

De-risking carbon markets: Managing legal uncertainty in the treatment of carbon credits



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Authors



Dr. Ruth Dagan

Senior Partner and
Head of the Environment
and Climate Change
Practice, Herzog Law

[LinkedIn profile →](#)
[daganr@herzoglaw.co.il →](mailto:daganr@herzoglaw.co.il)

Ruth has been a senior partner and head of the Environment and Climate Change Practice at Herzog Law since 2005. She has been an international environment and climate change law practitioner for over two decades. Ruth has served as an advisor to the UNFCCC Secretariat Legal Affairs Division on Article 6 of the Paris Agreement since 2022. She is also a member of VERRA's Verified Carbon Standard Expert Advisory Group.

Ruth holds a doctorate from NYU's School of Law, specialising in environmental policy and climate finance with a concentration on emissions trading. In 2024, Ruth was appointed as the Director of Climate Change and International Collaborations at the Arison Center on ESG at Reichman University.



Adv. Dana Gilon

Associate, the
Environment and
Climate Change
Practice, Herzog Law

[LinkedIn Profile →](#)
[gilond@herzoglaw.co.il →](mailto:gilond@herzoglaw.co.il)

Dana is an associate in the Environment and Climate Change Practice at Herzog Law. She advises a variety of corporations and tech companies on a wide range of climate-related matters, including carbon markets, nature markets, and renewable energy certificates, as well as on regional and international climate-related regulation.



Lily Ginsberg-Keig

Senior Manager, Policy
and Government
Engagement,
BeZero Carbon

[LinkedIn Profile →](#)
[lily.ginsberg-keig@bezercarbon.com →](mailto:lily.ginsberg-keig@bezercarbon.com)

Lily is the Senior Manager, Policy and Government Engagement at BeZero Carbon. Her work focuses on the interaction between policy and carbon markets, with a strong emphasis on Article 6. Lily advocates for the inclusion of ratings into carbon market regulatory frameworks in order to increase the transparency and credibility of global carbon markets.

Before joining BeZero, she worked as a Climate and Sustainability Consultant at Arup, and prior to this for the UK Government as an adviser to the Minister for the Environment. Lily completed her academic studies at the Australian National University and University College London.



Isobel Sizer

Policy Associate,
BeZero Carbon

[LinkedIn Profile →](#)
[isobel.sizer@bezercarbon.com →](mailto:isobel.sizer@bezercarbon.com)

Isobel is a policy associate at BeZero Carbon, where she focuses on climate policy and carbon market regulation. Her areas of expertise include voluntary carbon markets, compliance carbon mechanisms, and Article 6 market development. Isobel holds an MSc in Environment, Politics, and Development from King's College London.

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“The lifecycle of a verified carbon credit involves numerous cross-border transactions and a wide range of participants operating across multiple jurisdictions. This complexity makes it challenging to determine the applicable legal frameworks and jurisdictions. Enhancing clarity and harmonising the treatment of verified carbon credits can help mitigate risks related to exploitation and close legal and regulatory loopholes. These measures are essential to support the robust and sustainable scaling of the voluntary carbon market.”

– GenZero

“A stable and scalable carbon market depends on a clear, harmonised legal framework. Currently, the treatment of verified carbon credits varies widely across jurisdictions, creating legal uncertainty and increasing transactional risk. Initiatives like the UNIDROIT project are vital in addressing this fragmentation by promoting legal consistency—helping to reduce uncertainty and establish the foundations for more effective risk management, greater market confidence, and broader participation.”

– Kita

Executive Summary

Carbon credit markets are a vital tool for climate investment. However, uncertainty and lack of clarity around the legal treatment of verified carbon credits (VCCs) under private law have had a hindering effect on the growth of the voluntary carbon market (VCM). This uncertainty complicates commercial transactions, particularly as market appetite grows for pre-issuance VCCs and as credits are increasingly integrated into compliance schemes.

Certainty on the legal treatment of VCCs under private law is paramount to the market's ability to scale to the necessary size to deliver climate action. Efforts by several leading international organisations have begun to address this legal gap, but a broad global consensus would further benefit the market. The International Institute for the Unification of Private Law (UNIDROIT) Project represents the most comprehensive initiative to date, aiming to develop international legal principles that clarify core legal aspects of commercial transactions in VCCs, such as ownership, transfer, and insolvency treatment of VCCs. However, even after its expected completion in 2026 and implementation in national jurisdictions, variations in the legal rules across jurisdictions will persist, maintaining legal fragmentation.

The legal risks occurring in the pre-issuance phase of a VCC's lifecycle can have material legal effects post-issuance. While VCCs become legally recognised assets upon issuance, purchasers may encounter post-issuance scenarios of default such as revocation of issued VCCs due to invalidation, reversals, or defective title. The risk of discovering that the domestic regime does not afford sufficient legal protections to bona fide purchasers, security interest-holders or creditors in insolvency can have a deterring effect on market transactions. To manage such legal risks, investors, off-takers, and financiers will seek to verify the domestic legal rules applicable to VCCs, before reaching a final agreement. However, realistically, it will be impossible to fully predict and account for the legal consequences of these various scenarios, given the legal fragmentation which is expected to persist.

Carbon ratings and insurance can help market participants both understand the risk of adverse outcomes and enable proper risk management of foundational project elements. As the carbon market evolves, advance market participants are expected to make more intentional legal choices and to seek to minimise the risk of those choices being challenged or litigated. They will likely turn to performance risk tools like carbon credit ratings and insurance to manage ongoing uncertainty. While these tools do not directly address legal uncertainties during the post-issuance phase, they can help to identify and manage exposure to project-specific risks providing a degree of assurance in transactions where legal safeguards remain unclear. Ratings offer an independent assessment of the risk of a credit delivering its promise of avoiding or removing one tonne of CO₂e. Using ratings as part of their due diligence process enables investors and off-takers to better understand the risk of facing an adverse outcome in relation to their expected future credits. Insurance can offer financial protections against the unique risks inherent to carbon projects, such as non-delivery, government interventions, credit invalidation and reversal risks.

Governments should seek greater international alignment on the legal nature of VCCs and the market should look to integrate risk-based tools to support market credibility. As VCCs continue to serve voluntary and compliance markets, integrating risk-based tools into market architecture can support investor confidence and market integrity. Despite progress toward legal harmonisation, ongoing variance will necessitate robust risk management strategies.

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Introduction

The voluntary carbon market (VCM) facilitates climate investment via the issuance and retirement of verified carbon credits (VCCs) from carbon projects. Over the past decade, the VCM has experienced increasing scrutiny, which has focused primarily on integrity across the supply side of the market. As a result, several initiatives, such as the Integrity Council for the Voluntary Carbon Market (ICVCM) and the Voluntary Carbon Market Integrity Initiative (VCMI), as well as private sector innovations such as ratings and insurance, have endeavoured to increase transparency and credibility. These initiatives are increasingly being adopted by market participants and recognised by regulatory institutions.

In addition to these industry-led efforts, governments have introduced their own principles to further guide market activity on both the supply and demand side, such as the United States of America's (USA) Principles for High Integrity Voluntary Carbon Markets and the United Kingdom's (UK) Principles for Voluntary Carbon and Nature Market Integrity. Some jurisdictions have also gone further by enacting domestic legislation, such as Ghana's Framework on International Carbon Markets and Non-Market Approaches and the European Union's (EU) Directive on Green Claims. Similarly, sector-specific frameworks like the aviation industry's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) have been enacted, which has introduced eligibility requirements for carbon credits originating from the VCM.

