VOLUNTARY CARBON MARKETS

August 2024

G2Z

G2Z is a sustainable consulting firm partnering with companies in a variety of sectors to tackle their upcoming challenges and unlock opportunities regarding sustainable practices. Our services allow companies to understand their environmental impacts and provide solutions for improvement in order to make the world better every day.

We strive to simplify the intricacies of decarbonization within a business. Whether clients are struggling to understand the complexities of measuring, communicating and reducing their greenhouse gas emissions, G2Z is well equip to guide them to the right path. By providing all encompassing bespoke solutions we help please stakeholders, gain new customers, access bank financing, and much more.

Contents

About This Report

This report offers a comprehensive analysis of the Voluntary Carbon Markets (VCMs), exploring their structure, regulatory environment, and the key players involved. It provides an in-depth look at the major standards and methodologies that govern these markets, and delves into the regulatory frameworks that influence VCM operations. Furthermore, it examines a variety of climate action projects within the VCMs, and finally addresses the role of key associations in promoting best practices and ensuring market integrity.

Designed for stakeholders across environmental, corporate, and regulatory sectors, this report aims to provide a clear and concise understanding of the current landscape of Voluntary Carbon Markets, their challenges, opportunities, and their critical role in global climate mitigation strategies. It serves as an essential resource for anyone looking to engage with or understand the complexities and potentials of carbon markets in driving forward environmental and corporate sustainability goals.

Executive Summary

Major Standards & Methodologies:

- **Verra:** Develops robust methodologies ensuring the credibility, transparency, and environmental integrity of carbon credits, widely influencing VCMs globally.
- **Gold Standard:** Focuses on projects that deliver social, economic, and environmental benefits, aligning closely with the UN Sustainable Development Goals.
- **American Carbon Registry (ACR):** Known for its high standards and rigorous methodologies, ACR certifies projects primarily in the Americas, enhancing the environmental integrity of carbon credits.
- **Climate Action Reserve (CAR):** Provides standards for quantifying and verifying GHG reductions, ensuring projects contribute to sustainable development and meet rigorous environmental standards.
- **The Architecture for REDD+ Transactions (ART):** Aims to promote high-quality REDD+ credits, with stringent requirements to ensure emission reductions are real, quantifiable, and verifiable.
- **Plan Vivo:** Supports community-led land use projects, focusing on long-term sustainability and providing direct benefits to participating communities.

Regulatory Frameworks:

- **Article 6 of the Paris Agreement:** Outlines mechanisms for international emissions reductions trading, focusing on enhancing transparency and avoiding double counting.
- **CORSIA:** Established by ICAO to address emissions from international aviation through offsetting above 2020 levels, promoting sustainable fuel use and operational improvements.

Projects in the VCM:

- **Renewable Energy:** Plays a crucial role by funding clean energy projects, thus contributing to global emissions reductions.
- **Energy Efficiency:** Focuses on projects that improve energy use efficiency, often through technology upgrades and sustainable practices.
- **AFOLU:** Engages in projects that reduce emissions through sustainable land use practices, such as reforestation and improved agricultural methods.

Key Associations:

- **IETA:** Provides a platform for international collaboration on emissions trading, aiming to enhance market mechanisms under the UNFCCC and Paris Agreement.
- **ICROA:** Promotes best practices in the voluntary carbon market, focusing on quality, transparency, and integrity of offset projects.
- **VCMI:** Ensures credible, net-zero aligned participation in VCMs, guiding companies in the responsible use of carbon credits.
- **ICVCM:** Sets high-integrity standards for carbon credits, facilitating the transition towards a sustainable carbon market aligned with global climate goals.

Corporate Alignment:

- **BVCM:** Encourages companies to extend climate action beyond their direct operations, promoting investments in external emissions reduction projects.
- **The Oxford Principles for Net Zero Alignment:** Offers guidelines for integrating carbon offsetting into broader climate goals, ensuring that offsetting supports a transition to net zero.

Overall, this report underscores the integral role of VCMs in global climate strategies, highlighting the critical interplay between regulatory frameworks, project effectiveness, and corporate commitment to sustainability.

Introduction

The voluntary carbon market (VCM) plays a crucial role in global climate change mitigation efforts by providing a platform for private actors to voluntarily buy and sell carbon credits that represent certified removals or reductions of greenhouse gasses. Unlike regulatory or compliance carbon markets, the VCM operates as a decentralized marketplace, driven by private initiatives rather than government regulations. This unique market has experienced significant growth in recent years, attracting investors and buyers aiming to fulfill corporate climate commitments.

The VCM allows carbon emitters to offset their unavoidable emissions by purchasing carbon credits emitted by projects that reduce, avoid, or remove CO2 or equivalent greenhouse gasses. Each credit, equivalent to one metric ton of reduced emissions, can be used to compensate for emissions, becoming an offset once utilized. The market is diverse, with projects falling into two main categories: avoidance projects that prevent emissions entirely, and removal projects that capture and store carbon from the atmosphere.

As the VCM continues to evolve, it presents opportunities for significant investment in climate change mitigation. The market's transparency, pricing mechanisms, and the variety of credits available pose challenges for participants, but efforts are underway to enhance understanding and engagement. With the potential to mobilize substantial climate finance and complement government-led initiatives, the VCM serves as a vital tool in the global fight against climate change.

Distinction between compliance and voluntary carbon markets.

The VCM is a decentralized market where private actors voluntarily buy and sell carbon credits that represent certified removals or reductions of greenhouse gasses, driven by private initiatives rather than government regulations. On the other hand, compliance carbon markets are regulated markets that operate under government-mandated emissions reduction targets and incentive schemes, such as cap-and-trade programs or carbon taxes.

The primary distinction between the two markets lies in their incentive mechanisms. Compliance markets disincentivize carbon emissions by limiting unsustainable activity, while voluntary credits issued for reforesting an area or prompting the use of energy efficient tools to incentivize carbon drawdown. This difference impacts the scope of activity each market can cover, with compliance markets focusing on limiting emissions and the VCM promoting good practices and sustainable development.

Another key difference is the market participants' motivation. Compliance markets are mandatory for organizations that fall under specific emissions thresholds, while participation in the VCM is voluntary. This voluntary nature allows organizations to offset their unavoidable emissions and demonstrate their commitment to reducing their carbon footprint.

Understanding The VCM

The Voluntary Carbon Markets (VCM) originated in the early 1990s when private companies began investing in carbon projects to offset their emissions. The first land-based carbon project was initiated in 1988 when the World Resource Institute (WRI) advised an energy firm to plant trees and slow deforestation. This early initiative laid the foundation for private companies to invest in projects that reduce, avoid, or remove carbon emissions voluntarily. Over time, the VCM evolved, influenced by regulatory frameworks and changes in compliance markets, such as the Kyoto Protocol in the early 2000s and ongoing COP negotiations. The VCM emerged to fill the gap left by the limited reach of compliance markets, allowing companies to offset their unavoidable emissions and demonstrate their commitment to reducing their carbon footprint

Historical development and current scale of VCMs.

The Clean Development Mechanism (CDM) played a pivotal role as the first form of offsetting and the beginning of the Voluntary Carbon Market (VCM). Established in 2006 based on the Kyoto Protocol, the CDM allowed emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO2. These CERs could be traded and sold, providing industrialized countries with a means to meet a part of their emission reduction targets under the Kyoto Protocol. The CDM stimulated sustainable development and emission reductions while offering industrialized countries flexibility in meeting their emission reduction targets. The CDM is supervised by the CDM Executive Board (CDM EB) under the guidance of the Conference of the Parties (COP) of the UNFCCC.

The CDM served as a precursor to the VCM by demonstrating the feasibility and benefits of offsetting emissions through certified projects. As the VCM emerged alongside compliance markets, it enabled companies and individuals to take responsibility for their emissions by financially supporting climate projects through trading and purchasing

Verified Emission Reductions (VERs). These VERs, each representing the prevention of one tonne of CO2 equivalent emissions, are issued by certified climate projects and managed under standards that will be outlined later in this report.

