiction stated in the relevant terms of the account agreement between the VCC holder and, the crediting body or registry.

59. The Draft Principles uses the term “cancellation” or “extinction” to refer to all three types of events; we express no view as to whether additional nomenclature is necessary or helpful.

60. Further discussion can be found in the summary reports of the UNIDROIT Working Group: <https://www.unidroit.org/wp-content/uploads/2026/02/Study-LXXXVI-W.G.7-Doc.-6-Summary-Report.pdf>, para. 92-156 <https://www.unidroit.org/wp-content/uploads/2025/12/Study-LXXXVI-W.G.7-Doc.-3-rev-Draft-Principles-and-Commentary.pdf>, Principles 8 to 11

61. The Draft Principles go further to suggest that a competent court or regulatory body may of its own volition determine if a VCC is reversed or revoked. We do not feel that this mechanism is sufficiently robust as to provide commercial parties with certainty

E. Insurance

Participants in the market invariably need protection against potential underperformance of carbon projects or invalidation of credits. Some carbon credit programmes maintain buffer pools to cover for specific risks such as forest fires for forestry carbon offsets. Buffers maintained by the programmes alone may potentially be insufficient, however, and may need to be buttressed with insurance solutions.

Possible insurance solutions available to investors and/or financiers include:

- 1. Delivery risk or non-payment insurance:** To address the risk of a failure by the project developer to deliver an agreed amount of carbon credits in a delivery window or to repay an agreed cash amount out of the proceeds from sale of VCCs from a project within a repayment window;
- 2. Counterparty risk insurance:** To address the risks in relation to the project developer insolvency, malfeasance or fraudulent conduct; and in relation to a carbon registry, insolvency and/or likelihood of withdrawing the methodology adopted by the carbon project; and
- 3. Political risk insurance:** To address the risk of certain political events or government actions impacting the delivery of VCCs or repayment to the investor and/or financier of the carbon project.

On the first point of delivery risk or non-payment insurance, clarity on the legal nature of VCCs reduces avenues of risk to the insurer by providing certainty as to the investor's or financier's title to the VCCs and, consequently, the insurer's ability to pursue recovery. Having such clarity may further unlock other insurance solutions (e.g., enabling insurers to offer insurance solutions for title over VCCs).⁶²

“Recognition of VCCs as intangible property would enable insurers to structure coverage around the loss or impairment of a defined carbon asset, alongside existing coverage for contractual non-performance. This legal classification would support the reliable assessment and pricing of risks relating to ownership, validity, custody, and impairment of VCCs, enabling the development of a broader suite of insurance solutions – including title, property, and collateral protection products. In turn, this would strengthen secondary market confidence and support the use of VCCs as financeable assets.”

- Kita

62. Title insurance typically can cover loss or damage due to ownership or title defects and liens on property (e.g. real estate or shares), authority and capacity of seller, warranties and indemnity as to title.

Cross-border rules for a thriving global carbon market



Key Highlights

Clear and harmonised private international law rules are essential to support market scale.

On the question of which State's laws should apply to govern and interpret the proprietary law issues in respect of VCCs, we suggest this might be divided into two issues:

1. Which laws apply to post-issuance proprietary issues for VCCs, (the **Applicable Law governing Transactional Proprietary Issues**); and
2. Whether the underlying rights, or validity of VCCs are affected by how the underlying project is conducted (the **Applicable Law governing Activities Generating VCCs**).

Applicable Law governing Transactional Proprietary Issues

For things in action, the law which applies (the **lex situs**) is generally where the asset can be properly recoverable, or the action enforced.

In the context of VCCs, there may be challenges applying the law of the location of the registry under existing **lex situs** rules, as:

- a. Unlike other assets that are recorded on registers like company shares, VCC registries do not certify title or ownership to the VCCs, and do not record any security interests to the VCCs.

- b. Registries can operate out of, and be located in, multiple jurisdictions.

As an alternative, we suggest that the application of the **lex situs** rule, may lead to a contractually-chosen governing law being the law that also determines the proprietary issues relating to VCCs, given the largely bilateral and contractual nature of VCC transactions.⁶³

Applicable Law governing Activities Generating VCCs

We suggest that this is a vexed question which needs to deal with the issue of:

- whether non-compliance with domestic laws in a host country can invalidate or affect the proprietary rights conferred by holding a VCC; and
- if so, which laws would be accorded such recognition.

Market participants need certainty around how host country laws may ultimately affect the assets which they own, transact with, or have security in.

⁶³ In this regard, we acknowledge and discuss further below some challenges to a contractually-chosen governing law where there are multiple parties' claims to be resolved, or where parties have failed to agree on a choice of law.