These developments have gone far to recalibrate the market and have potentially set the stage for a new era of scaling in carbon credit markets at large. However, while the VCM is slated for escalated growth, it has become apparent that rules on the legal treatment of VCCs under private law across domestic and international jurisdictions have not yet caught up with these developments. Thus, an additional step, in the form of certainty on the legal rules governing carbon credit-related business activities, is needed before true market scaling can occur. In this respect, legal certainty is necessary, for example, to understand how a VCC can be owned, acquired, used as collateral, and treated in the event of insolvency.

While achieving certainty and uniformity on the legal treatment of VCCs is a formidable goal, expected to bring further confidence to the market, the reality is that variations and uncertainties of legal rules across jurisdictions will not be eliminated and will persist into the future.

This report aims to analyse and offer risk management solutions for the potential effects of this remaining and intrinsic legal risk within the market. We argue that the persisting non-uniformity and uncertainty on the legal treatment of post-issuance VCCs under private law across domestic jurisdictions will affect transactions in issued VCCs and significantly advance market commitments and financings of projects in the pre-issuance phase. We then argue that risk management tools such as carbon credit ratings and carbon insurance can be leveraged in the pre-issuance phase of carbon projects to balance post-issuance legal risks, thereby contributing to the appetite for advance market commitments and the overall growth of the carbon market.

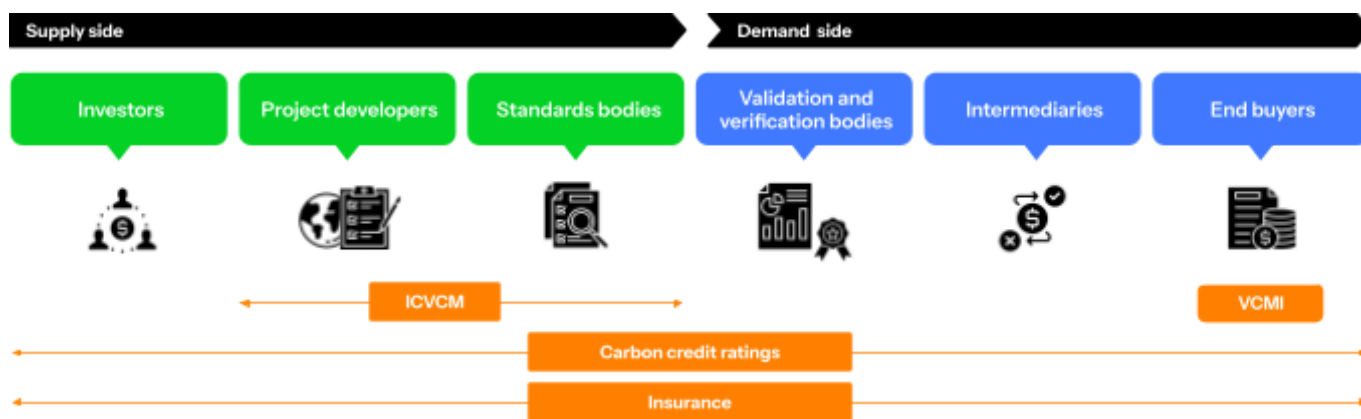


Figure 1. Illustrative diagram depicting the structure of carbon markets.

Certainty on the legal treatment of carbon credits under private law is key to creating a credible market

While the VCM has experienced significant standardisation towards quality, integrity, and transparency, which has readied it for an era of growth, it has become apparent that the development of domestic and international rules on the legal treatment of VCCs under private law has been lagging. This has created a gap in the degree of readiness of the market for increased commercial activity, liquidity, and scaling. Ongoing uncertainty on the legal nature of a VCC (being a proprietary right or not), as well as on how VCCs are treated in the course of various events having legal consequences, such as ownership, transfer of title, execution of security rights and insolvency, can have a chilling (if not paralysing) effect on market activity. Therefore, additional progress towards certainty on the legal rules governing carbon credit-related commercial transactions should be made to witness the true scaling of the market.

The case for determining the legal rules on the treatment of VCCs has become even more pronounced due to the ongoing integration of VCCs into compliance carbon markets.¹ In some jurisdictions, obligated companies can surrender credits generated under independent and international standards to meet legal requirements under a carbon tax or emissions trading scheme (ETS). Examples of this trend include national schemes in Japan, Singapore, and Colombia, as well as subnational efforts in California and Alberta. This trend is predicted to increase in the future, with jurisdictions such as the European Union (EU) considering incorporating carbon removal credits.

Furthermore, the recent COP29 decisions allowing for the full operationalisation of Article 6 of the Paris Agreement have brought about further consideration of the legal nature and treatment of carbon credits. In particular, the Paris Agreement Crediting Mechanism (PACM) Supervisory Body (SBM) is considering how varying definitions could impact the design of the mechanism registry, as demonstrated in position papers published by the International Emissions Trading Association (IETA) discussed below.

The legal nature of VCCs has been the focus of significant regulatory and institutional attention in recent years, with domestic lawmakers and international bodies determined to increase certainty on this aspect of the market. One such international body is the International Institute for the Unification of Private Law (UNIDROIT), which is delivering a project on the legal nature of verified carbon credits (the UNIDROIT Project). Many market participants agree that this newly defined legal infrastructure could result in the necessary market scaling and deliver increased climate action on the ground if designed correctly.

However, we must acknowledge that the considerable efforts to streamline legal rules governing VCCs under private law across domestic jurisdictions will be challenged by the remaining variance and uncertainty of legal rules across such jurisdictions, even once the UNIDROIT Project is complete.

The challenge of managing risk in a fragmented and uncertain legal environment

VCCs are commonly understood to be tradable instruments that each represent the removal or avoidance of one tonne of carbon dioxide equivalent (CO₂e) through an accredited methodology. While projects must be additional, real, and verified, amongst other core tenets, the discrepancies found in recent years in certain cases in connection with the delivery of the action promised by the project have challenged the perception that one credit represents one tonne of CO₂e. This can be categorised as performance risk, which encapsulates the performance of the credit against its commitment to remove or avoid one tonne of CO₂e. BeZero explores this risk in their recent paper, ‘A new blueprint: How governments can design carbon credit markets for impact at scale’.² Performance risk is impacted by unobservable data (e.g. counterfactual scenarios to form a project baseline), statistical inference (e.g. biomass sampling), ongoing project maintenance, and legal risks relating to the premise that the project developer holds rightful title to the project and its assets. Such scenarios have resulted in the development of risk management tools, such as carbon credit ratings and insurance, to identify and account for project risk, which can occur both in the pre-issuance and post-issuance phases of the project’s life (the latter being such risks as reversal and revocation).

- Ratings are a tool for markets to understand and manage risk. In financial markets, they enable an understanding of an instrument’s financial risk—specifically, the likelihood of a debt obligation being met. In carbon markets, ratings provide a similar assessment, but in carbon terms—what is the likelihood that a carbon credit achieves the tonne of CO₂e committed to?
- Insurance is a distinct risk management tool in carbon markets, offering financial protection against specified risks—such as delivery failure, political interference, and credit reversal. By transferring these risks to an insurer, insured parties can safeguard their investments, enhance financial stability, and reduce overall balance sheet exposure.