The CDM has been successful in registering nearly 6,600 projects and issuing around 1.2 billion tonnes of CO2 equivalent certified emission reductions (CERs) between its launch and 2012. However, the credit price gradually fell, from €25 per tonne of CO2 in 2008 to €0.5 per tonne of CO2 in 2012, leading to a 'carbon panic' and the collapse of the CDM scheme. That being said, The CDM's establishment and subsequent evolution paved the way for the VCM, providing a foundation for private actors to engage in voluntary carbon offsetting and contribute to global climate change mitigation efforts. The VCM's growth and impact have been significant, with billions of tonnes of CO2e VERs issued, demonstrating the market's potential to mobilize climate finance and complement government-led initiatives in combating climate change.

Key drivers behind the growth of VCMs.

In the context of ESG reporting, sustainability standards and frameworks serve distinct yet complementary roles. Standards provide specific, detailed, and replicable requirements for reporting on each topic, including metrics, ensuring consistency and comparability in disclosures. On the other hand, frameworks offer principles-based guidance on how information is structured, prepared, and what broad topics are covered.

Frameworks focus on guiding principles and what information should be collected, providing a broad guideline for reporting. While standards give structure and specific metrics for reporting, frameworks set the stage for collecting relevant information in a structured manner. Ultimately, the combination of standards and frameworks ensures that ESG disclosures are not only consistent but also comprehensive and comparable across different organizations and industries

Participants

Project Developers

Project Financers/Investors

Verifiers

Brokers

End Users

These are entities that set up projects issuing carbon credits, which can range from large-scale renewable energy projects to small-scale community-based initiatives. Project developers represent the upstream part of the market and are responsible for ensuring that projects comply with all legal requirements and provide additional co-benefits in line with international standards.

These are entities that provide financial resources to project developers to set up and run carbon credit projects. They can include banks, hedge funds, private equity firms, and other financial institutions.

These are independent third-party entities that verify the emissions reductions or removals claimed by carbon credit projects. They ensure that the projects meet the criteria for additionality, permanence, avoidance of double counting, and regular independent audits.

These are entities that act as intermediaries between buyers and sellers of carbon credits. They can also act as traders, buying and selling carbon credits on their own account.

These are entities that purchase carbon credits to offset their emissions. They can include corporations and individuals who are unable to reduce their emissions and want to compensate for their carbon footprint. End users can also include governments, non-governmental organizations, and universities and colleges that purchase carbon credits for investment purposes or to support climate projects.

Major Standards & Methodologies

Verra

Verra is a leading organization in the voluntary carbon market (VCM), providing rules, requirements, and methodologies to guide stakeholders in the development of carbon offset projects. Verra's Verified Carbon Standard (VCS) is one of the most widely used standards for certifying carbon credits. The VCS program focuses on ensuring the credibility, transparency, and environmental integrity of carbon credits traded in VCMs.

Verra's methodologies set out detailed procedures for quantifying the actual greenhouse gas benefits of a project and provide baselines, assess additionality, and quantify the GHG emissions that were reduced or removed. Verra methodologies cover a wide range of sectors, including energy efficiency, renewable energy, waste management, agriculture, and land use. Verra also accepts methodologies developed under the United Nations Clean Development Mechanism (CDM) and the Climate Action Reserve.

Verra has been advancing the development of new VCS methodologies, such as the rice production methodology, which replaces the UNFCCC Clean Development Mechanism (CDM) methodology. This new methodology streamlines the implementation process while enabling project proponents to credibly achieve emission reductions and generate high-quality Verified Carbon Units (VCUs).

Verra also plays a role in the development of methodologies for emerging sectors, such as carbon capture and storage (CCS). Verra's CCS Methodology Framework provides a set of modules for capture, transport, and storage of a CCS project that can be combined, depending on the specific design of the CCS project or technologies implemented.

Verra's methodologies undergo a thorough review process, including public consultation and assessment by independent Validation and Verification Bodies (VVBs). Verra's methodology development and review process ensures that the methodologies are robust, transparent, and consistent with the latest scientific and technical knowledge.

Verified Carbon Standard
A VERRA STANDARD

Gold Standard (GS)

Gold Standard is a voluntary carbon offset program that puts the UN Sustainable Development Goals (SDGs) front and center when certifying offset projects. It was developed with the leadership of the World Wildlife Fund (WWF), HELIO International, and SouthSouthNorth. Gold Standard focuses on offset projects that provide lasting social, economic, and environmental benefits. The program is applicable to both voluntary offset projects and to Clean Development Mechanism (CDM) projects.

Gold Standard projects fall under major categories such as renewable energy, reforestation, and community service projects (waste management). Most of the projects are in developing, low, and middle-income countries. The program is unique in its emphasis on contributing to at least 3 out of 17 UN SDGs to be certified.

To be certified by Gold Standard, a carbon offset project must perform an assessment of its community impact and ensure that nearby populations also benefit from the project. The Gold Standard is considered one of the most rigorous carbon credit programs, with over 80 NGOs endorsing it, including the David Suzuki Foundation and WWF.

Gold Standard has a project registry that contains all projects implemented through the program, which took off in 2018. The program is known for its impact, creating more value for local communities and ecosystems while contributing measurably to the UN SDGs.

Gold Standard for the Global Goals

American Carbon Registry (ACR)

The American Carbon Registry (ACR) is a leading voluntary carbon offset program in the United States. Established in 1996, ACR was the first private registry for voluntary carbon markets, focusing on projects in the Americas, including Canada and Latin America. ACR is recognized for its rigorous standards and methodologies that ensure the credibility, transparency, and environmental integrity of carbon credits traded in the voluntary carbon market (VCM).

ACR's methodologies cover a wide range of sectors, including renewable energy, reforestation, and community service projects (waste management). These methodologies are developed through a thorough review process, including public consultation and assessment by independent Validation and Verification Bodies (VVBs). ACR's methodologies ensure that the quantification of greenhouse gas benefits of a project is robust, transparent, and consistent with the latest scientific and technical knowledge.

ACR is known for its commitment to promoting high-quality carbon offset projects that provide lasting social, economic, and environmental benefits. The program emphasizes contributing to at least three out of 17 UN Sustainable Development Goals (SDGs) to be certified, ensuring that projects not only reduce greenhouse gas emissions but also contribute to broader societal and environmental objectives.

Climate Action Reserve (CAR)

The Climate Action Reserve (CAR) is a USA-based voluntary offsets program that establishes standards for quantifying and verifying greenhouse gas (GHG) emissions reduction projects. CAR provides oversight to independent third-party verification bodies and issues and tracks carbon credits, called Climate Reserve Tonnes (CRTs). The Reserve guides the development of project protocols in accordance with the principles in its Climate Action Reserve Program Manual.

CAR typically adopts performance-based project protocols using industry benchmarks and other defined eligibility criteria that a project must meet to show climate impact and be eligible for CRT generation. The process for protocol development includes a CAR staff-managed expert and stakeholder working group process, public comment, and finally the board approval process.

CAR's methodologies cover a wide range of sectors, including renewable energy, reforestation, and community service projects (waste management)1. These methodologies are developed through a thorough review process, including public consultation and assessment by independent Validation and Verification Bodies (VVBs).

CAR emphasizes contributing to at least three out of 17 UN Sustainable Development Goals (SDGs) to be certified, ensuring that projects not only reduce greenhouse gas emissions but also contribute to broader societal and environmental objectives.
CAR's GHG emission reduction program, including its project-specific protocols and its verifier accreditation and oversight program, has been approved under the Verified Carbon Standard (VCS). CRTs issued by the Reserve can be converted into Verified Carbon Units (VCUs) and transferred to a VCS registry.

CLIMATE
ACTION
RESERVE

The Architecture for REDD+ Transactions (ART)

The Architecture for REDD+ Transactions (ART) is a global initiative that aims to promote the environmental and social integrity, and ambition, of carbon credits generated from Reducing Emissions from Deforestation and Forest Degradation (REDD+) projects. ART is a voluntary carbon program that focuses on registering, verifying, and issuing high-quality REDD+ emissions reduction credits to countries and jurisdictions to attract REDD+ finance at scale.

ART's vision is to provide the confidence needed in the integrity of forest emissions reductions to unlock new, large-scale investments to protect and restore forests and reward countries that are delivering those results. ART promotes national ambition and contributes to Paris Agreement goals, with a governance structure managed by globally recognized, independent, and objective experts.

The REDD+ Environmental Excellence Standard (TREES) is the standard used by ART to promote ambition and includes precise technical, safeguard, verification, and registration requirements for jurisdictional crediting of emission reductions from reduced deforestation and degradation. TREES creates emission reduction credits that are comparable and fungible with ERs from other sectors and can be used in voluntary and compliance carbon markets.