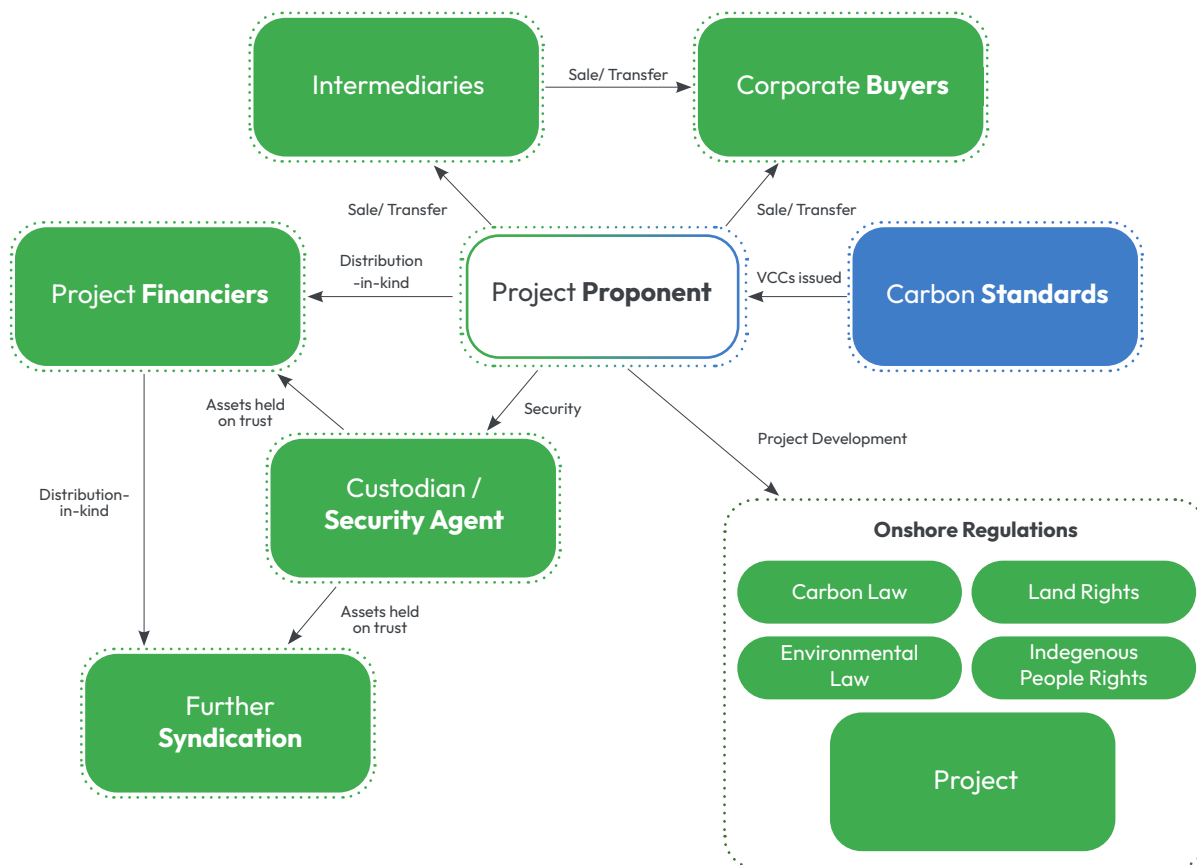


Diagram 1: Multi-jurisdictional nature of the VCC value chain

A large proportion of VCC transactions occur outside the project jurisdiction. The issuance, distribution, sale and transfer, inventory, and other types of transactions relating to VCCs can take place across multiple jurisdictions and registries. The same VCC can also be transacted by multiple parties both pre- and post-issuance. This gives rise to the need for clear and harmonised private international law rules given the international nature of the VCM.

Beyond the substantive nature of VCCs, the market’s growth hinges on a coherent approach to the two private international law questions: (1) which laws should apply; and (2) which courts should have jurisdiction of a dispute. Without a harmonised approach to private international law, parties face increased legal uncertainty, higher transaction costs and greater enforcement risk, which in turn may deter investment and undermine market growth.

In this paper, we offer a market participant’s perspective on the question of which State’s laws should apply to govern the proprietary law issues in respect of VCCs (the **Applicable Law Question**),

intending to highlight some of the key practical challenges that industry stakeholders face.

We recognise the importance of other facets of private international law:

1. The Jurisdiction Question (which court or tribunal has jurisdiction to hear a dispute); and
2. The Enforcement Question (how a successful party may enforce its rights, including recognition of judgements and awards).

But we do not express a view on these matters within the limited scope of this paper.

On the Applicable Law Question, we suggest drawing a distinction between:

1. The law governing the proprietary issues that may arise in relation to the use of VCCs after they have been issued, for instance in relation to financing, sale, transfer, custody and securitisation of VCCs (the **Applicable Law governing Transactional Proprietary Issues**);
2. The law governing the issues relating to the issuance of VCCs and how the conduct of emissions reduction/removal or activities of the underlying project may affect the rights, or validity of such VCCs (the **Applicable Law governing Activities Generating VCCs**).

We believe drawing the distinction allows for a more nuanced understanding of the Applicable Law Question and better captures the underpinning considerations, particularly in relation to sovereign interests in preserving oversight over activities or projects carried out in their jurisdictions. We acknowledge, however, that from the perspective of a market participant the issues are linked and flow into the broader picture of legal risks that each party must assess.⁶⁴

Recognising that there is no perfect solution to a challenging area of law, we pose several views:

1. A multi-lateral approach between States would help promote greater harmonisation and interoperability to resolve the Jurisdiction and Enforcement Questions in tandem with the Applicable Law Question.⁶⁵ It is also important that such multi-lateral approach is considered and consistent across the different bodies of work by intergovernmental organisations, to avoid the risk of fragmentation by jurisdictions adopting differing approaches.
2. Applicable Law governing Transactional Proprietary Issues – Owing to the structure of the present market, in which registries generally do not give title certainty or record security interests, there may be challenges both in principle and practice to having the Applicable Law governing Transactional Proprietary Issues be the law of the State where the registry is incorporated or from which it is administered.⁶⁶ We suggest that, in bilateral transactions or disputes, there may be merit for the applicable law to be the one that the parties have appropriately chosen in the contractual documents. While there may be challenges in some circumstances, this offers a fair means of recovering or enforcing a party's rights to a VCC.⁶⁷
3. Applicable Law governing Activities Generating VCCs – It is important for the growth of the carbon markets that host country considerations are taken into account – e.g., maintaining respect for indigenous peoples' rights, compliance with environmental law, and legal and contractual obligations under concessions.

Carbon standards and registry rules, operating under a contractual framework together with public accountability, may provide some common internationally accepted criteria for project activities generating VCCs. It is, however, recognised that integrity issues are separate and distinct from issues arising from compliance with applicable laws of host countries as they relate to such activities.

64. See, for instance, discussion on the point of the interconnected of pre- and post-issuance legal risks: Herzog Law & BeZero Carbon, De-risking Carbon Markets: Managing Legal Uncertainty in the Treatment of Carbon Credits, 25 April 2025

65. We understand that this is being examined by an Experts' Group convened by the Council on General Affairs and Policy of the HCCH since March 2025.

66. This is the approach suggested in the Draft Principles, Principle 4, which we discuss further below.

67. This follows similar principles applied to intangible property like choses in action, where the lex situs is generally where the chose in action is properly recoverable or can be enforced. See Dicey, Morris & Collins on Conflicts of Laws, 16th Ed, 2025, Sweet & Maxwell (Dicey) at [23R-023].

The Applicable Law governing Transactional Proprietary Issues

The general private international law rule is that the *lex situs*⁶⁸ determines proprietary issues related to an asset. Determining the *lex situs*, however, while relatively straightforward in the case of immoveable property such as land,⁶⁹ or physical moveable property,⁷⁰ becomes more complicated when dealing with intangible property.⁷¹ This is particularly so in relation to modern forms of intangible assets.⁷²

A. The law of the State of the registry an attractive but incomplete solution

At first blush, the proposed approach in the Draft Principles appears to align with how the *lex situs* rules have been applied to other intangible property whose holders are recorded on a register. For example, the applicable law governing proprietary issues for immobilised or registered securities (e.g., a depository share or fund unit)⁷³ is generally the law of the jurisdiction where the register is maintained.

The traditional premise, however, assumes that the depository⁷⁴ or registry⁷⁵ is the primary, enforceable record of entitlement to the asset in question. The *lex situs* is, in effect, the place where the holder's rights can be enforced or vindicated.

In the case of VCCs, a shorthand assumption that the place of the registry should be the applicable law faces several challenges:

1. The situs of a digital registry is unclear. Questions arise:
 - a. Is the situs where the technology infrastructure is located or where the headquarters of a registry is located (e.g., US for Verra, Switzerland for Gold Standard), or place of incorporation (if different from where the headquarters are located)?
 - b. What if a registry has operating entities incorporated in multiple jurisdictions, or its infrastructure is maintained across more than one jurisdiction?