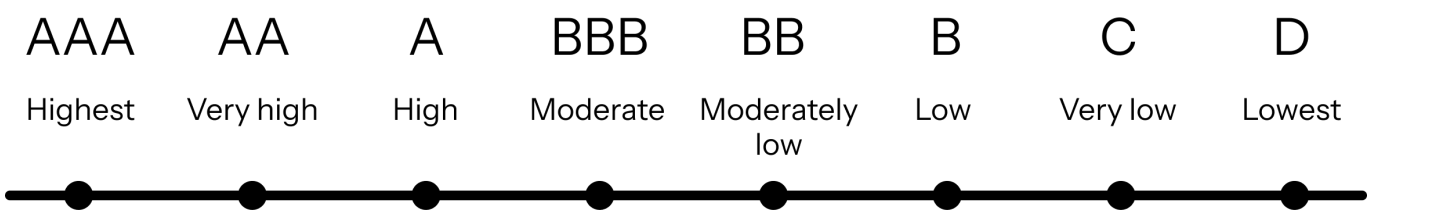


Figure 2. BeZero Carbon ratings scale, which assesses the likelihood that a carbon credit will achieve a tonne of CO₂e avoided and/or removed.

The existing fragmentation and uncertainty on the legal rules governing the treatment of VCCs under private law in domestic jurisdictions poses an additional market-related risk, which arises in the post-issuance phase of a VCC’s lifecycle but has intrinsic implications for risk management considerations at the pre-issuance phase as well. To date, the private sector has been unable to adequately assess the legal risks involved in commercial transactions within the VCM, thus further hindering market activity and growth. Further, the existence of legal rules in jurisdictional silos creates a detrimental effect on the interoperability and ability to integrate existing voluntary market mechanisms with compliance carbon pricing and emission trading systems.

As discussed below, significant effort has been made in recent years towards defining and streamlining rules on the legal treatment of VCCs in private law across domestic jurisdictions. While this critical work is nearing a conclusion, it is evident that considerable fragmentation and uncertainty on these issues will also remain a permanent characteristic of carbon markets in the long term.

Given this reality, the question arises whether carbon credit ratings and insurance—which are fundamentally designed to identify and mitigate performance risks of carbon projects—can also account to some extent for risks related to the legal treatment of post-issuance VCCs. This is in spite of the fact that they are not designed to directly address this type of market concern.

The legal treatment of carbon credits under private law in recent domestic and international initiatives

The conversation around the legal nature and treatment of carbon credits has intensified over the past several years across both international platforms and domestic jurisdictions. Prominent international organisations such as the International Swaps and Derivatives Association (ISDA) and the International Organization of Securities Commissions (IOSCO) have published several relevant reports, while multiple domestic legislative bodies, including the Legal High Committee for Financial Markets of Paris (HCJP), the United Kingdom Law Commission (UK Law Commission) and the United States Commodity Futures Trading Commission (CFTC), have issued guidelines and recommendations for future action. A summary of each adopted position can be found in Tables 1 and 2.

Table 1. The approach of selected international institutions to the legal treatment of VCCs.

Institution	Publications	Recommendations
International Swaps and Derivatives Association (ISDA)³	ISDA published two reports that provide an overview of the legal treatment of VCCs across different jurisdictions, ⁴ focusing on the uncertainty surrounding the matter in local laws. This uncertainty is perceived as a barrier to solving the complex issues surrounding VCCs, including creation, purchase, sale, and retirement, as well as questions relating to securities and insolvency.	ISDA recommends that VCCs be viewed as a form of property, as viewing them as a bundle of contractual rights may give rise to further complications. ⁵ ISDA acknowledges that progress in developing rules will be slow and recommends that national and international efforts occur in parallel; otherwise, delays will threaten to prolong uncertainty. Their work references the UNIDROIT Project. ⁶
International Organisation of Securities Commissions (IOSCO)⁷	In a recent report, IOSCO identified the implications of the legal treatment of VCCs on the rights that a holder may assert over them, including for security interests, their treatment for tax and accounting purposes and their treatment upon insolvency. ⁸	IOSCO sets out its best practices for VCM actors, which acknowledges the use of carbon credit ratings and the need for legal certainty. It recommends providing jurisdictional certainty on the legal treatment of VCCs, subject to consistency with domestic mandates and processes. However, it does not offer a specific recommendation for how regulators should define VCCs. IOSCO recognises the work of UNIDROIT in providing certainty on these issues. ⁹

Table 2. The approach of selected national governments to the legal treatment of VCCs

Institution	Position	Recommendations
Legal High Committee for Financial Markets of Paris (HCJP)¹⁰	<p>A report published by HCJP¹¹ identifies the complexity of establishing a legal regime for the VCM because of its cross-border nature, the differences in substantive rules between jurisdictions, and the absence of a common international legal regime. Locally, the report distinguishes between the legal nature of EU allowances, which it deems clear and well-defined under French law, and that of VCCs, which remains undefined and uncertain.¹²</p>	<p>The HCJP concludes that VCCs should be recognised as intangible assets under French law, as such classification corresponds to their economic and operational nature. Any other classification would introduce inconsistencies and risk undermining the legal certainty of the VCM.¹³</p> <p>Based on this classification, the report views registration in a registry account as constituting a presumption of ownership. Further, it states that VCCs can be the subject of security rights but cannot be considered eligible assets for financial collateral under French law. In relation to the cases of reversal or revocation of VCCs, the HCJP has yet to reach a consensus, referring to the work of UNIDROIT on these matters.¹⁴</p>
UK Law Commission¹⁵	<p>The Commission published a draft bill and a supplemental report on digital assets as personal property, stating that its recommendations may also apply to VCCs.</p> <p>The report found that such assets do not easily fit into existing categories of personal property under UK law, namely “things in possession” or “things in action”.</p>	<p>The Commission proposes recognising a new type of personal property, “third category property”, which reflects the unique characteristics of these types of assets.¹⁶ By recognising a new and separate category of personal property, the draft bill confirms that the two traditional categories of property are not exhaustive, allowing assets which fall outside these categories to be considered property under UK law.¹⁷</p> <p>The Commission does not conclude that every type of VCC will necessarily be considered an object of personal property rights but rather stipulates that the UK courts should decide on these boundaries as a matter of common law.¹⁸</p>
The US Commodities and Futures Trading Commission (CFTC)¹⁹	<p>The CFTC published guidance regarding the listing of VCC derivatives to support transparency, liquidity, and market integrity in the VCC derivatives markets and ultimately drive standardisation and efficient capital allocation to scale the cash market for high-integrity VCCs.²⁰</p> <p>The guidance also acknowledges that standardisation mechanisms for VCCs are still being developed.</p>	<p>The CFTC approaches VCCs as a tradable intangible instrument or an intangible commodity, which can underlie a derivative contract.²¹</p> <p>The guidance outlines certain commodity characteristics of VCCs that have been broadly identified across both mandatory and voluntary carbon markets. These include transparency, additionality, permanence, risk of reversal, and robust quantification.</p> <p>Designated contract markets (DCMs) will consider these characteristics upon selection of crediting programs from which eligible VCCs may be delivered at the settlement of a VCC derivative contract.²²</p>