Eligible TREES participants include national or subnational govrnments with national government approval, and subnational accounting areas must meet TREES eligibility requirements, with boundaries corresponding with one or several administrative jurisdictions no more than one level down from the national level. Subnational areas must encompass a minimum area of 2.5 million hectares of forest.

ART's emission reduction credits, called Emission Reduction (ER) credits, are issued after independent verification for conformance with TREES and approval by the ART Board. The crediting level is based on a 5-year historical average of emissions, recalculated at the start of each crediting period and valid for five years.

ART's validation and verification process includes validation after the first year of each 5-year crediting period and verification required after years 1, 3, and 5, with no credits issued without verification. Validation and Verification Bodies (VVB) are accredited by the International Accreditation Forum (IAF) organization and submit applications to ART for assessment.

ART
Architecture for
REDD+ Transactions

Plan Vivo

Plan Vivo is an internationally recognized Voluntary Carbon Market Standard for community land use projects and support for small communities. The Plan Vivo Standard was born with the objective of supporting peasants in Chiapas, Mexico, through actions of restoration, reforestation, and management of their territories, allowing them to diversify their livelihoods. The Plan Vivo Foundation has evolved the Standard towards a system that enables environmental and social benefits to be provided to communities around the world.

Plan Vivo's certification demonstrates that a project is sustainable in the long term, benefits people's livelihoods, and provides climate benefits. The Plan Vivo Standard seeks equitable participation, with 60% of the income from the sale of Plan Vivo Certificates going to direct payment to participating communities and smallholders.
The principles of the Plan Vivo Standard are:

1. Alleviate poverty by offering sustainable livelihoods to communities whose environments have been degraded.
2. Restore and protect the environment, to help protect communities from facing climate change and provide a variety of sustainable development benefits.
3. Strengthening of local capacity through the transfer of knowledge, skills, and resources to developing countries.

Plan Vivo has recently launched a pioneering, high-integrity biodiversity Standard, which is now live and set to deliver a step change in impact for nature. The Plan Vivo Standard is evolving to become 'PV Climate' in line with the launch of PV Nature.

PLAN VIVO
For nature, climate and communities

Regulatory Frameworks

Article 6 of The Paris Agreement (6.2 and 6.4)

The Paris Agreement, specifically Article 6, has significantly impacted the Voluntary Carbon Markets (VCMs). Article 6.2 and 6.4 indirectly reference the VCM when discussing "other international mitigation purposes," which includes "international mitigation purposes other than the achievement of an NDC" and "other purposes as determined by the first transferring participating Party". This means that if a country authorizes a carbon credit as eligible for trade under Article 6.2 or 6.4, it must have a Corresponding Adjustment (CA). However, if a country does not authorize a carbon credit for trade under the VCM, no CA is needed.

The application of CAs can create unnecessary obstacles for a host country in achieving its NDC, and there are differing opinions on whether CAs should be applied to avoid double counting in the VCM. The decision to apply CAs depends on the country's NDC, accuracy of its inventory and measurement, reporting, and verification (MRV) system, and its plans, finances, and progress in implementing national climate policies.

International agreements and national policies can impact VCMs by influencing the behavior of those using carbon crediting. Authorizing CAs sends policy signals that may encourage or discourage enhanced mitigation action. The Paris Agreement introduces four major shifts that have implications for the voluntary carbon market, and which it needs to align with to maintain integrity, reflect new norms and continue to drive additional, ambitious action.

The voluntary carbon market risks losing market share and buying interest from corporates due to the inclusion of the Article 6 mechanism. Some experts expect the VCM to survive, but it may face headwinds as the Article 6 mechanism gains traction[5]. The inclusion of VCM in domestic, compliance carbon pricing schemes could help support the market, but not all countries are on board.

CORSIA

CORSIA, the Carbon Offsetting and Reduction Scheme for International Aviation, is a global market-based measure developed by the International Civil Aviation Organization (ICAO) to address CO2 emissions from international aviation. CORSIA aims to stabilize aviation's net CO2 emissions by offsetting any growth above 2020 levels, while encouraging emissions reduction measures like technology improvements, sustainable aviation fuel, and operational enhancements. This scheme is a global offsetting program where airlines and aircraft operators offset emissions above a baseline, contributing to mitigating around 2.5 billion tonnes of CO2 between 2021 and 2035.

The use of voluntary carbon credits within CORSIA is a key aspect of the scheme. CORSIA allows airline operators to offset their emissions by purchasing carbon credits from approved programs, such as the American Carbon Registry (ACR), Verra, and Gold Standard, subject to approval by the ICAO Council. These carbon credits must meet specific criteria to ensure their environmental integrity and contribution to emission reductions. The voluntary carbon credits play a crucial role in helping airlines meet their offsetting obligations under CORSIA, providing a mechanism for them to balance their emissions and support emission reduction projects globally.

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) is implemented in different phases with specific dates and requirements:

1. Initial Voluntary Phases:
    a. **Phase 1 (2021-2023):** During this phase, CORSIA is voluntary, and it applies to international flights between states that have volunteered to participate. International flights to and from states that have not volunteered are exempt.
    b. **Phase 2 (2024-2026):** Similar to Phase 1, this phase remains voluntary and covers international flights between participating states. It continues to exempt flights to and from non-volunteering states.
2. Mandatory Phase:
    a. **Phase 3 (From 2027):** The mandatory phase of CORSIA begins in 2027 and covers all international flights, including those to and from states that did not volunteer for the earlier phases. Exceptions include Least Developed Countries, Small Island Developing States, and Landlocked Developing Countries, although they can volunteer to participate.

These phases of CORSIA aim to gradually transition from voluntary to mandatory participation, ensuring that international aviation emissions are effectively offset and controlled.

CORSIA

Projects in the VCM

Projects Types

Carbon avoidance projects, carbon reduction projects, and carbon removal projects are all important strategies in the fight against climate change, but they have distinct differences in their approach and impact.

Carbon Avoidance

Carbon avoidance projects are proactive measures that aim to prevent the emission of carbon into the atmosphere in the first place. They can be divided into two categories: carbon offsets and direct carbon reduction measures. Carbon offsets involve supporting projects that reduce or remove carbon emissions elsewhere to compensate for an organization's or individual's own carbon footprint. Direct carbon reduction measures involve implementing practices that reduce carbon emissions within the organization or individual's own operations.

Carbon Reduction

Carbon reduction projects, on the other hand, can be grouped into two main categories: carbon removal and carbon avoidance projects. Carbon removal projects involve the physical removal of existing carbon from the atmosphere, either through technological means, such as direct air capture, or natural means, such as reforestation and afforestation. Carbon avoidance projects, as mentioned earlier, focus on preventing the release of carbon into the atmosphere by targeting activities that emit carbon, such as industrial burning of fossil fuels and deforestation.

Carbon Removal

Carbon removal projects are reactive measures that aim to eliminate carbon emissions after they have entered the atmosphere. They can be divided into two categories: technological and natural carbon removal. Technological removal involves specialized technology that extracts carbon from the atmosphere, while natural removal involves carbon storage in vegetation, soils, and oceans.

Renewable Energy

Renewable energy projects play a significant role in the Voluntary Carbon Market (VCM) by contributing to emission reductions and promoting sustainable energy practices. These projects focus on generating clean energy from renewable sources like wind, solar, and hydropower, thereby reducing greenhouse gas emissions and combating climate change. Renewable energy projects under the VCM aim to accelerate the global adoption of renewables by funneling finance towards the deployment of these environmentally friendly energy sources.

The VCM has been instrumental in financing renewable energy projects, such as wind, solar, and hydropower plants, over the past two decades. These projects have received significant investments to support their development and operation while generating carbon credits through emission reductions or avoidance. The VCM has played a crucial role in overcoming financial, economic, and technical barriers that hindered the widespread deployment of renewable energy technologies globally

Energy Efficiency

Energy efficiency projects in the Voluntary Carbon Market (VCM) focus on reducing or eliminating emissions by implementing cleaner technologies, energy efficiency measures, or adopting sustainable practices. These projects aim to minimize energy waste and greenhouse gas (GHG) emissions in various sectors, such as buildings, industries, transportation, and appliances.