Tokenised VCCs further complicate identification of a single jurisdiction.⁷⁶

2. Unlike registers for land or company shares, VCC registries are mostly an account information record rather than a marker of title. Most VCC registries expressly state in account agreements that the registry does not guarantee or certify title or ownership, or allow security interests in VCCs.⁷⁷ This is so even with the Article 6.4 Paris Agreement Crediting Mechanism registry.⁷⁸

68. Referred to as the law of a country where a thing is situate, which determines: (1) the nature of a thing, and (2) whether any right, obligation, or document connected thereto is to be considered an interest in that thing. See Dicey at [23R-001].

69. Land is generally situate in the country where it lies.

70. Chattels are generally situate in the country where it is at the relevant time.

71. Choses in actions are situate where they are properly recoverable or can be enforced. For instance, debts are situate in the country where the debtor resides.

72. As discussed, above, even their legal characterisation under domestic law poses conceptual challenges.

73. *Macmillan Inc v Bishopgate Investment trust Plc* (No. 3) [1995] EWCA Civ 55, [1996] WLR 387 (“*Macmillan*”).

74. See Dicey at [23-040] for commentary that the depository for immobilised securities is the place where a depositor's rights can be recovered or enforced (following the general principle for choses in action outlined above), and hence the *lex situs* should be the law of the country where the depository is located.

75. In our view, the rule in *Macmillan* is nuanced in that the *lex situs* is the law of the country where the shares can be effectively dealt with as between the owner for the time being and the company. This could be: (1) the place of incorporation of the company, (2) the place of the register, or (3) in the case of bearer shares, the place where the share warrant or certificate is kept. See Dicey at [23-042].

76. Digital assets that use the distributed ledger technology may have challenges to identify a single jurisdiction where the register is maintained because the validating node operators are usually spread across multiple jurisdictions. Refer to The City of London Law Society Financial Law Committee Response to UK Law Commission Consultation Paper 273 entitled “Digital assets and (electronic) trade documents in private international law”, page 3. For VCM, the Climate Action Data Trust offers a decentralised, blockchain-powered digital infrastructure that connects these registries and provides public access to the information.

77. We are, however, aware of at least one registry in existence and one in pilot phase at the time of writing that seeks to act as a registry of title for VCCs and able to record security interest. We suggest that the practice remains too inconsistent and poses challenges for the law of the location of the relevant registry to apply.

78. UNFCCC A6.4 – SBM015-AA-A11 Information Note on Analysis of the pros and cons related to framing users' rights with regard to control versus confirming ownership of account holdings: <https://unfccc.int/sites/default/files/resource/A6.4-SBM015-AA-A11.pdf> which decided that the registry would be developed framing users' rights as a measure of control and not ownership.

VCC registries today also generally do not recognise instructions (e.g., transfer, retirement) from any person other than the account holder, or its duly appointed agent or authorised representatives.⁷⁹ As a result, the records maintained by the registry:

- a. Have limited utility in proving either: (1) the true owner of, or (2) the holder of security in, a VCC; and
- b. Do not adequately vindicate parties' rights, as the relevant registry's records may not be determinative of title.

Further complicating the matter is that it is not presently clear if the law of the States⁸⁰ of larger registries such as Verra and Gold Standard would recognise VCCs as property.

We suggest that the above challenges are inherent in the present structure of the VCM. We anticipate that the market will evolve with time. For instance, registries may eventually accede to being *prima facie* records of title and security. The market might even gravitate towards the use of third-party depository services for the majority of transactions.⁸¹

B. Parties' express choice of law as an alternative

Given the present reality that a registry record is not determinative of title, we suggest that a cohesive way for rights in relation to a VCC to be enforced may be through the governing law that the defaulting party has accepted, for example in the relevant transaction documents (the **contractually-chosen governing law**). We suggest that the contractually-chosen governing law, based on existing principles for determining the *lex situs*, is appropriate and may be determinative of both the contractual and proprietary issues concerning the VCCs in that transaction.

The *lex situs* rule is generally justified by: (1) the ease of ascertaining it as an objective connecting factor, and (2) the idea that the country of the *situs* has control over the property and a judgment in conflict with the *lex situs* will often be ineffective.⁸²

For intangibles such as digital assets, the courts have suggested that the owner's domicile, habitual residence, or law where the controller resides or where the private key is held best fits the underlying principle (i.e., where legal compulsion can be sought against the person or entity controlling the asset).⁸³

79. See, for instance, Clause 11.2 of Verra's Terms of Use: <https://verra.org/wp-content/uploads/2024/10/verra-registry-tou-oct-2024.pdf>; Clauses 5 and 6 of Gold Standard's Terms of Use: <https://globalgoals.goldstandard.org/t-preview-registry-app-terms-of-use/>.

80. This layer of complexity is on top of the threshold question of whether the law of the State in question is where the registry is incorporated, or headquarters or technology infrastructure are located.

81. In which case the *lex situs* may be the country in which the third-party depository is located.

82. Dicey at [23-050]

83. See *Cheong Jun Yoong v Three Arrows Capital Ltd* [2024] SGHC 21 for the location of the person / entity having control of the digital / intangible asset being a connecting factor. For similar treatment in the UK, see *AA v Persons Unknown* [2020] 4 WLR 35.

In the case of VCCs, we suggest similar considerations apply where the registry record is of limited utility in resolving proprietary issues. VCC transactions are typically underpinned by a contractual framework from which a contractually-chosen governing law (whether express or implied) can be determined.⁸⁴ As most VCC contracts are bilateral and commercial in nature, the concept of a contractually chosen governing law would be familiar to market participants and offer legal certainty in carbon and financial market transactions.

We suggest that the goal in addressing the Applicable Law Question is to:

- Reflect market reality and practice;
- Reduce or commercially allocate risk for market participants;
- Minimise complexity and uncertainty and potential litigation; and
- Offer a stabilising factor to enable mobilisation of carbon finance at scale.

The contractually chosen governing law⁸⁵ has several merits:

1. Commercial practicability: Recognising the bilateral and contractual nature of the market today, we suggest that this is practical in implementation. Transaction parties are themselves best suited to determine and mitigate business risks (including those arising from a particular choice of law).

For instance, carbon project investors and financiers, or offtakers and corporate buyers, would typically contract on a governing law of an established and familiar jurisdiction. Recognising the parties' contractual choice of law also helps provide confidence and clarity needed to crowd-in further market participation.

2. Fair and predictable outcomes: Where parties have chosen, due to the nature of their transaction (e.g., in a security arrangement), the law of a State with clear treatment of VCCs (e.g., to be characterised as intangible property), we suggest it is fair to allow this choice and characterisation to stand, rather than applying a separate system of law from the one contemplated when the parties entered into the transaction.