Significant interest in the legal treatment of VCCs has become prevalent amongst carbon market participants and experts, as demonstrated by a comprehensive report jointly authored by GenZero and Allen & Gledhill LLP in 2024. This report has stressed the need for certainty concerning the legal character of VCCs; it uses Singapore as a case study and analyses relevant legal principles and case law applicable in Singapore, ultimately recommending that VCCs should be classified as intangible property under Singapore law. With its analysis and recommendations, the report illustrates how each domestic jurisdiction would approach the treatment of VCCs as reflective of its own specific private law principles and unique attributes.²³

Another leading body of work regarding the PACM registry can be found in two recent publications by IETA. In January 2025, IETA published a position paper focusing on the relationship between accounts to be held in the PACM registry established under Article 6.4 of the Paris Agreement and the ownership of PACM credits in the accounts. IETA argues that the PACM registry should confirm ownership of account holders, such that the transfer of units in the PACM registry will constitute the transfer of ownership of the transferred units from the holder of the previous account to the new account holder. This approach recognises that such units can be the subject of proprietary rights. IETA also refers to the work of UNIDROT concerning other subtleties of the legal nature of units under the PACM framework.²⁴ A draft submission published by IETA in March 2025 in response to calls for input published by the PACM SBM further acknowledges that PACM units can be the subject of security rights alongside proprietary rights.²⁵

These initiatives give rise to two central aspects of the conversation developing around the legal nature and treatment of VCCs:

- One key aspect is the consensus on the need for certainty on the private law treatment of VCCs in relation to core issues such as proprietary rights, transfer of title, security rights, insolvency, and more. These issues are potentially affected from the legal perspective by scenarios such as reversal, revocation, and third-party claims on title to VCCs.
- The other key aspect is the ensuing recognition that even once such certainty is internationally achieved, variances in the legal treatment of VCCs across domestic jurisdictions will remain and will inevitably continue to affect commercial transactions and financial investments in VCCs.

Following these dynamics, the project undertaken by UNIDROIT²⁶ has become the leading initiative on the determination of internationally applicable recommendations for the adoption of private law rules on the treatment of VCCs internationally and within domestic legal regimes.

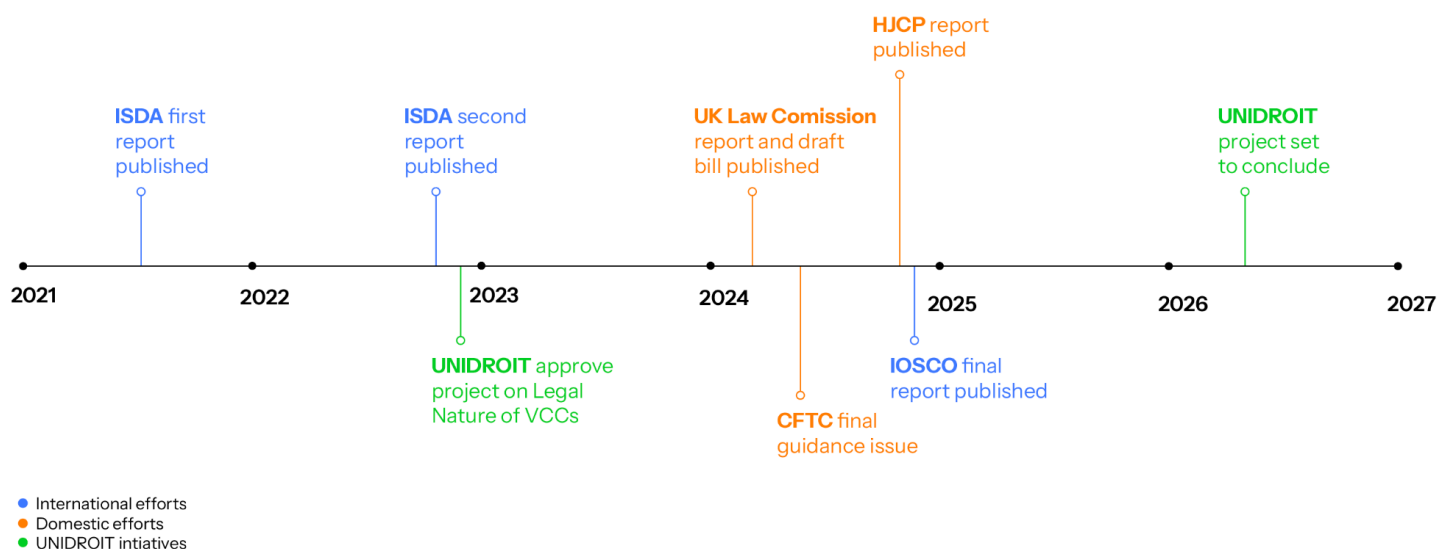


Figure 3. Timeline of key developments in the legal treatment of VCCs, as discussed in this report.

The UNIDROIT Project on the legal nature of VCCs

The UNIDROIT Project is an important and inequivalent effort to fill a substantial void in the global discussion around carbon credits, an effort endorsed by leading national and international organisations and expected to have immense influence on carbon market activity. It is intended to become the foundation for the development of legal rules on the treatment of VCCs in business activities across the globe. The following section explains the UNIDROIT Project and the proposed principles in detail.

Following the approval of the UNIDROIT Project by the UNIDROIT General Assembly in December 2022, based on a proposal submitted by ISDA, the UNIDROIT Working Group on the Legal Nature of VCCs (the Working Group) was established in May 2023.²⁷ The Working Group is tasked with drafting an international law instrument on the legal nature and other private law aspects of VCCs. To date, the Working Group has held five sessions out of eight planned sessions²⁸ and has published Draft Principles on the Legal Nature of VCCs (the Principles),²⁹ accompanied by an issues paper.³⁰ The UNIDROIT Project is slated to be completed in early 2026, with the adoption of the Principles by the UNIDROIT Governing Council.

Purpose and scope of the UNIDROIT Project

The objective of the UNIDROIT Project is to provide guidance on a range of private law issues relating to VCCs (including, but not limited to, issuance, ownership, and transfer), thereby reducing legal uncertainty that legislators and market participants may encounter in the context of transactions in VCCs, and fostering global uniformity and certainty in the private law treatment of VCCs. The Principles are intended as uniform guidelines for the alignment of domestic legal regimes.³¹

As the VCM grows, UNIDROIT expects that enhancing legal certainty will facilitate transactions in VCCs and support the development of a well-functioning market that could play a central role in combating climate change while simultaneously increasing capital flow to emerging markets in developing countries.