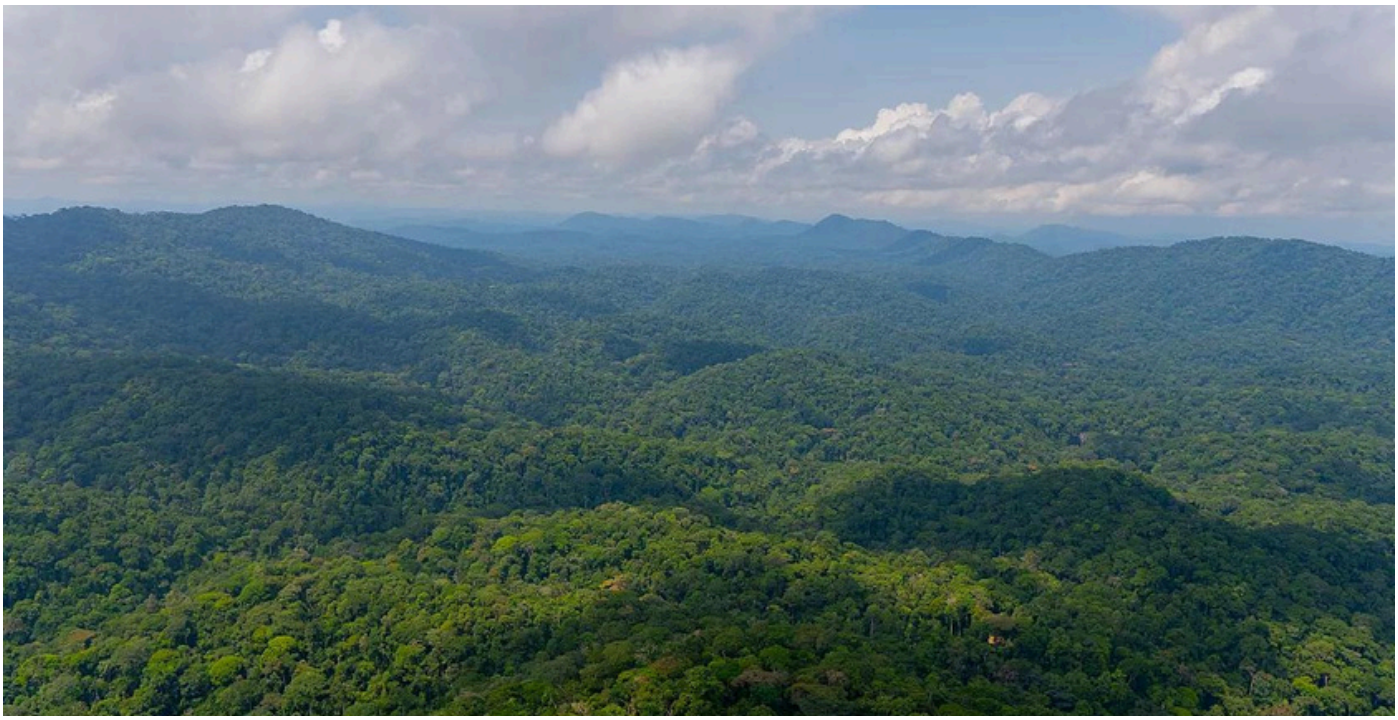
One notable example of energy efficiency projects in the VCM is the use of **efficient cookstoves**, such as those supported by Carbonfund, DelAgua, and South Pole. These projects involve the distribution and promotion of energy-efficient cooking solutions in developing regions, like Kenya, where traditional cooking methods contribute significantly to GHG emissions and indoor air pollution.

Water purification projects are another type of energy efficiency initiative in the VCM. These projects focus on providing clean water access to communities while reducing energy consumption and GHG emissions associated with conventional water treatment methods. By implementing energy-efficient filtration systems and promoting sustainable water management practices, these projects contribute to both climate change mitigation and improved living conditions for affected populations.

Energy efficiency projects in the VCM offer several benefits, including reduced carbon emissions, improved energy security, and the promotion of energy decentralization. These projects are also relatively cost-effective, making them an attractive option for organizations and individuals looking to offset their carbon footprint and support sustainable development.

However, energy efficiency projects in the VCM can face challenges such as a lack of additionality, standardization, and monitoring, which can impact their effectiveness and credibility. It is essential to ensure that these projects meet stringent standards and verification criteria to ensure their environmental integrity and contribution to climate change mitigation efforts.

AFOLU



Agriculture, Forestry, and Other Land Use (AFOLU) projects in the Voluntary Carbon Market (VCM) focus on reducing or eliminating emissions by implementing sustainable land use practices, conserving forests, and enhancing carbon sequestration in soils. These projects play a significant role in the VCM, with many offset programs offering several accepted project types in AFOLU categories such as afforestation, reforestation, improved forest management, agricultural land management, agroforestry, avoided conversion of grasslands and shrublands, livestock management, reduced emissions from deforestation and degradation, and wetland restoration and conservation.

AFOLU projects in the VCM offer various benefits, including carbon sequestration, biodiversity conservation, and sustainable livelihoods for local communities. These projects contribute to climate change mitigation by reducing greenhouse gas emissions and enhancing carbon sinks, which help to offset emissions from other sectors.

Examples of AFOLU project types in the VCM include:

- **Afforestation/Reforestation (A/R):** These projects involve planting new trees or restoring existing forests on previously deforested or degraded lands. A/R projects contribute to carbon sequestration, biodiversity conservation, and sustainable land use practices.
- **Improved Forest Management (IFM):** IFM projects focus on enhancing the sustainable management of forests, reducing deforestation, and promoting the conservation of forest ecosystems. These projects contribute to carbon sequestration, biodiversity conservation, and sustainable livelihoods for local communities.
- **Agricultural Land Management (ALM):** ALM projects involve implementing sustainable agricultural practices, such as conservation agriculture, agroforestry, and sustainable livestock management. These projects contribute to carbon sequestration, improved soil health, and sustainable livelihoods for local communities.
- **Reduced Emissions from Deforestation and Forest Degradation (REDD+):** REDD+ projects aim to reduce emissions from deforestation and forest degradation in developing countries. These projects contribute to carbon sequestration, biodiversity conservation, and sustainable livelihoods for local communities.

AFOLU projects in the VCM are subject to specific standards and regulations to ensure their environmental integrity and contribution to climate change mitigation efforts. These standards include the Verified Carbon Standard (VCS), the Climate Action Reserve (CAR), and the Gold Standard Impact Registry, among others. These standards ensure that AFOLU projects are real, quantifiable, and verifiable, and that they contribute to sustainable development goals and co-benefits.

Other

Fugitive emissions projects in the VCM focus on reducing or eliminating emissions from sources such as oil and gas operations, coal mining, and landfills. These projects involve implementing measures to capture or prevent the release of greenhouse gasses into the atmosphere, such as the use of flare reduction technologies, landfill gas capture systems, and enhanced oil recovery techniques.

Industrial process emissions projects in the VCM focus on reducing or eliminating emissions from industrial processes, such as cement production, steel manufacturing, and chemical production. These projects involve implementing measures to capture or prevent the release of greenhouse gasses into the atmosphere, such as the use of carbon capture and storage technologies, energy efficiency measures, and process optimization techniques.

Waste diversion projects in the VCM focus on reducing or eliminating emissions from waste management activities, such as landfills, wastewater treatment, and organic waste processing. These projects involve implementing measures to capture or prevent the release of greenhouse gasses into the atmosphere, such as the use of anaerobic digestion, composting, and recycling technologies.

Blue carbon projects in the VCM focus on reducing or eliminating emissions from coastal and marine ecosystems, such as mangroves, seagrasses, and tidal marshes. These projects involve the restoration and conservation of these ecosystems, which contribute to carbon sequestration and the removal of CO2 emissions from the atmosphere.

Overall, the VCM encompasses various project categories aimed at reducing greenhouse gas emissions. By diversifying their portfolio of carbon offset projects, companies can contribute to different sectors and maximize their environmental impact.

Key Associations & Initiatives

IETA

The International Emissions Trading Association (IETA) is a non-profit business organization established in June 1999 with the mission to create an international framework for trading in greenhouse gas (GHG) emission reductions. IETA's membership comprises leading international companies from across the carbon trading cycle, including some of the largest international banks, energy and industrial companies, and NGOs active in the environment and conservation.

IETA's primary objective is to empower businesses to engage in climate action, advancing the goals of the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, as informed by IPCC science. IETA aims to establish effective market-based trading systems for GHG emissions and removals that are environmentally robust, fair, open, efficient, accountable, and consistent across national boundaries.