In this regard, carbon projects, whether nature-based solutions (such as reforestation or afforestation) or tech-based solutions (such as carbon capture or enhanced rock weathering), are likely to require high upfront project costs with long pay-back periods in the form of VCCs, possibly over several decades. Certainty to help manage risk and enforceability of security provides considerable assistance in making such projects bankable.

For the VCM to develop, participants must feel confident that the private international law principles are clearly and consistently applied in a commercially practical manner.

84. By contrast, cryptocurrency can be transacted on-chain and whose digital framework may not refer to or provide any express choice of law.

85. Subject to certain exceptions and limitations to party autonomy in general contract law, including public policy, bona fides, and specific rules governing security interests such as requiring perfection by filing to be governed by the location of a debtor.

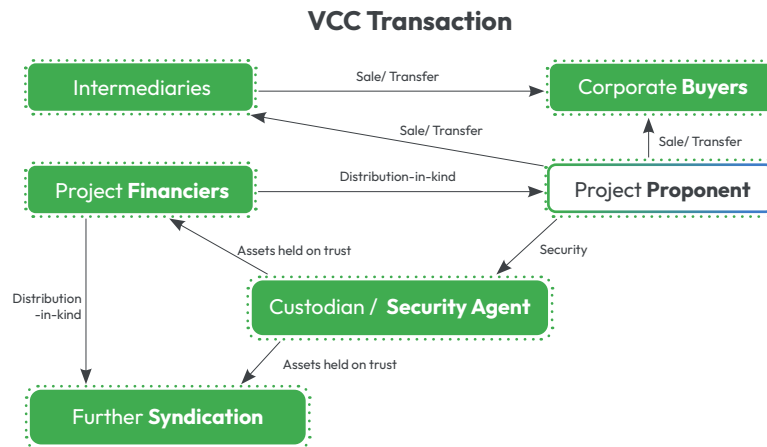


Diagram 2: VCC value chain and transactions

1. *Enforceability of security, trust structures and long-term forward offtakes affect bankability of upstream investment into VCC projects.*
2. *Long investment horizons create challenging risk-return profiles for investors.*
3. *Downstream primary and secondary transactions require certainty of title for management or risk. Concerns are often amplified when buyer, seller, or intermediary becomes insolvent.*

We nevertheless acknowledge a couple of issues with this proposition:

Challenge 1: Two competing claims of priority

For Challenge 1:

Party A transfers VCCs to Party B (applicable law is laws of Country X and Y) and Party A transfers the same VCCs to Party C (applicable law is laws of Country X and Y).

Where there are 2 conflicting transfers and two different laws chosen by parties, the question arises as to which law should determine priority. One possible solution is to determine the laws of the habitual residence of the transferor,⁸⁶ particularly where enforcement is sought in that jurisdiction. Alternatively, the court exercising jurisdiction over the dispute would be best placed to determine the law with the closest and most real connection to the transactions.

86. Assuming that the transferor is still recorded by the relevant registry as being the holder of the VCCs.

87. In this case, the contractually-chosen governing law would determine both contractual and proprietary issues in that transaction.

Challenge 2: No choice of law between parties

For Challenge 2:

Without going into the merits, it is proposed that a waterfall of connecting factors can be considered to determine the *lex situs*, including alternatives where no laws are chosen by parties. We suggest adopting similar principles to the UCC § 12-107(c), a possible waterfall for consideration:

- Laws chosen by parties;⁸⁷
- Laws of the jurisdiction in which the transferor/ intermediary resides; and
- Laws of registry/system.

As noted above, we do not think there will be a perfect rule, particularly in a dynamic and evolving market. While a comprehensive multi-lateral framework remains the ideal long-term goal, the immediate priority should be for key jurisdictions to achieve a degree of informal alignment on the legal nature of VCCs and the relevant applicable law, thereby reducing the risk of a conflict of laws.

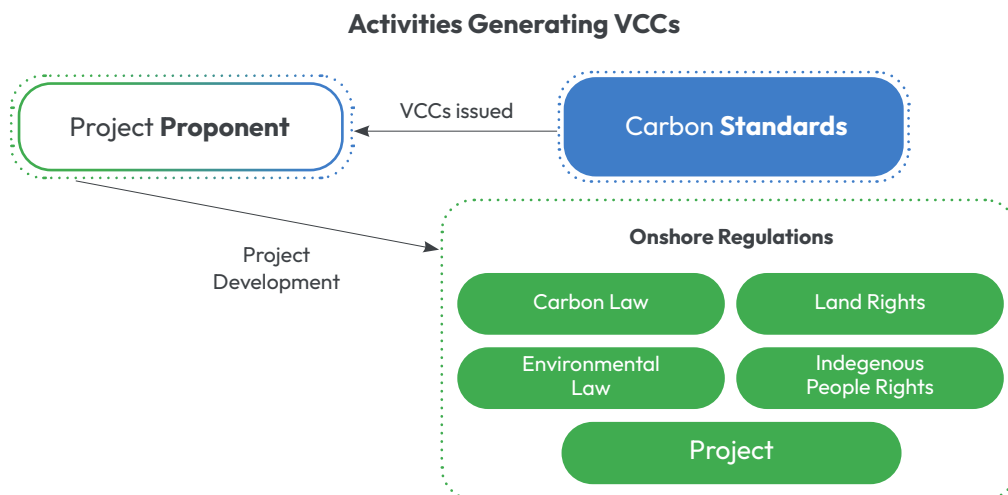


Diagram 3: Project development and issuance of VCCs

Market participants have exposure to onshore regulations of projects, which apply regardless of choice of law. Navigating additional or conflicting title and property rules can potentially add friction and impact bankability.

The Applicable Law governing Activities Generating VCCs

The Applicable Law Governing Activities Generating VCCs goes to the question of the validity of VCCs, and how the conduct of project activities or operations that result in the creation of VCCs may affect such validity.

A host country would be concerned that its laws and regulations relating to land use concessions and its terms, dealing with rights of indigenous people, local content requirements, and environmental protocols have been complied with in the design and implementation of a project.

Some of these considerations are enshrined within the legislation of the State where the project is located. There may be further requirements embedded into the relevant standards and methodologies in use, and some degree of overlap between the requirements of standards and State legislation. We recognise, however, that the integrity of projects under the relevant standard or methodology should not be confused with legal compliance of host country laws and regulations.

While sovereign rights of countries governing project activities should be respected, non-compliance with local law should ordinarily be addressed through domestic sanctions such as fines or penalties. Illegality under the law of the place of performance may affect the enforceability of a contract or invalidate a contract as well as defeat claims for unjust enrichment.⁸⁸ It remains to be seen if illegality under host country laws would also similarly affect proprietary claims in VCC transactions.