The Principles are intended to apply universally to all domestic jurisdictions, irrespective of their legal approaches, i.e. both the common law and civil law regimes. They are applicable to VCCs, which are described as “credits issued post independent verification that an emission reduction or removal has occurred as a result of a specific project activity”, which may be used under voluntary markets, under PACM established by Article 6.4 of the Paris Agreement, under sectoral compliance markets such as CORSIA, and under jurisdictional tax markets which permit partial offset through the use of eligible VCCs.³²

Only private law aspects of VCCs are covered by the Principles, with a particular focus on property law, namely, when are VCCs the object of dispositions and acquisitions, and when can rights in VCCs be asserted against third parties?³³

Regarding matters within the scope of the Principles, UNIDROIT states that the Principles will take precedence, once adopted and implemented, over national laws in case of a conflict.³⁴ At the same time, UNIDROIT expressly excludes various aspects of private law from the scope of the Principles, including matters relating to intellectual property and consumer protection, as well as certain matters of property law and contract law. These range from issues relating to the proprietary right over a VCC, transfer, and valid creation of a security right in a VCC (subject to some exceptions where the Principles provide specific rules on these matters), to issues relating to relationships between contracting parties or with third parties.³⁵ The matters expressly excluded from the scope of the Principles are left to be covered by the national law in each domestic jurisdiction without any recommendations or guidance by UNIDROIT relating to the structure or content of the national law that should apply to them, hence leaving domestic law on these matters unaffected by the Principles.

The UNIDROIT Principles

To fulfil the purpose of the UNIDROIT Project, a format of recommended principles accompanied by explanatory commentary was chosen. A summary of these Principles can be found in Table 3 below. The summary is based on the latest draft published in March 2025 in preparation for the Working Group's fifth session, as certain matters, and in some cases entire Principles, are still under deliberation.

Table 3. Summary of the proposed UNIDROIT Principles, as of March 2025

Principles	Meaning
General Principles ³⁶	<p>The Principles stipulate that a VCC can be the subject of proprietary rights.³⁷ This classification is based on certain attributes of VCCs, namely that it is individuated (by a unique identifier), it can be controlled (by a specific registry account holder), it is rivalrous (as it can only be used by one person at a time) and it can be transferred between accounts. Classifying a VCC as property is deemed necessary by the Working Group to attract the scale of the investment needed to make VCCs a vehicle for raising climate finance.³⁸</p> <p>No specific requirements are prescribed for the acquisition of a proprietary right in a given VCC, which shall be determined on a jurisdiction-specific basis based on the property law in each jurisdiction.³⁹ In this way, UNIDROIT considers the important role of domestic regulators, such as the UK Law Commission, in further developing and defining the legal treatment of VCCs in their respective jurisdictions.</p>
Creation of a VCC	<p>A VCC comes into existence when a VCC registry records that it has been credited to an account.⁴⁰</p> <p>As to whether a person has proprietary rights in a VCC after the moment it comes into existence (for example, in case of transfer), the question is left to be addressed by local law, subject to the requirements regarding transfer discussed below.⁴¹</p>
Transfer of a VCC	<p>The Working Group recognises that the ability of market participants to easily transfer VCCs and obtain proprietary rights over them upon a transfer is essential to a well-functioning VCM.⁴² The Principles stipulate that a transfer can include no greater proprietary rights than those the transferor has in a VCC and that the transferee acquires all the proprietary rights that the transferor had or had the power to transfer.⁴³ In addition, the establishment of an innocent acquisition rule is suggested to enhance legal certainty and benefit the market. Under this rule, a buyer who acquires a VCC without notice that the seller did not own the VCC can nonetheless obtain proprietary rights.⁴⁴</p>
Cancellation of a VCC	<p>The Principles determine that a VCC can be cancelled as a result of reversal, revocation, or retirement, in which case the VCC ceases to be the subject of proprietary rights.⁴⁵ The consequences of cancellation in error are left to be addressed by local law.⁴⁶</p>
Reversal of a VCC	<p>A VCC can be cancelled for reversal when it no longer meets the definition of a VCC, and the cancellation comes into effect when a VCC registry makes an entry indicating as such.⁴⁷ Though cancellation for reversal would result in the VCC ceasing to be the subject of proprietary rights, the cancellation does not affect any rights that a VCC may carry against third parties. For example, a VCC holder's contractual right against a validation and verification body or other specific parties will nonetheless be preserved.⁴⁸ Circumstances that give rise to cancellation for reversal should result in a pro-rata cancellation of VCCs among all registered holders.⁴⁹</p>
Revocation of a VCC	<p>A VCC can be cancelled for revocation if it is demonstrated that it never met the definition of a VCC, in which case it is considered void from the outset and as never having existed as the subject of proprietary rights.⁵⁰ As in the case of reversal, cancellation for revocation does not affect any rights that a VCC may carry against third parties, such as a transferable contractual right against specific parties.⁵¹</p>

Retirement of a VCC	Once a registered holder has instructed the VCC registry to retire a VCC, it must cancel the VCC and make an entry indicating its cancellation. ⁵²
VCC Registry	The definition of a VCC registry is kept broad to apply to most, if not all, VCC registries. ⁵³ The duties of the registry operator towards a registered holder are listed, including, but not limited to, compliance with the registry rules, allocation of a unique identifier, keeping adequate records and compliance with instructions by the registered holder. ⁵⁴ The Principles also address the relationship between the registry operator and the VCC registered in the registry it operates, stating that the registry operator has no proprietary rights in a VCC, that a VCC cannot be used for the satisfaction of claims of creditors of the registry operator, and that a VCC does not form part of the registry operator's assets in case of insolvency. ⁵⁵
Custody	<p>The Principles establish the relationship between a custodian,⁵⁶ its client, the VCC it maintains for its client, and, in appropriate cases, a sub-custodian.⁵⁷ Similarly to the case of a registry operator, a VCC is not available to creditors of the custodian and does not form part of the custodian's assets in case of insolvency.⁵⁸</p> <p>The custodian's duties towards its client include safeguarding the VCCs, maintaining them securely and effectively, acquiring VCCs promptly if necessary, and keeping clients' VCCs separate from the custodian's own account.⁵⁹</p> <p>A VCC maintained by a custodian may be the subject of the security rights of the custodian, such as in cases where the client separately owes the custodian fees or the custodian provides a loan to the client to acquire the VCC.⁶⁰ In the case of custodian insolvency, the VCC must be transferred from the custodian's account. The Principles also include instructions for cases where an insolvent custodian fails to maintain sufficient VCCs for its clients.⁶¹</p> <p>The Principles also suggest an innocent client rule adapted from the innocent acquisition rule relating to the transfer of VCCs and tailored to the case of acquiring VCCs through a custodian.⁶²</p>
Secured Transactions	<p>Security rights are not defined in the Principles, as the law relating to secured transactions can differ considerably between jurisdictions.⁶³ According to the Principles, a VCC can be the subject of security rights,⁶⁴ and a VCC subject to a security right granted to a third party may be maintained by a custodian.⁶⁵ Matters relating to the creation, making effective against third parties, priority, and enforcement of a security right in a VCC are governed by national law.⁶⁶</p> <p>The Principles list the ways in which a security right in a VCC can come into effect against third parties, also accepting methods of third-party effectiveness under national law but prioritising the methods presented in the Principle.⁶⁷</p>
Insolvency	The Principle on the effect of insolvency on proprietary rights in VCCs was adopted from the UNIDROIT Principles on Digital Assets and Private Law and has yet to be developed as a principle suitable for VCCs. ⁶⁹ The Principle is expected to address different cases of insolvency beyond the insolvency of a custodian, including insolvency of a person with a proprietary right in a VCC who may or may not have granted a creditor a security right in a VCC as collateral, insolvency of the project proponent that is still or no longer the holder of the VCC, or insolvency of the VCC registry. The applicable treatment in these cases of insolvency is closely linked to the legal nature of VCCs. ⁷⁰

What are the implications of UNIDROIT's work?