IETA offers a wide range of resources, including educational materials, advocacy tools, and trading documentation, to support businesses and individuals involved in carbon markets. The organization's knowledge hub includes Emissions Trading 101, which explains different aspects of the carbon market, such as offsetting, monitoring, reporting, and verification (MRV), allocations, and Article 6. The Carbon Market Readiness Training Guide aids those new to emissions trading or those preparing for a market. Carbon Market Business Briefs give an overview of the world's emissions trading systems, and From Kyoto to Paris charts the development of the carbon market's early years to the Paris Agreement, offering lessons for the future.

Membership in IETA is open to companies, business organizations, and affiliated national and regional trading associations involved in the greenhouse gas emissions trading market in developed, emerging economies, and developing countries. Membership benefits include carbon market intelligence, shaping policy, access to policy makers, networking opportunities, multi-sectoral advocacy, and a global reach. IETA's members include greenhouse gas emitters, verifiers, certifiers, auditors, investors, insurers, traders, brokers, financial and commodity exchanges, and other companies serving the greenhouse gas emissions trading market.

IETA
INTERNATIONAL EMISSIONS TRADING ASSOCIATION

ICROA

The International Carbon Reduction and Offset Alliance (ICROA) is an industry trade group established in 2008, with the aim to promote self-regulation in the voluntary carbon offset market based on its ICROA Code of Best Practices. ICROA works to improve the quality, transparency, and integrity of carbon offset projects worldwide and provides a platform for collaboration and sharing knowledge between its members.

ICROA membership comprises global organizations, including businesses, academic institutions, charities, and government organizations. Examples of members include Microsoft, World Resources Institute, the Nature Conservancy, EcoAct, WWF, and the Climate Action Reserve.

ICROA differs from other carbon offset organizations because it is specifically focused on certifying and verifying carbon offsets, with a comprehensive set of international standards and best practices to ensure that all carbon offset projects meet the highest environmental integrity and quality levels.

ICROA provides a much-needed international standard for carbon offsets that can be recognized globally, an essential part of the global effort to reduce carbon emissions. ICROA helps countries and businesses take legitimate steps to reduce their environmental impact with verified projects, contributing to a more sustainable future with continued support and international cooperation.

ICROA promotes responsible corporate climate action by establishing a framework based on the following principles:

- **ICROA Code of Best Practice:** This code outlines international carbon reduction standards and is the minimum requirement for all members. It includes principles such as real, additional, measurable, independently verified, permanent, unique, and promoting sustainable development in projects.
- **Quality Assurance Label:** This serves as an assurance and accreditation mark for carbon offset projects and providers, helping consumers and businesses identify offset projects that adhere to quality standards and criteria.
- **Quality Assurance Standard:** This outlines the minimum requirements for the quality of carbon offset projects, covering all aspects of project development, including project design, monitoring, and verification.

ICROA
International Carbon Reduction & Offsetting Accreditation

VCMI

The Voluntary Carbon Markets Integrity Initiative (VCMI) is a multi-stakeholder platform established to drive credible, net-zero aligned participation in voluntary carbon markets. VCMI aims to ensure a clear understanding of the role that carbon credits play as a mechanism to deliver carbon finance to where it is most needed and how these can be used as part of broader net-zero transitions by companies and non-state actors (NSAs).

VCMI's key focus is on achieving the goal of keeping global warming to 1.5°C above pre-industrial levels through a just transition that enhances equality and sustainable development for all. The initiative recognizes the critical role voluntary carbon markets play in benefiting the climate, nature, societies, and economies.

In November 2023, VCMI introduced additional guidance for its Claims Code of Practice, allowing firms to make claims about their use of high-quality carbon credits. This guidance encompasses a Monitoring, Reporting, and Assurance (MRA) Framework, an identity mark for asserting 'Carbon Integrity' Claims, and an initial version of an added claim, labeled 'Scope 3 Flexibility'.

VCMI's new guidance is designed to provide strong assurance that carbon finance will help deliver greater climate action, enabling companies to make Silver, Gold, or Platinum Claims about their use of high-quality carbon credits. This empowers companies to declare their use of high-quality carbon credits, channeling financial support toward initiatives that counteract climate change and showcase their efforts in surpassing science-based emissions reductions.

VCMI's work is crucial for building trust and bolstering confidence in how companies participate in voluntary carbon credit markets, ensuring that carbon credits genuinely represent verified reductions and removals of emissions, complying with robust environmental and social standards. The initiative's guidelines for credible claims ensure that companies can credibly use carbon credits and be confident in doing so, contributing to a more sustainable future with continued support and international cooperation.

VCMI

ICVCM

The Integrity Council for the Voluntary Carbon Market (ICVCM) is an independent governance body for the voluntary carbon market, established to ensure that the market accelerates a just transition to 1.5°C by setting and enforcing definitive global threshold standards based on the best available science and expertise. The ICVCM plays a crucial role in mobilizing finance towards urgent mitigation and climate-resilient development by ensuring that high-quality carbon credits are efficiently utilized.

The ICVCM comprises a diverse range of expertise from across the voluntary carbon market ecosystem, including scientific, financial, practitioner, NGO, policy, indigenous, local, and other forms of knowledge. The council's board consists of 22 members representing key stakeholder groups, such as experts in carbon market technologies, sustainable finance, eNGOs, UNFCCC process expertise, regulatory affairs, the corporate sector, science and academia, local communities, and indigenous peoples.

The Core Carbon Principles (CCPs) established by the ICVCM set a high-integrity threshold for carbon credits, ensuring that they are real, additional, measurable, independently verified, permanent, unique, and promote sustainable development. These principles are informed by insights and experiences from over 350 organizations, including carbon-crediting programs, project developers, academics, NGOs, policymakers, buyers, and investors, who participated in a public consultation to define high integrity standards for carbon credits.

The Integrity Council for the Voluntary Carbon Market (ICVCM) has recently announced the first CCP-eligible carbon credit programs, which include the American Carbon Registry (ACR), Climate Action Reserve (CAR), and Gold Standard. These programs have undergone an eligibility assessment to meet the Core Carbon Principles (CCPs), which aim to standardize the quality of carbon credits sold on the voluntary market. The CCPs were developed through global cooperation from every stakeholder in the carbon world and are expected to become a new benchmark for high-integrity supply-side claims for the global voluntary carbon market.

The ICVCM's CCP Assessment Framework sets out key eligibility criteria required to meet the CCPs, which include additionality, permanence, robust quantification of emission reductions or removals, no double-counting, sustainable development, and safeguards. Those approved could then display a CCP 'label' that would help buyers identify high-quality carbon credits.

The CCPs are designed to ensure transparency, accountability, continuous improvement, and the overall quality of carbon credits. The governance-related principles account for almost half of the rules, emphasizing the importance of good governance for ensuring the quality of carbon credits. The principles include effective governance, tracking, transparency, and robust independent third-party validation and verification.

Effective governance requires transparency, accountability, continuous improvement, and overall quality of carbon credits, which includes meeting governance requirements set out in CORSIA and a transparent and robust corporate governance framework. Tracking ensures that carbon credits can be identified securely and tracked to prevent double-counting, which is a key element to improve the integrity of the voluntary carbon market. Transparency requires comprehensive and transparent information on all credited mitigation activities, which should be publicly available in electronic format and accessible to non-specialized audiences. Robust independent third-party validation and verification ensure that validation and verification bodies have clear rules for accreditation, performance review, and standard development.

The ICVCM's CCPs are expected to become a defining feature of the voluntary carbon market, with only a small proportion of credits in the market confidently meeting CCP eligibility criteria. More specifically, only 6.4% of all carbon credits issued into the market confidently meet CCP eligibility criteria.

The ICVCM's work is essential for building trust and confidence in the voluntary carbon market, ensuring that carbon credits genuinely represent verified emissions reductions and removals while complying with robust environmental and social standards. By establishing a framework for high-integrity carbon credits, the ICVCM aims to unlock finance for emissions reduction and removal projects, contributing to the global effort to limit warming to 1.5°C and achieve a more sustainable future.

Corporate Alignment

Corporations across the globe are in a challenging position when deciding when and how to use offsets. Some believe that the market mechanism is essential for advancing towards our climate goals and others believe it is a hundurance that holds us back from making real impactful emission reduction. The following section will outline some guidance on what is believed to be best practice when it comes to offsetting. This will include Beyond Value Chain Mitigation by the Science Based Targets initiative as well as The Oxford Principles for Net Zero Aligned Carbon Offsetting.