In this regard, we suggest that any answer to the Applicable Law governing Activities Generating VCCs address how compliance with host country laws is to be treated.

We believe addressing these issues is vital to a vibrant VCM. The Applicable Law governing Activities Generating VCCs affects how market participants undertake project diligence. The further risk of having VCCs cancelled post-purchase or reversed by a change of law may also have a deterrent effect on developers, purchasers, financiers or security interest-holders and operate as a further barrier to scale.

88. Rule in *Foster v Driscoll*, Rule in *Ralli Bros* (*Ralli Brothers v Compania Naviera Sota y Aznar* [1920]). See also the Singapore Court of Appeal decision in *Esben Finance Ltd and others v Wong Hou-Liang Neil* [2022] 1 SLR 136.

IV. Accounting and disclosures of VCCs

Current accounting standards to account for VCCs in financial statements



Key Highlights

This section analyses the key differences in the general accounting treatment between the two accounting standards (IFRS and US GAAP (Proposed)) for buyers/holders of VCCs, as well as for carbon project developers of VCCs.

It also discusses how stakeholders in the carbon credit ecosystem may wish to explore extending beyond these accounting standards by leveraging on the International Financial Reporting Standards Sustainability Disclosure Standards (IFRS SDS) to provide decision-useful information for demand-side participants through the communication of the strategic use of VCCs, and supply-side participants through the communication of opportunities and risks associated with carbon projects.

Carbon credit accounting and disclosures have increased in focus as organisations adopt the use of VCCs as part of their decarbonisation strategies. This requires clear guidelines and standards for the reporting of VCCs.

Existing accounting standards such as the International Financial Reporting Standards (IFRS) and US Generally Accepted Accounting Principles (US GAAP), play a crucial role in how organisations recognise, measure and disclose VCCs in financial statements. As there is currently no specific IFRS or US GAAP standard or interpretation that directly addresses the accounting for the purchase of VCCs, accounting for VCCs considers existing accounting standards based on the organisation's context and intention. In November 2024, the Institute of Singapore Chartered Accountants (ISCA) issued a Financial Reporting Bulletin⁸⁹ to aid entities in understanding VCCs, and the key considerations that an entity should have in selecting the most appropriate accounting standard to apply for voluntary purchases of VCCs. The Financial Accounting Standards Board (FASB) also released a proposed Accounting Standards Update on Environmental Credits and Environmental Credit Obligations in December 2024 to improve the financial accounting for and disclosure of environmental credits and environmental credit obligations for US GAAP.

⁸⁹ For more details, please refer to ISCA Financial Reporting Bulletin 11: Accounting for Carbon Credits: From the perspective of a buyer/holder.

“Clear disclosures, aligned with accounting standards and regulatory frameworks, help build the confidence needed to scale climate investment in the carbon markets. That clarity is essential for directing capital toward high-quality projects and accelerating tangible climate impacts.”

- Anew Climate

Table 1 of the [Appendix](#) provides a summary of key differences in the general accounting treatment when considering the two standards (IFRS or US GAAP (Proposed)) in the areas of initial recognition, subsequent measurement and derecognition for buyers/holders of VCCs. **Table 2** of the [Appendix](#) provides a summary of key differences in the general accounting treatment when considering the two standards (IFRS or US GAAP (Proposed)) at various phases of a carbon project for a carbon project developer generating VCCs for subsequent sale. In both situations, the VCCs must first meet the definition of an asset under the two standards.⁹⁰

It does not address all possible accounting considerations for all types of VCCs. It is important to note that the appropriate accounting treatment of VCCs will depend on an entity’s facts and circumstances, including the terms and conditions associated with the carbon credit. Significant judgement may be required and professional support should be sought if needed.

Organisations should be aware of the key differences between the two standards (IFRS and US GAAP (Proposed)) in accounting for VCCs. Staying informed about the latest developments

and updates in both standards is crucial to ensure compliance and accurate financial reporting in a rapidly evolving environment. These differences can also have downstream implications on regulatory and tax obligations, which are further detailed in the sections below.

Opportunities for disclosures beyond accounting standards

While existing accounting standards provide some guidance for the initial recognition, subsequent measurement and derecognition of VCCs in financial statements, stakeholders in the carbon credit ecosystem may wish to explore extending beyond these accounting standards to consistently and transparently report the opportunities and risks associated with their use.

One possible approach that can be further explored to enhance transparency and decision-useful information within the carbon credit ecosystem involves leveraging existing sustainability disclosure standards that meet the diverse needs of existing and potential investors, lenders and other creditors. The IFRS Sustainability Disclosure Standards S2 (IFRS S2) represent a significant step forward in integrating sustainability considerations into financial reporting, offering avenues for stakeholders to disclose the climate-related opportunities and risks associated with their use of VCCs.

Providing supplementary disclosures beyond traditional financial statements can enhance the clarity and effectiveness of communication, thereby supporting more informed decisions for both buyers and sellers of VCCs based on a set of decision-useful information.

⁹⁰ An entity is required to firstly assess if the carbon credits meet the definition of an asset. In some cases, it can be obvious that a carbon credit is a separate asset, for instance, when the entity pays to separately acquire a carbon credit that is traded on an exchange. In other cases, if the carbon credit is acquired as part of a larger transaction, the entity would need to further assess if the carbon credit qualifies to be recognised as a separate asset or the carbon credits are immediately retired on acquisition and expensed off in profit or loss.

Leveraging the IFRS Sustainability Disclosure Standards to provide for decision-useful information

The objective of IFRS S2 is to require organisations to disclose information about climate-related risks and opportunities that is useful to primary users of general-purpose financial reports in making decisions relating to providing resources to the organisation.

IFRS S2 benefits both demand and supply-side participants in the carbon credit ecosystem,

enabling access to timely and comparable decision-useful information. This enhanced clarity and transparency allows buyers to better assess the value and impact of VCCs, while suppliers can effectively communicate a project's potential, creating a more informed marketplace and facilitating efficient resource allocation.

Decision-useful information for demand-side participants: Communicating the strategic use of VCCs

A key aspect of IFRS S2 is its focus on the organisation's planned use of VCCs to offset greenhouse gas emissions (GHGs) to achieve any net GHG target under Para 36(e) of IFRS S2. In doing so, IFRS S2 encourages an organisation to transparently communicate the extent to which it relies on the use of VCCs to achieve its net GHG target.

The disclosure requirements highlighted in Para 36(e) of IFRS S2 include:

1. The extent to which, and how, achieving any net greenhouse gas emissions target relies on the use of VCCs;
2. Which third party scheme(s) will verify or certify the VCCs;
3. The type of carbon credit, including whether the underlying offset will be nature-based or based on technological carbon removals, and whether the underlying offset is achieved through carbon reduction or removal; and

4. Any other factors necessary for users of general-purpose financial reports to understand the credibility and integrity of the VCCs the entity plans to use (e.g., assumptions regarding the permanence of the carbon offset).