The Principles are essential to enhancing legal certainty

As identified by the initiatives discussed above, UNIDROIT's development of global uniform standards is a significant and essential step in enhancing legal certainty and uniformity concerning the legal treatment of VCCs under private law. Legal certainty and uniformity are projected to enhance the integrity of the market and, therefore, contribute to the development of robust, efficient, and scalable carbon markets.⁷¹

Specifically, by offering a solution to one of the central vulnerabilities identified in IOSCO's consultation report and increasing the integrity and efficiency of the VCM, the UNIDROIT Principles can promote IOSCO's expressed efforts on a global scale, alongside IOSCO's proposed set of good practices.

Navigating the remaining roadblocks to legal certainty

While UNIDROIT acknowledges the need for certainty and global harmonisation of legal rules relating to commercial transactions in VCCs, it is evident from the challenges reflected in the work done thus far that the road to such certainty and harmonisation is lengthy and complex. Furthermore, even once the implementation of UNIDROIT's recommendations is well underway, considerable variations and ambiguities will remain in how domestic jurisdictions approach private law issues relating to VCCs, simply due to the significant differences between national private law regimes. UNIDROIT acknowledges such variations and expressly leaves many of the significant legal queries raised in its work to be determined based on domestic legal rules in each jurisdiction, as discussed above.

It is, therefore, apparent that complete uniformity and certainty would not be achieved, as explicitly stated by UNIDROIT, and that remaining variances and uncertainties in the legal treatment of VCCs across domestic jurisdictions will inevitably continue to affect commercial transactions and financial investments in VCCs for the long-term.

Given this reality, the question arises: how will progress in defining the legal rules governing VCCs, alongside the remaining variations and uncertainties in domestic rules governing private law, affect the demand side of the market? More so, how will it affect the appetite for advance market commitments in the form of project investment and offtake agreements, as well as their respective financing structures and terms?

The interconnection between the pre-issuance and post-issuance phases of a VCC's lifecycle

The conversation around the legal nature and legal treatment of carbon credits under private law intentionally focuses on VCCs—which are verified, post-issuance units. However, this conversation directly and inevitably affects the pre-issuance phase of a carbon project's development and the considerations of advance market participants such as investors, off-takers, and financiers while structuring transactions and evaluating associated risk.

It must be recognised that a fundamental interconnection exists between the pre-issuance and post-issuance phases of a VCC's lifecycle, which can have material legal effects. Under the various initiatives discussed above, it is upon issuance that VCCs become legally recognised assets and are subject to proprietary rights. However, purchasers of VCCs may subsequently encounter scenarios of default such as delivery of invalid tonnes resulting in revocation of issued VCCs, reversal events affecting

issued VCCs, or discovery of defective title held by the project developer in the underlying project and assets. In such eventualities, the risk of discovering that the applicable domestic rules do not afford sufficient legal protections to bona fide purchasers, security interest-holders or creditors in insolvency can hinder the appetite towards advance market commitments and thus on overall market growth.

The intrinsic connection between the pre-issuance and post-issuance phases of a VCC lifecycle increases the need for clear and uniform legal rules on the treatment of VCCs in various commercial and transactional scenarios. In the quest to minimise the risk of exposure to unfavourable results in potential legal disputes, investors, off-takers, and financiers will seek to verify the domestic legal rules applicable to the treatment of VCCs in the various relevant jurisdictions. However, realistically, it will be impossible to fully predict and account for the legal consequences of these various scenarios, given the persisting non-uniformity and uncertainty across domestic jurisdictions on rules pertaining to the legal treatment of VCCs, even once the UNIDROIT Project has been completed. This legal risk will inevitably play a role in the transactional considerations of prospective investors, off-takers, and financiers of carbon projects.

On a practical level, upon determining whether the jurisdiction in question is aligned, either partially or fully, with UNIDROIT's recommended principles, the primary concern for potential investors and buyers would be to what extent their contractual rights and interests are legally protected within the jurisdiction in question, in such events as reversal and revocation of VCCs, as well as instances of a legal challenge to the title in the project producing the VCCs, or the title in the VCCs themselves (such as in the case of competing security interests or insolvency). Each of these scenarios materialises after the VCCs have been fully approved and issued. However, as discussed above, these scenarios can retroactively undercut the validity of such units and the entire set of legal rights originally perceived to be attached to the VCCs under the advance market commitment.

As a result, in jurisdictions found to be non-aligned or merely partially aligned with the UNIDROIT Principles, investors, buyers, and financiers can be expected to require additional measures to protect their contractual rights or balance their contractual risk. Such measures can take the form of a change in the choice of the contract's governing law and the requirement for additional contractual guarantees. These measures can also take the form of a more robust pre-contractual due diligence process on the project and its legally risky attributes, supported by ongoing oversight by a ratings agency or underlying insurance coverage over the contract's term.

The role of ratings and insurance where transactional legal protections are lacking

While risk-based tools are not designed to directly address legal uncertainties, they can be leveraged as additional safeguards by market participants to balance the legal risk that can develop at the post-issuance stage. Pre-issuance ratings, for example, already include consideration of specific legal risk as part of the project execution risk assessment. For example, the project developer's legal right to implement the project and commercialise the resulting carbon credits. Ratings and insurance can be used to decrease the probability of legally risky scenarios developing post-issuance, which would necessitate deliberation on applicable domestic laws in events such as reversal and revocation, as well as potential discussions on legal protections afforded to secured lenders.

Ratings help to independently assess the likelihood that a credit will avoid or remove one tonne of CO₂e, enabling market participants to understand the underlying risks to a carbon project. To mitigate risks associated with early-stage project development, off-takers and investors increasingly incorporate project ratings into their agreements, such as linking the price paid for credits or the quantity of credits purchased to a higher-level rating.

Insurance is another independent risk management tool, offering financial protection against the risks inherent in carbon projects, such as non-delivery, government interventions, credit invalidation, and reversal risks.⁷² Investors increasingly require insurance as a mandatory condition precedent to funding agreements with project developers. This ensures that key project performance risks are addressed before financial commitments are made or disbursed.