Beyond Value Chain Mitigation (BVCM)

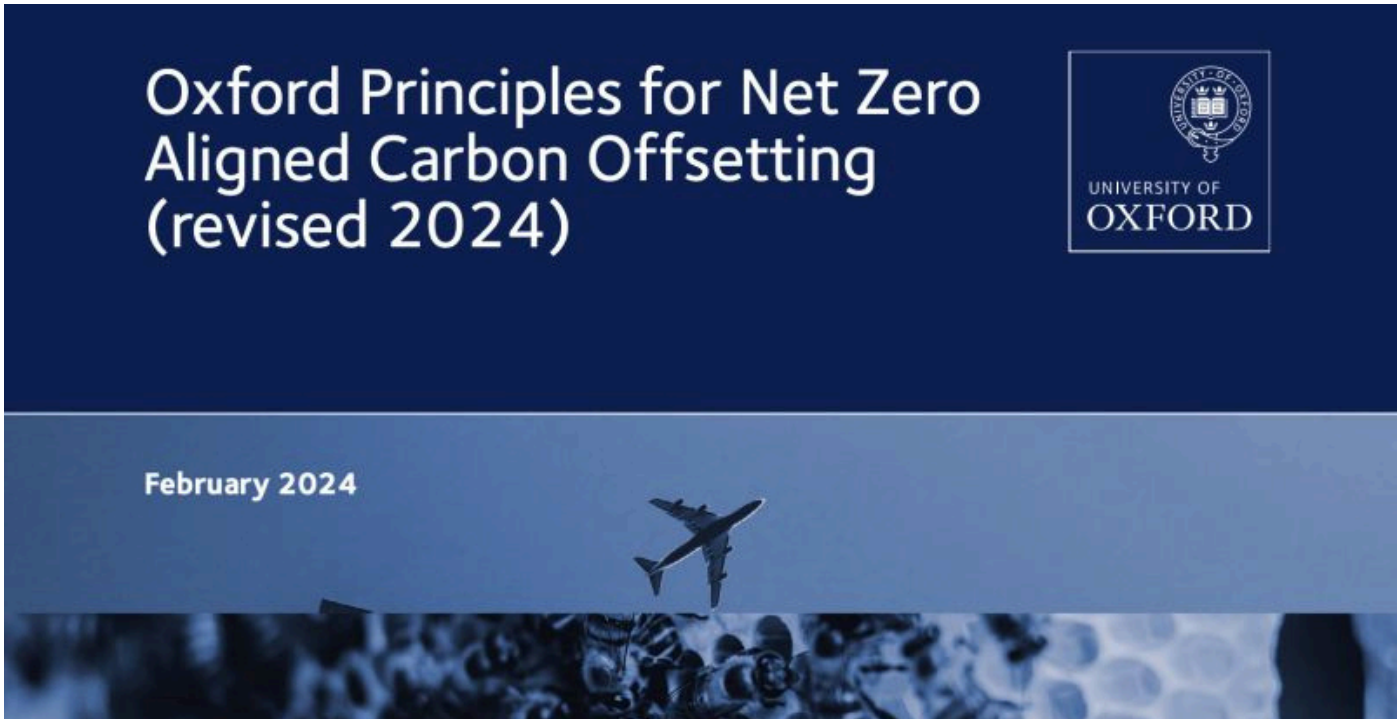
Beyond Value Chain Mitigation (BVCM) is a mechanism for companies to accelerate the global net-zero transformation by going beyond their own value chains and investing in activities that avoid or reduce greenhouse gas emissions, or remove and store GHGs from the atmosphere. BVCM is defined by the Science Based Targets initiative (SBTi) as mitigation action or investments that fall outside a company's value chain, including activities that avoid or reduce GHG emissions, or remove and store GHGs from the atmosphere.

BVCM is important for companies to extend the impact of their climate action beyond their own value chains. It can unlock an array of opportunities, mitigate future risks, and protect and enhance long-term value. The business case for BVCM depends on the region, market, and industry in which the company operates and is influenced by the extent to which the company is aligned with the broader climate ecosystem, including policy, financial markets, consumer markets, society, and technology.

To implement BVCM, companies can adopt several strategies, including partnerships, investing in high-impact projects, and leveraging industry influence. Partnerships can involve collaborating with other companies, NGOs, or governments to support climate action beyond a company's value chain. Investing in high-impact projects can include funding projects that have a significant impact on reducing emissions or removing GHGs from the atmosphere. Leveraging industry influence can involve using a company's position in the industry to advocate for policies or practices that lead to broader reductions in emissions.

The SBTi recommends that all companies take action to deliver BVCM as they transition to net-zero. In February 2024, the SBTi published "Above and Beyond: An SBTi report on the design and implementation of beyond value chain mitigation (BVCM)" to support the BVCM recommendation and help companies design and implement BVCM strategies to accelerate progress towards global net-zero.

Oxford Principles for Net Zero Aligned Carbon Offsetting



The Oxford Principles for Net Zero Aligned Carbon Offsetting provide a comprehensive framework to guide organizations, cities, and companies in designing and implementing strategies to achieve net zero carbon emissions. These principles aim to ensure that offsetting practices align with net zero goals and contribute effectively to global climate action. The key elements of the Oxford Principles for Net Zero Aligned Carbon Offsetting are as follows:

- Cut emissions, use high-quality offsets, and regularly revise offsetting strategy as best practice evolves: This principle emphasizes the importance of prioritizing emissions reduction efforts within organizations, using high-quality offsets that are verifiable and have low risks of non-additionality, reversal, and negative unintended consequences. It also highlights the need for transparency in disclosing emissions, accounting practices, and offset types employed.

- Shift to carbon removal offsetting: The second principle focuses on transitioning to carbon removal offsetting to address any residual emissions that cannot be eliminated through emission reductions alone. Carbon removals directly extract carbon from the atmosphere, and organizations are encouraged to increase the proportion of offsets coming from carbon removals, aiming for 100% carbon removals by mid-century to align with the goals of the Paris Agreement.

- Shift to long-lived storage: Principle three underscores the importance of storing carbon in a manner that ensures durability and minimizes the risk of reversal. It highlights the need to move towards long-lived storage methods that securely sequester carbon over extended periods, contributing to the long-term goal of achieving net zero emissions.

- Support the development of innovative and integrated approaches to achieving net zero: The fourth principle advocates for stimulating the development of carbon removals and exploring a range of approaches beyond traditional offsetting via carbon credits. It emphasizes the importance of proactive engagement in supporting carbon removal projects and fostering the growth of innovative solutions to accelerate progress towards net zero.

The Oxford Principles for Net Zero Aligned Carbon Offsetting have been updated in February 2024 to reflect the changes in emissions offsetting and the world's carbon markets. The updated principles aim to provide guidance for companies, states, and other actors who wish to offset their CO2 emissions by purchasing carbon credits. The principles focus on ensuring the reliability of purchased credits and the conditions under which they should be used.

The updated principles emphasize the need for offsetting that aligns with efforts to reach the Net Zero scenario, as the vast majority of offsetting approaches are not

delivering on this goal. The updated guidance calls for a significant course correction in carbon markets, emphasizing the need for offsetting that aligns with efforts to reach the Net Zero scenario.

The updated Oxford Offsetting Principles offer a comprehensive framework for offsetting strategies grounded in the latest scientific findings and aim to guide the market away from low-quality credits and low-integrity offsetting practices. The authors further emphasize the urgent necessity for regulatory intervention to support the market's transition towards high-quality carbon removal and storage projects.

Emerging Trends & Future Direction

Digitalization:

The use of digital technologies, such as blockchain and smart contracts, is becoming increasingly common in VCMs. These technologies can help to improve the transparency, traceability, and security of carbon credits.

Innovative Financing Mechanisms:

New financing mechanisms, such as green bonds and carbon-linked derivatives, are being developed to support the growth of VCMs. These mechanisms can help to attract new investors and increase liquidity in the market.

Market Growth:

The demand for carbon credits is expected to grow significantly in the coming years, driven by increasing awareness of the need to address climate change and the adoption of carbon pricing mechanisms.

Integration with Compliance Markets:

VCMs are increasingly being integrated with compliance markets, such as the EU Emissions Trading System (ETS) and the California Cap-and-Trade Program. This integration can help to increase the liquidity and credibility of VCMs.