The requirements enhance the disclosure of decision-useful information by providing greater transparency regarding how organisations intend to achieve their greenhouse gas emissions targets. This allows for better disclosure regarding the role of VCCs within decarbonisation efforts, illustrating how the VCCs can serve as a climate-related opportunity for organisations. This goes beyond traditional financial reporting. In addition, these could also drive investment into high-integrity carbon projects – promoting innovation and building credibility.

Organisations should also take note of the upcoming standard and/or guidance on GHG Accounting and Reporting on the Impacts of Actions & Market Instruments,⁹¹ which aims to advance complete and transparent corporate GHG accounting and reporting.

⁹¹ The final standard and/or guidance is estimated to be released by Q4 2028.

Decision-useful information for supply-side participants: Communicating the opportunities and risks associated with carbon projects

IFRS S2 also provides avenues for expanded disclosures to encompass decision-useful information that can aid organisations, including carbon project developers, in disclosing the full extent of the climate-related opportunities and risks associated with their projects beyond traditional financial reporting.

Para 9 of IFRS S2 is instrumental for carbon project developers as it emphasises the disclosure of the effects of climate-related opportunities and risks. This enables carbon project developers to present decision-useful information that captures the potential of their business model – i.e., generation of VCCs.

The relevant disclosure requirements highlighted in Para 9 of IFRS S2 include:

1. Climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects;
2. Current and anticipated effects of those climate-related risks and opportunities on the entity's business model and value chain;
3. Effects of these climate-related risks and opportunities on the entity's strategy and decision-making;
4. Effects of these climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period; and their anticipated effects on the entity's financial position,

financial performance and cash flows over the short, medium and long term; taking into consideration how those climate-related risks and opportunities have been factored into the entity's financial planning; and

5. Climate resilience of the entity's strategy and its business model to climate-related changes, developments and uncertainties; taking into consideration the entity's identified climate-related risks and opportunities.

Through comprehensive disclosures of these climate-related opportunities and risks, carbon project developers can highlight the strategic value, future economic benefits and associated risks with their projects and complement what is presented in traditional financial reporting.

We observe alternative proposals by organisations, which put forth the disclosure of additional information beyond traditional financial reporting, albeit such proposals are in the midst of socialisation.

Looking ahead: Leaning on existing international standards

Existing accounting and disclosure standards complement each other to provide decision-useful information for stakeholders in the carbon credits ecosystem. Looking ahead, it may be useful to further develop what constitutes decision-useful information for both demand-side and supply-side participants.

V. Categorisation impact on tax and bank regulatory treatment



Key Highlights

This section discusses the importance of aligning the legal, accounting and tax treatments for greater certainty on the evaluation of the tax treatment of VCCs. It explains the key considerations from a corporate income tax and transfer pricing perspective, and emphasises that clarity in the legal and accounting treatment of VCCs may provide more certainty in the tax treatment of a transaction.

It also analyses how accounting classification relates to the regulatory capital that banks are required to hold.

Alignment with tax rules

To determine the deductibility of expenses and taxability of income arising from VCCs from a corporate income tax perspective, an evaluation of the purpose of acquiring the VCCs should be conducted with the following key considerations:

1. Whether the VCCs are held for own use to offset own emissions or to comply with regulatory obligations;
2. Whether the VCCs are held for sale in the ordinary course of business; and

3. Whether the VCCs are held as long-term investments to yield capital appreciation.

Tax treatment of a transaction is first evaluated based on the legal form of the transaction. In addition, the accounting treatment, whilst not determinative, may influence the tax treatment. Thus, in evaluating the tax treatment, there is greater certainty if the legal and accounting treatments (e.g., whether it is inventory or intangible assets) are aligned.

Similarly, from a transfer pricing perspective, while the legal form of a transaction and its accounting treatment are not, in themselves, determinative of how Group entities should be remunerated, they represent important considerations that should be evaluated holistically as part of the transfer pricing analysis. Particularly, in assessing the overall business substance of relevant Group entities, any misalignment between the legal and accounting treatment of a transaction would make it challenging for Group entities to present a coherent and consistent business narrative, and would likely invite heightened scrutiny and additional inquiries from tax authorities.

Lastly, the Goods and Services Tax (GST) legislation in Singapore has been amended to treat the issuance, transfer, or sale of VCCs (or any digital representation of the carbon credit) as an “excluded transaction” for GST purposes (i.e., not subject to GST) with effect from 23 November 2023.

This has benefitted businesses that purchase VCCs to offset their carbon footprint (as no GST is imposed on such acquisitions). However, it has also created unintended challenges for sellers of carbon credit, as outlined below:

1. **GST Registration:** A non-GST registered business whose supplies consist solely of sale of VCCs will not be eligible for GST registration under the normal taxable turnover regime. Consequently, such a business will not be able to recover GST incurred on its business expenses, and may also be subject to reverse charge if the value of its imported services exceeds the annual threshold of S\$1 million.
2. **Input tax restrictions:** For GST registered businesses, expenses directly in connection with the sale of VCCs (e.g., commission, legal fees) would not be claimable as input tax credit. Consequently, GST registered businesses that incur such irrecoverable GST may be subject to reverse charge rules when they procure services from overseas vendors. This will increase the business and compliance costs of the affected businesses as they will need to put in place the systems and processes to comply with reverse charge rules and self-account for GST on services procured from overseas vendors.

We therefore support further legislative changes to allow businesses to:

1. **Apply for voluntary GST registration** arising from their sales of VCCs. This aligns with the current tax policy of allowing companies making solely out-of-scope supplies to apply for voluntary GST registration and to recover GST on their operating expenses; and
2. **Claim input tax credits on expenses** (including general overheads) incurred in connection with the purchase and sale of VCCs. This will alleviate the burden of irrecoverable GST and reduce the compliance complexity associated with reverse charge obligations on imported services.

Regulatory capital considerations

Under the Basel III framework, banks are required to maintain minimum capital adequacy ratios to ensure they hold sufficient capital against risk-weighted assets. The Capital Adequacy Ratio is calculated by dividing a bank's capital (Tier 1 and Tier 2) by its risk-weighted assets, ensuring the institution holds sufficient capital relative to the risks it takes on.

Regulatory capital requirements are typically established for each type of asset held based on the level of risk associated. For banks, the inclusion of VCCs may introduce additional considerations due to accounting classification (e.g., inventory or intangible assets), and this may in turn determine the amount of the banks' regulatory capital required.