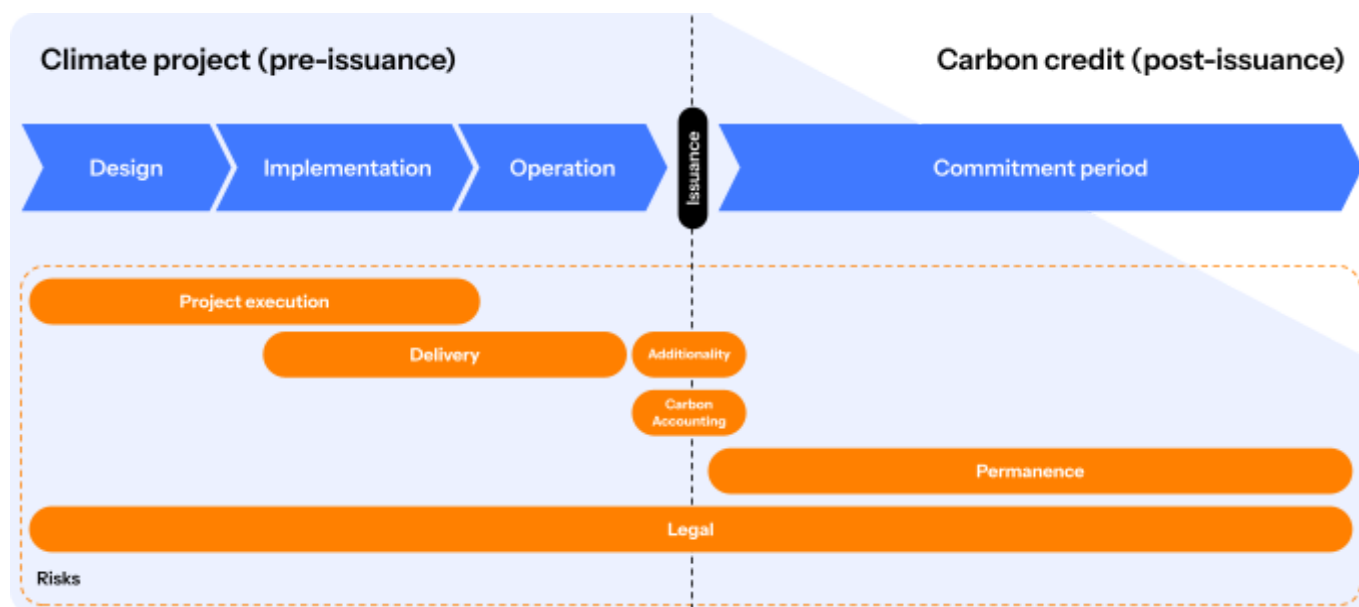


Figure 4. Mapping risks across the lifetime of the project and the credits issued.

Furthermore, there is increased impetus for institutions and governments to incorporate risk-based tools into the design of carbon markets. Governments should consider the integration of risk-management tools to support investor confidence and market integrity. This is particularly relevant where VCCs are integrated into compliance markets. Ratings can act as a fungible risk metric across all VCCs, whether used for voluntary or compliance purposes, enabling market participants to compare and contrast credits from differing sectors, standards and regions. They also provide a third party risk metric that can be used to align incentives between transacting counterparties. Insurance offers a distinct risk management mechanism, enabling market participants to transfer their financial

exposure to specified risks to third-party insurers. As regulators and policymakers work to strengthen market integrity, integrating risk-based tools such as ratings and insurance can further enhance confidence and stability in both voluntary and compliance markets.

Further considerations must be made in cases with carbon market integration

National regulatory carbon pricing schemes allowing offsetting with VCCs and national policy on Article 6 could affect advance market commitments and their contractual provisions. Once a VCC unit enters a regulatory carbon regime, it is subject to a set of pre-determined legal rules, which may differ from when it exists strictly within the VCM.

In this context, it is our view that further consideration should be given to the significance of the integration trend discussed above within the conversation around the legal treatment of VCCs. While UNIDROIT's Principles recognise that certain compliance schemes permit the use of certain VCCs for compliance purposes, UNIDROIT currently does not address how its Principles interact with pre-determined legal rules governing certain compliance schemes. Potential misalignments in this regard could restrict a buyer's ability to use VCCs to service their compliance obligations and, in turn, slow the integration trend as a whole.⁷³

As discussed above, the integration of VCCs into compliance schemes is increasing globally, with a projected future impact on the EU. Therefore, a discussion regarding the legal treatment of VCCs and the implementation of the UNIDROIT Principles in this regard would be incomplete without considering potential integration scenarios between the VCM and compliance markets.

Conclusion

As the carbon credit market evolves, market participants are expected to make more intentional legal choices and to seek to minimise the risk of those choices being challenged or litigated in the first place. As a result, proper risk management of foundational project elements becomes increasingly critical to market confidence, stability, and growth.

The adoption of risk management measures targeting the fundamental elements of carbon project development, such as using ratings to identify risks to projects and insurance products to manage those risks, can strengthen the confidence of advance market participants in the pre-issuance phase. By identifying and managing performance-related risk, these tools offer a degree of assurance despite ongoing legal uncertainty post-issuance.

It is our hope that the UNIDROIT Project will encourage the swift development of clear and predictable domestic rules on the legal treatment of VCCs while recognising that legal variance will remain and continue to characterise this aspect of the market into the future. Within the existing landscape, carbon market investors, off-takers, and financiers can effectively manage transactional risks by carefully considering the legal landscape applicable to their future VCCs and utilising ratings and insurance measures as an integral part of their advance market commitment risk-management strategy.

We invite further discussion on the role of domestic and international legal rules governing VCCs in the development and growth of carbon markets in general.

Endnotes

1. Wetterberg, K., J. Ellis and L. Schneider, "The interplay between voluntary and compliance carbon markets: Implications for environmental integrity", OECD Environment Working Papers, No. 244, 2024.
2. BeZero Carbon, "[A new blueprint: How governments can design carbon credit markets for impact at scale](#)", 2025.
3. The International Swaps and Derivatives Association (ISDA) is a private trade organisation representing a wide range of derivatives market participants, with over 1000 member institutions from 76 countries.
4. ISDA, "[Legal Implications of Voluntary Carbon Credits](#)", December 2021; ISDA, "[The Legal Nature of Voluntary Carbon Credits: France, Japan and Singapore](#)", November 2022.
5. ISDA 2021, 24.
6. ISDA 2021, 22.
7. The International Organisation of Securities Commissions (IOSCO) brings together the world's securities regulators, covering more than 95% of the world's securities markets in over 130 jurisdictions. IOSCO develops and implements internationally recognized standards for financial markets regulations.
8. IOSCO, [Voluntary Carbon Markets: Final Report](#), November 2024, 29.
9. IOSCO, 30.
10. The [Legal High Committee for Financial Markets of Paris \(HCJP\)](#) is an independent body composed of lawyers, academics and other qualified individuals, aimed at promoting the legal competitiveness of the financial markets in France and strengthening legal certainty for public and private financial stakeholders, including by suggesting draft reforms, supporting public authorities during negotiations of European and international financial regulation and providing answers to legal questions. A significant number of HCJP proposals have led to legislative or regulatory amendments.
11. HCJP, "[Report on the Legal and Regulatory Aspects of Voluntary Carbon Credits](#)", October 2024.
12. HCJP, 9, 15-16.
13. HCJP, 8.
14. HCJP, 21-24.
15. The UK Law Commission is a statutory independent body which plays a crucial role in the legal system of the United Kingdom, by reviewing the law and recommending reform where it is needed, to ensure the law is fair, modern, simple and cost effective. The work of the UK Law Commission spans a wide range of legal fields and topics, including ones which are highly relevant to the regulation of financial markets and commercial law, such as involvement in projects relating to securities and to insolvency.
16. The UK Law Commission, "[Digital Assets as Personal Property: Supplementary Report and Draft Bill](#)", July 2024, 3, 7-8. In a consultation on voluntary carbon and nature markets published on 17 April 2025, the UK Government provides an overview of the work of the UK Law Commission potentially applicable to voluntary carbon credits and welcomes the work of UNIDROIT towards harmonising the legal nature of carbon credits as a key to enhancing confidence in carbon credits and developing a well-functioning carbon market. See "[Voluntary Carbon and Nature Markets: Raising Integrity](#)", UK Department for Energy Security & Net Zero, 17 April 2025, 56-57.
17. The UK Law Commission, 28.
18. The UK Law Commission, 28.
19. The [Commodities and Futures Trading Commission \(CFTC\)](#) is an independent federal agency which regulates the United States derivatives markets, including future contracts, options and swaps, and is therefore a key regulator in financial markets. The CFTC aims to promote competitive and efficient markets while protecting investors against manipulation, abusive trade practices and fraud.
20. CFTC, "[Commission Guidance Regarding the Listing of Voluntary Carbon Credit Derivative Contracts](#)", October 2024, 83378.
21. CFTC, 83380.
22. CFTC, 83401.
23. "[The Legal Character of Voluntary Carbon Credits: a Way Forward](#)", GenZero and Allen & Gledhill LLP, March 2024.
24. IETA, "[Ownership of A6.4ERs in the Paris Agreement Crediting Mechanism Registry](#)", January 2025.
25. IETA, "[Draft Submission to the UNFCCC Article 6.4 Supervisory Body Calls for Input](#)", 19 March 2025.
26. UNIDROIT is an independent intergovernmental organisation composed of 65 member states which represent a variety of different legal, economic and political systems and different cultural backgrounds. UNIDROIT's objective is to modernise, harmonise, and coordinate matters of private law, with a focus on commercial law. To do so, UNIDROIT prepares uniform law instruments, principles and rules. These often take the form of international conventions, designed to apply in preference to a state's domestic law once the formal requirements of that state's domestic law for their entry into force have been met. However, where UNIDROIT does not deem this to be necessary, for example where the scope of the matter does not extend beyond purely contractual relationships and third-party interests, it can choose to draft model laws for states to consider when drafting domestic legislation, general principles for legislators and contracting parties to decide whether to adopt, or legal and contractual guides. Additionally, due to its expertise in the international unification of law, UNIDROIT is often commissioned by other organisations to prepare comparative law studies or draft international conventions as a basis for an organisation's own international instruments.
27. UNIDROIT Working Group on the Legal Nature of Verified Carbon Credits, "[Issues Paper](#)", Fourth Session, 15-17 January 2025, paras 4-7.
28. UNIDROIT, "[Issues Paper](#)", para. 30.
29. The first version of the Draft Principles was published in August 2024 ahead of the third session of the Working Group held in September 2024. The most recent version of the Draft Principles was published in March 2025 ahead of the fifth session of the Working Group held in April 2025. See UNIDROIT Working Group on the Legal Nature of Verified Carbon Credits, "[UNIDROIT Principles on the Legal Nature of Verified Carbon Credits](#)", Fifth Session, 2-4 April 2025.