In conclusion, VCMs face significant challenges, including issues of additionality, permanence, and double counting. However, emerging regulations and standards, as well as new trends and innovations, are shaping the future of VCMs. The market is expected to grow significantly in the coming years, driven by increasing awareness of the need to address climate change and the adoption of carbon pricing mechanisms. VCMs will need to adapt to meet the new requirements and capitalize on the opportunities presented by the evolving landscape.

Challenges & Criticisms

Issues of Additionality:

Additionality refers to the concept that carbon credits should only be issued for emission reductions that would not have occurred without the project. Ensuring additionality is a significant challenge, and there is a risk that some projects may not meet the criteria, leading to the issuance of credits for emissions reductions that would have occurred regardless.

Increased Scrutiny:

Emerging regulations and standards may lead to increased scrutiny of VCMs, with a focus on ensuring the integrity of the carbon credits issued and traded.

Permanence:

Permanence is the concept that carbon credits should represent long-term reductions in emissions. However, some projects may be vulnerable to reversals, such as reforestation projects that are susceptible to wildfires or deforestation. Ensuring permanence is a significant challenge, and there is a risk that some credits may not represent long-term reductions in emissions.

Market Consolidation:

The evolution of regulations and standards may lead to market consolidation, with some VCMs being unable to meet the new requirements and therefore being forced to exit the market.

Double Counting:

Double counting refers to the situation where the same emission reduction is counted towards the reduction targets of multiple parties. This can occur when a country or entity claims credit for an emission reduction that has already been counted towards the reduction target of another party. Double counting is a significant challenge, and there is a risk that the same emission reduction may be counted multiple times, leading to an overestimation of the total reduction in emissions.

Increased Costs:

The development of new methodologies and the implementation of new regulations and standards may lead to increased costs for VCMs, which may be passed on to buyers and sellers of carbon credits.

Conclusion

The Voluntary Carbon Markets (VCMs) are evolving under the pressures and opportunities presented by increasing regulatory standards, technological innovations, and the growing global commitment to climate action. VCMs face inherent challenges including concerns over additionality, permanence, and the risk of double counting. However, the ongoing development of new standards and the integration of advanced digital technologies are enhancing the transparency, accountability, and effectiveness of these markets.

Emerging regulations and standards are expected to drive significant growth in the VCMs, though they may also lead to market consolidation as not all existing programs will meet the stricter criteria. These changes are likely to increase costs within the VCMs, but they also promise to improve the integrity and reliability of the carbon credits traded. The report highlights the potential for innovative financing mechanisms, such as green bonds and carbon-linked derivatives, to attract new investors and increase market liquidity.

Additionally, the integration of VCMs with compliance markets is enhancing their credibility and utility. As voluntary and compliance markets converge, they collectively contribute to the global effort to mitigate climate change. This evolving landscape presents VCMs with both challenges and opportunities to adapt and thrive, ensuring their role as a pivotal component of global climate strategy.

In summary, while VCMs navigate complexities and embrace stricter standards, they remain a vital tool in the arsenal against climate change, offering flexible, market-driven solutions that complement regulatory approaches and foster global cooperation.

Sources

1. Abatable. (n.d.). 6.4% of All Carbon Credits Confidently Meet CCP Eligibility Criteria. Retrieved from https://www.abatable.com/blog/6.4-percent-of-all-carbon-credits-confidently-meet-ccp-eligibility-criteria
2. Abatable. (n.d.). Carbon Removal vs. Carbon Avoidance Projects. Retrieved from https://www.abatable.com/blog/carbon-removal-vs-carbon-avoidance-projects
3. AMBIO. (n.d.). SCOLeite Program. Retrieved from https://ambio.org.mx/en/programa-scolelte/estandar-plan-vivo/
4. American Carbon Registry. (n.d.). Approved Methodologies. Retrieved from https://acrcarbon.org/methodologies/approved-methodologies/
5. American Carbon Registry. (n.d.). Home Page. Retrieved from https://acrcarbon.org/
6. Arbonics. (n.d.). A Little History of the Voluntary Carbon Market. Retrieved from https://www.arbonics.com/knowledge-hub/a-little-history-of-the-voluntary-carbon-market
7. Arbonics. (n.d.). ABC: Verra and Gold Standard. Retrieved from https://www.arbonics.com/knowledge-hub/abc-verra-and-gold-standard
8. ART REDD. (n.d.). Homepage. Retrieved from https://www.artredd.org/
9. CarbonCredits.com. (n.d.). Oxford Revises Principles for Net Zero-aligned Carbon Offsetting. Retrieved from https://carboncredits.com/oxford-revises-principles-for-net-zero-aligned-carbon-offsetting/
10. CarbonCredits.com. (n.d.). The 4 Best Carbon Offset Programs for 2023. Retrieved from https://carboncredits.com/the-4-best-carbon-offset-programs-for-2023/
11. CarbonCredits.com. (n.d.). VCMI Unveils New Rules for Net Zero Using High Integrity Carbon Credits. Retrieved from https://carboncredits.com/vcmi-unveils-new-rules-for-net-zero-using-high-integrity-carbon-credits/
12. Ceezer. (n.d.). Navigating the Murky Waters of Renewable Energy Carbon Credits: A Guide to Distinguishing the Good from the Bad. Retrieved from https://www.ceezer.earth/insights/navigating-the-murky-waters-of-renewable-energy-carbon-credits-a-guide-to-distinguishing-the-good-from-the-bad
13. Ceezer. (n.d.). Unlocking the Next Wave of Corporate Climate Action. Retrieved from https://www.ceezer.earth/insights/unlocking-the-next-wave-of-corporate-climate-action
14. Center for Strategic and International Studies (CSIS). (n.d.). Voluntary Carbon Markets: A Review of Global Initiatives and Evolving Models. Retrieved from https://www.csis.org/analysis/voluntary-carbon-markets-review-global-initiatives-and-evolving-models
15. Clean Development Mechanism (CDM). (n.d.). About CDM. Retrieved from https://cdm.unfccc.int/about/index.html
16. Climate Action Reserve. (n.d.). California Compliance Projects. Retrieved from https://www.climateactionreserve.org/how/california-compliance-projects/
17. Climate Action Reserve. (n.d.). CORSIA. Retrieved from https://www.climateactionreserve.org/corsia/
18. Climate Action Reserve. (n.d.). Homepage. Retrieved from https://www.climateactionreserve.org/
19. Climate Focus. (n.d.). So What is the Voluntary Carbon Market Exactly? Retrieved from https://climatefocus.com/so-what-voluntary-carbon-market-exactly/
20. Climate Vault. (n.d.). Voluntary vs. Compliance Carbon Markets. Retrieved from https://climatevault.org/resources-voluntary-vs-compliance-carbon-markets/
21. ClimatePartner. (n.d.). Voluntary Carbon Market. Retrieved from https://www.climatepartner.com/en/knowledge/glossary/voluntary-carbon-market
22. ClimateSeed. (n.d.). What is the difference between carbon removal and carbon avoidance projects? Retrieved from https://climateseed.com/blog/what-is-the-difference-between-carbon-removal-and-carbon-avoidance-projects
23. Corporate Finance Institute. (n.d.). Voluntary Carbon Market. Retrieved from https://corporatefinanceinstitute.com/resources/esg/voluntary-carbon-market/
24. dClimate Blog. (n.d.). Price Dynamics in the Voluntary Carbon Market. Retrieved from https://blog.dclimate.net/price-dynamics-in-the-voluntary-carbon-market/
25. Ecosystem Marketplace. (n.d.). Burdened by Unverifiable Policy Assumptions: The Decision on When to Apply Corresponding Adjustments to Voluntary Carbon Markets. Retrieved from https://www.ecosystemmarketplace.com/articles/burdened-by-unverifiable-policy-assumptions-the-decision-on-when-to-apply-corresponding-adjustments-to-voluntary-carbon-markets/
26. Energy Monitor. (n.d.). Do Renewables Need Carbon Markets? Retrieved from https://www.energymonitor.ai/carbon-markets/do-renewables-need-carbon-markets/
27. EY. (2023, March). How Climate Policy Is Driving Carbon Markets. Retrieved from https://www.ey.com/en_gl/media/webcasts/2023/03/how-climate-policy-is-driving-carbon-markets