Establishing clear assessment of accounting classification of VCCs will help provide clarity of the regulatory capital banks are required to maintain. Generally, the reporting bank must deduct VCCs recognised as intangible assets in the calculation of Common Equity Tier 1 (CET1) Capital. VCCs that are recognised as inventory are not treated as regulatory adjustments in the calculation of CET1 Capital but are included as part of a bank's risk-weighted assets. It is important to note that the regulatory adjustments to be applied will depend on an entity's facts and circumstances, and significant judgement may be required to determine if specific exclusions might apply. Such clarifications of the accounting classification of VCCs may aid banks in clearly reporting their capital adequacy ratios.

VI. From insights to action: A call for policy clarity

Leveraging existing frameworks

Singapore's existing infrastructure actively supports the VCM, with active carbon exchanges, carbon services and trading firms, alongside strong regulatory backing. Financial institutions surveyed have also dipped their toes into financing carbon projects or have established dedicated teams to test and develop carbon-related products.

In October 2025, the National Climate Change Secretariat, Ministry of Trade and Industry, and Enterprise Singapore jointly issued a "Guidance on Role of Carbon Credits in Corporate Decarbonisation", expressly recognising the importance of carbon markets in providing corporates a complementary tool to meet their decarbonisation targets, particularly in addressing hard-to-abate emissions and to support the raising of global climate ambition.⁹²

We believe that, based on the existing legal principles, Singapore can move ahead to clarify the legal nature, ownership rights and other proprietary issues in respect of VCCs to enhance market certainty and encourage the development of the VCC secondary market.

Clarifying that VCCs constitute intangible property under Singapore law would align with market

expectations and practice. It would also lay the foundation for broader ecosystem initiatives on supply integrity, demand creation and aggregation. This will further enhance Singapore as a jurisdiction of choice for VCM transactions and dispute resolution.

Shaping international alignment

Notwithstanding progress on the Draft Principles, States may take a long time to adopt the principles when finalised. The risk of fragmentation and lack of harmonisation remains. The market would therefore benefit from key jurisdictions articulating a clear, consistent approach; especially to the question of the legal character of VCCs. A notable example of intergovernmental cooperation in the VCM is the Coalition to Grow Carbon Markets (the Coalition), an alliance of forward-leaning governments committed to advancing climate action through the credible use of high-integrity VCCs alongside deep corporate decarbonisation.

As one of the founding members of the Coalition, Singapore is well positioned to champion the recognition of VCCs as intangible property. By taking an early step in this direction, it can help catalyse alignment across jurisdictions, strengthen investor and stakeholder confidence, enhance interoperability of carbon markets, and support its continued development as a financial and services hub.

⁹² National Climate Change Secretariat (NCCS), Ministry of Trade and Industry (MTI) and Enterprise Singapore (28 October 2025): <https://www.enterprisesg.gov.sg/-/media/CC09F5F45AD14D8EBD8AFD12AF3E5E82.ashx>

Appendix

Glossary of Terminologies and Abbreviations

Terminology	Description
ACRA	Accounting and Corporate Regulatory Authority of Singapore, which is a statutory board under the Ministry of Finance of Singapore and is the regulator of business registration, financial reporting, public accountants, and corporate service providers.
CAD Trust	Climate Action Data Trust
CAR	Climate Action Reserve
CDM	Clean Development Mechanism (under the United Nations Framework Convention on Climate Change)
CET1	Common Equity Tier 1 (Capital)
Companies Act	Companies Act 1967 of Singapore
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
Draft Principles	Draft Principles on the Legal Nature of Verified Carbon Credits (developed by the UNIDROIT Working Group)
EG	Experts' Group (established by the Council on General Affairs and Policy of the HCCH)
EUAs	European Union Allowances
FASB	Financial Accounting Standards Board
GFIT	Green Finance Industry Taskforce
GHG	Greenhouse Gas
GST	Goods and Services Tax
HCCH	Hague Conference on Private International Law
ICVCM	Integrity Council for the Voluntary Carbon Market
IFRS	International Financial Reporting Standards

Terminology	Description
IFRS S2	IFRS Sustainability Disclosure Standards S2
IFRS SDS	International Financial Reporting Standards Sustainability Disclosure Standards
ISCA	Institute of Singapore Chartered Accountants
ISDA	International Swaps and Derivatives Association
IOSCO	International Organization of Securities Commissions
MAS	Monetary Authority of Singapore
MTI	Ministry of Trade and Industry of Singapore
NCCS	National Climate Change Secretariat of Singapore
NDC	Nationally Determined Contribution(s)
NFTs	Non-fungible tokens
SBTi	Science Based Targets initiative
SSFA	Singapore Sustainable Finance Association
Coalition	The Coalition to Grow Carbon Markets
UNIDROIT	International Institute for the Unification of Private Law
US GAAP	United States Generally Accepted Accounting Principles
VCCs	Verified Carbon Credits
VCM	Voluntary Carbon Market
VCMi	Voluntary Carbon Markets Integrity Initiative
Verra	Non-profit organisation that develops and manages standards for climate action and sustainable development, including the Verified Carbon Standard Program

Table 1: Buyers/holders of VCCs

	IFRS	US GAAP ⁹³ (Proposed)
Initial recognition		
VCCs held for own use to offset own emissions	Recognised as an intangible asset and measured at cost.	Per 818-20-25-1, an environmental credit is recognised as an intangible asset and measured at cost when it is probable that the environmental credit will be used to settle an environmental credit obligation. ⁹⁴ For all other environmental credits, as per 818-20-25-1, an entity shall recognise costs incurred as expenses in profit or loss.
VCCs held for sale in the ordinary course of business	Recognised as inventory and measured at cost. ⁹⁵	Per 818-20-25-1, an environmental credit is recognised as an intangible asset and measured at cost.
Subsequent measurement		
VCCs held for own use to offset own emissions	Measured using either the cost model or the revaluation model ⁹⁶ at each reporting period. Tested for impairment when there is an impairment indicator for finite-life VCCs, or at least on an annual basis for indefinite-life VCCs.	Per 818-20-35-3, compliance environmental credits are (i) measured at cost and shall not be subsequently measured; and (ii) not tested for impairment at each reporting period.
VCCs held for sale in the ordinary course of business	Measured at the lower of cost and net realisable value at each reporting period. ⁹⁷	Per 818-20-35-4, these are classified as noncompliance environmental credits and are (i) measured at cost ⁹⁸ ; and (ii) tested for impairment on an annual basis.

93 Proposed Accounting Standards Update regarding Environmental Credits and Environmental Credit Obligations (Topic 818), Financial Accounting Standards Board (December 2024). The proposed accounting treatment was affirmed by the FASB Board in August 2025. Nevertheless, these decisions are tentative and may be changed at future FASB Board meetings.

94 Environmental credit obligations are enforceable obligations resulting from regulatory compliance programs represented to prevent, control, reduce, or remove emissions or other pollution that may or are required to be settled with environmental credits. These are termed as compliance environmental credits. On the other hand, voluntary initiatives and similar statements of intent do not constitute an environmental credit obligation and are termed as noncompliance environmental credits.