30. Whereas the most recent version of the Draft Principles was published in March 2025, as of today an updated version of the Issues Paper to accompany this version has yet to be released, and therefore throughout this report we reference the most recent version published in January 2025. See UNIDROIT, "Issues Paper".
31. UNIDROIT, "Principles", commentary 1.1.
32. UNIDROIT, "Principles", paras 3-4; UNIDROIT, "Issues Paper", para.18.
33. UNIDROIT, "Principles", commentary 1.1
34. UNIDROIT, "Principles", Principle 3(2).
35. UNIDROIT, "Principles", Principle 3(3), commentary 1.2, 3.6-3.10; Additionally, though the Principles include certain matters that could be characterised as regulatory law, UNIDROIT states that regulation per se is outside the scope of the UNIDROIT Project, and therefore the Principles generally do not cover rules that are to be enforced by public authorities (such as, for example, in relation to licensing requirements for engaging in activities that concern VCCs). See UNIDROIT, "Issues Paper", para. 13; UNIDROIT, "Principles", commentary 1.1.
36. The most recent version of the Principles dated March 2025 includes placeholder for two new principles: one principle titled "Applicable law" under a new section titled "Private international law", and another principle titled "Procedural law including enforcement" under an additional new section titled "Procedural law including enforcement". As these two new principles currently have no content, and as UNIDROIT has yet to release documentation following the Working Group Session held in April 2025 which could shed light on these newly addressed issues, they have been excluded from our review.
37. UNIDROIT, "Principles", Principle 3(1); In addition to specific definitions incorporated throughout the Principles, a set of overarching definitions are presented including terms relating to the VCC itself and its components (e.g. terms such as "unit" and "verified") as well as terms related to the life cycle of a VCC, including for example definitions for the terms "transfer", "reversal", "revocation" and "retirement". UNIDROIT defines terms broadly, stipulating only the basic characteristics, rather than an exhaustive list of characteristics, for the defined concept. See "Issues Paper", para. 68.
38. UNIDROIT, "Principles", commentary 3.2; UNIDROIT, "Issues Paper", paras 70-72.
39. UNIDROIT, "Principles", commentary 3.4.
40. UNIDROIT, "Principles", Principle 5(1).
41. UNIDROIT, "Principles", Principle 5(2).
42. UNIDROIT, "Issues Paper", para. 88.
43. UNIDROIT, "Principles", Principles 6(1)-6(2).
44. UNIDROIT, "Principles", Principle 7; UNIDROIT, "Issues Paper", para. 89.
45. UNIDROIT, "Principles", Principle 8(2).
46. UNIDROIT, "Principles", Principles 8(1).
47. UNIDROIT, "Principles", Principle 8(5).
48. UNIDROIT, "Principles", Principles 9(1), 9(3).
49. UNIDROIT, "Principles", Principle 9(4), commentary 2.2, commentary 9.4.
50. UNIDROIT, "Principles", Principles 10(1), 10(3).
51. UNIDROIT, "Principles", Principle 10(4), commentary 2.2, commentary 10.4
52. UNIDROIT, "Principles", Principles 11(1)-11(2).
53. UNIDROIT, "Principles", Principles 12(1)-12(6), commentary 12.1.
54. UNIDROIT, "Principles", Principles 13(1), 13(5)-13(7).
55. UNIDROIT, "Principles", Principles 13(3)-13(4).
56. It should be noted that a VCC registry is not considered a custodian for the purpose of this Principle. See UNIDROIT, "Issues Paper", para. 102.
57. UNIDROIT, "Principles", Principles 14(5)-14(6), 15(1)-15(4).
58. UNIDROIT, "Principles", Principles 17(1)-17(2).
59. UNIDROIT, "Principles", Principle 15(3).
60. UNIDROIT, "Principles", Principle 15(5), commentary 15.16.
61. UNIDROIT, "Principles", Principles 17(3)-17(6).
62. UNIDROIT, "Principles", Principle 16.
63. UNIDROIT, "Issues Paper", para. 105.
64. UNIDROIT, "Principles", Principle 18(1).
65. UNIDROIT, "Principles", Principle 20.
66. UNIDROIT, "Principles", Principles 18(2), 22(1).
67. UNIDROIT, "Principles", Principles 19-21.
68. UNIDROIT, "Principles", footnote 2.
69. UNIDROIT, "Issues Paper", para. 118.
70. UNIDROIT, "Issues Paper", paras 119-120.
71. IOSCO, 1; ISDA 2021, 4-5.
72. Insurers such as [Kita](#) and [Oka](#) specialise in carbon market insurance. Larger firms have also started to explore the sector and develop insurance products, including [CFC](#), [Howden](#), [Marsh](#), and [WTW](#).
73. UNIDROIT, "Principles", paras 4-5.