95 Intermediaries in the carbon market should assess whether they are acting as principals or agents of a carbon credit transaction in accordance with IFRS 15. The accounting treatment presented above applies for entities that act as principals. Conversely, entities that act as agents for the carbon credit transaction should consider the carbon credits received as non-monetary consideration and these are initially measured at their fair values.

96 The revaluation model can be applied only if the fair value of the carbon credits can be determined by reference to an active market. If no active market exists, the carbon credits should be carried at cost less any accumulated amortisation and impairment losses.

97 Broker-trader entities that consider carbon credits to be commodities can elect to measure them at fair value less costs to sell with changes in fair value recognised in profit or loss.

98 Additionally, an entity would be permitted to elect an accounting policy to measure certain classes of carbon credits held for sale in the ordinary course of business (i.e. non-compliance environmental credits) at fair value.

Derecognition

VCCs held for own use to offset own emissions	VCCs are derecognised when they are sold, transferred or retired.	Per 818-20-40-1, an entity shall account for the derecognition of an environmental credit in accordance with Subtopic 610-20 on gains and losses from the derecognition of nonfinancial assets.
VCCs held for sale in the ordinary course of business	VCCs are derecognised when they are sold, transferred or retired as part of the production process.	

Table 2: Carbon project developer generating VCCs for subsequent sale

	IFRS	US GAAP (Proposed)
Preparation phase ⁹⁹	<p>Judgement is to be exercised on the extent to which research and development costs can be capitalised, which depends on whether an entity can demonstrate that the project can generate future economic benefits.</p> <p>Per Para 54 of IAS 38, research costs¹⁰⁰ are expensed off when incurred in profit or loss.</p> <p>Per Para 57 of IAS 38, development costs¹⁰¹ are recognised as intangible assets provided the entity can demonstrate the six factors highlighted in Para 57.</p>	Per 818-20-30-1, an environmental credit that is internally generated by an entity shall be measured at the transaction costs incurred. All other costs are expensed off when incurred in profit or loss.

⁹⁹ Common costs incurred by carbon project developers before the start of the construction of physical infrastructure include studies evaluating suitable technologies, producing conceptual project designs, piggings, seismic surveys, establishing technical, commercial and economic feasibility and evaluating potential locations for development.

¹⁰⁰ Per Para 8 of IAS 38, research is defined as the “original and planned investigation undertaken with the prospect of gaining new scientific or technical knowledge and understanding”. Para 56 of IAS 38 provides examples of research costs, which includes the following: (i) activities aimed at obtaining new knowledge; and (ii) the search for, evaluation and final selection of, applications of research findings or other knowledge.

¹⁰¹ Per Para 8 of IAS 38, development is defined as “the application of research findings or other knowledge to a plan or design for the production of new or substantially improved materials, devices, products, processes, systems or services before the start of commercial production or use”.

<p>Generation phase¹⁰²</p>	<p>For carbon project developers who generate VCCs for sale, per Para 11 of IAS 2, all costs directly attributable to the generation of the VCCs, including those that are not costs to build physical asset¹⁰³, are recognised as inventory.</p> <p>Judgement is to be exercised on whether these costs are directly attributable to the generation of the VCCs.</p>	<p>Per 818-20-30-1, an environmental credit that is internally generated by an entity shall be measured at the transaction costs incurred. All other costs are expensed off when incurred in profit or loss.</p>
<p>Registration/validation phase (i.e., costs to register or authenticate the carbon credit)</p>	<p>Judgement is required to be exercised on whether these costs are directly attributable to the generation of the VCCs.</p>	<p>Per 818-20-30-1, an environmental credit that is internally generated by an entity shall be recognised as an intangible asset¹⁰⁴ and measured at the transaction costs incurred. All other costs are expensed off when incurred in profit or loss.</p>

¹⁰² Carbon project developers that plant trees to absorb carbon to generate carbon credits should also consider whether the trees are: i) biological assets that should be accounted for under IAS 41; (ii) bearer plants that should be accounted for under IAS 16; or (iii) assets not related to agricultural activity. More details on the considerations can be found here: https://viewpoint.pwc.com/dt/gx/en/pwc/in_depths/in_depths_INT/in_depths_INT/frs-financial-reporting-considerations/4-accounting-considerations-for-project-developers.html#unique_2031972711

¹⁰³ This includes operating and maintenance costs incurred by carbon project developers. However, entities should analyse the costs incurred as only costs that enhance the underlying assets can be capitalised.

¹⁰⁴ Per 818-20-55-2, an entity shall only recognise the environmental credit as an asset if it is probable, collectively, that the environmental credit will be used to settle an environmental credit obligation or transferred in an exchange transaction.

About GenZero

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

Driven by a common purpose to decarbonise for future generations, GenZero recognises the need for a holistic and integrated approach to achieve a net zero world. It adopts a flexible investment approach across three focus areas to drive climate impact: (i) nature-based solutions that help protect and restore natural ecosystems while benefiting local communities and biodiversity; (ii) technology-based solutions that deliver deep decarbonisation impact; and (iii) carbon ecosystem enablers that support the scaling of carbon markets and enable broader industry decarbonisation.

About PwC Singapore

At PwC Singapore, we help clients build trust and reinvent so they can turn complexity into competitive advantage. We're part of a tech-forward, people-empowered network with more than 364,000 people in 136 countries and 137 territories. Across audit and assurance, tax, deals and consulting, we help clients build, accelerate, and sustain momentum.

PwC Singapore refers to the Singapore group of member firms and may sometimes refer to the PwC network. Each member firm is a separate legal entity.

Please see <http://www.pwc.com/structure> for further details.

About Eng and Co. LLC

Led by Managing Director, Rachel Eng, who has close to 35 years of corporate legal practice experience, Eng and Co. LLC provides quality legal services to clients in areas such as asset management & funds, corporate & capital markets, corporate governance, ESG and M&A.

For more information on Eng and Co. LLC, visit <https://www.engandcollc.com>.

About SSFA

The Singapore Sustainable Finance Association (SSFA) is an industry body established by the Monetary Authority of Singapore (MAS) along with the financial industry in January 2024. Building on the successful work of the Green Finance Industry Taskforce (GFIT), SSFA is established to collaborate across the financial and real economy sectors to support the growth of Singapore as a trusted, vibrant, and inclusive sustainable finance centre.

SSFA has six thematic focus areas (i.e., carbon markets, transition finance, blended finance and impact, natural capital and biodiversity, taxonomy, and adaptation and resilience), reflecting core priorities of the broader sustainable finance ecosystem, involving key stakeholders such as financial institutions, real economy corporates, service providers, government bodies, academia, NGOs and others, essential for advancing the industry.

SSFA welcomes participation from financial services, non-financial sector corporates, academia, nongovernmental organisations, policymakers and other industry bodies.

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