Sources

28. Forest Carbon Partnership Facility. (n.d.). CF Speaker 2. Retrieved from https://www.forestcarbonpartnership.org/sites/fcp/files/2020/Dec/CF%20speaker%202.pdf
29. Gold Standard. (n.d.). A Practitioner's Guide: Aligning the Voluntary Carbon. Retrieved from https://www.goldstandard.org/publications/a-practitioners-guide-aligning-the-voluntary-carbon
30. Gold Standard. (n.d.). Commentary on the Oxford Principles for Net Zero-aligned Carbon Offsetting. Retrieved from https://www.goldstandard.org/news/commentary-on-the-oxford-principles-for-net-zero-aligned-carbon-offsetting
31. Gold Standard. (n.d.). Home Page. Retrieved from https://www.goldstandard.org/
32. Greenly. (n.d.). Voluntary Carbon Market Principles and Examples. Retrieved from https://greenly.earth/en-gb/blog/company-guide/voluntary-carbon-market-principles-and-examples
33. Impactful Ninja. (n.d.). Energy Efficiency Offsets Explained. Retrieved from https://impactful.ninja/energy-efficiency-offsets-explained/
34. Integrity Council for Voluntary Carbon Markets. (n.d.). Home Page. Retrieved from https://iyrp.info/integrity-council-voluntary-carbon-market-icvcm
35. Integrity Council for Voluntary Carbon Markets. (n.d.). Meet the Team. Retrieved from https://icvcm.org/meet-the-team/
36. Integrity Council for Voluntary Carbon Markets. (n.d.). Public Consultation. Retrieved from https://icvcm.org/public%20consultation/
37. Intercontinental Exchange, Inc. (2023, June 22). ICE to Launch CORSIA Carbon Credit Futures Market to Manage Emissions Exposure from Airlines. Retrieved from https://ir.theice.com/press/news-details/2023/ICE-to-Launch-CORSIA-Carbon-Credit-Futures-Market-to-Manage-Emissions-Exposure-from-Airlines/default.aspx
38. International Carbon Reduction and Offset Alliance. (n.d.). Home Page. Retrieved from https://icroa.org/
39. International Carbon Reduction and Offset Alliance. (n.d.). ICROA Code of Best Practice. Retrieved from https://icroa.org/icroa-code-of-best-practice/
40. International Civil Aviation Organization. (n.d.). Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Retrieved from https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx
41. International Emissions Trading Association. (n.d.). ICROA. Retrieved from https://www.ieta.org/initiatives/icroa/
42. International Emissions Trading Association. (n.d.). Memberships. Retrieved from https://www.ieta.org/memberships/
43. International Emissions Trading Association. (n.d.). Overview. Retrieved from https://www.genevaenvironmentnetwork.org/environment-geneva/organizations/international-emissions-trading-association/
44. International Emissions Trading Association. (n.d.). Resources. Retrieved from https://www.ieta.org/resources/
45. Lune. (n.d.). Difference between Carbon Removal and Emissions Avoidance in Offsetting. Retrieved from https://lune.co/blog/difference-between-carbon-removal-and-emissions-avoidance-in-offsetting
46. MyNativeForest. (n.d.). International Carbon Reduction and Offset Alliance (ICROA). Retrieved from https://www.mynativeforest.com/blog/icroa
47. Neufin. (n.d.). Types of Projects in the Voluntary Carbon Market: Sectoral Overview. Retrieved from https://neufin.co/blog/types-of-projects-in-the-voluntary-carbon-market-sectoral-overview/
48. Neufin. (n.d.). Types of Projects in the Voluntary Carbon Market: Sectoral Overview. Retrieved from https://neufin.co/blog/types-of-projects-in-the-voluntary-carbon-market-sectoral-overview/
49. NeutralX. (n.d.). Convergence of Voluntary and Compliance Carbon Markets. Retrieved from https://www.neutralx.com/blog/convergence-of-voluntary-and-compliance-carbon-markets
50. NeutralX. (n.d.). Convergence of Voluntary and Compliance Carbon Markets. Retrieved from https://www.neutralx.com/blog/convergence-of-voluntary-and-compliance-carbon-markets
51. Offset Guide. (n.d.). American Carbon Registry. Retrieved from https://www.offsetguide.org/understanding-carbon-offsets/carbon-offset-programs/voluntary-offset-programs/american-carbon-registry/
52. Offset Guide. (n.d.). Climate Action Reserve. Retrieved from https://www.offsetguide.org/understanding-carbon-offsets/carbon-offset-programs/voluntary-offset-programs/climate-action-reserve/
53. Öko-Institut e.V. (n.d.). Key Issues for First Review of CORSIA. Retrieved from https://www.oeko.de/fileadmin/oekodoc/Key-issues-for-first-review-of-CORSIA.pdf
54. Oregon Watershed Enhancement Board. (2023, March 15). Climate Committee: Voluntary Carbon Market Overview. Retrieved from https://www.oregon.gov/oweb/Documents/Climate-Committee-Voluntary-Carbon-Market-Overview-Buckmaster-March-15-2023.pdf
55. Oxford Net Zero. (n.d.). Oxford Offset Principles. Retrieved from https://www.smithschool.ox.ac.uk/research/oxford-offsetting-principles
56. Plan Vivo. (n.d.). Plan Vivo Launch Biodiversity Standard. Retrieved from https://www.planvivo.org/news/plan-vivo-launch-biodiversity-standard

Sources (Cont.)

57. Plan Vivo. (n.d.). Plan Vivo Standard to become PV Climate. Retrieved from https://www.planvivo.org/news/plan-vivo-standard-to-become-pv-climate
58. Plan Vivo. (n.d.). Plan Vivo Sustainable Impact for Climate, People, and Nature Over the Last 25 Years. Retrieved from https://www.planvivo.org/blog/plan-vivo-sustainable-impact-for-climate-people-and-nature-over-the-last-25-years
59. QCIntel. (n.d.). Weekly VCM Demand: Renewable Energy Projects in Demand. Retrieved from https://www.qcintel.com/carbon/article/weekly-vcm-demand-renewable-energy-projects-in-demand-22167.html
60. Reuters. (2023, June 28). Global Initiative Launched to Rate Corporate Carbon Offset Claims. Retrieved from https://www.reuters.com/sustainability/climate-energy/global-initiative-launched-rate-corporate-carbon-offset-claims-2023-06-28/
61. Rocky Mountain Institute. (n.d.). How to Build a Trusted Voluntary Carbon Market. Retrieved from https://rmi.org/how-to-build-a-trusted-voluntary-carbon-market/
62. S&P Global. (n.d.). Voluntary Carbon Markets: Pricing, Participants, and Trading CORSIA Credits. Retrieved from https://www.spglobal.com/commodityinsights/en/market-insights/blogs/energy-transition/061021-voluntary-carbon-markets-pricing-participants-trading-corsia-credits
63. Science Based Targets. (n.d.). Beyond Value Chain Mitigation. Retrieved from https://sciencebasedtargets.org/beyond-value-chain-mitigation
64. Science Based Targets. (n.d.). The SBTi Releases New Reports to Help Accelerate Corporate Climate Action Beyond the Value Chain. Retrieved from https://sciencebasedtargets.org/news/the-sbti-releases-new-reports-to-help-accelerate-corporate-climate-action-beyond-the-value-chain
65. Sustainable Brands. (n.d.). 3 Carbon Offset Programs with Trustworthy Integrity Council. Retrieved from https://sustainablebrands.com/read/defining-the-next-economy/3-carbon-offset-programs-trustworthy-integrity-council
66. Thallo. (n.d.). A Comprehensive Guide to the Voluntary Carbon Market: Everything You Need to Know. Retrieved from https://www.thallo.io/a-comprehensive-guide-to-the-voluntary-carbon-market-everything-you-need-to-know/
67. The Nature Conservancy. (n.d.). Article 6 Common Questions. Retrieved from https://www.nature.org/content/dam/tnc/nature/en/documents/Article_6_Common_Questions_V2.pdf
68. TracexTech. (n.d.). Voluntary Carbon Market: Navigating with Standards. Retrieved from https://tracextech.com/voluntary-carbon-market-navigating-with-standards/
69. UNFCCC. (n.d.). 1. Supplementary Information - UNFCCC. Retrieved from https://seors.unfccc.int/applications/seors/attachments/get_attachment?code=CXZ6NTC03VOMCRNXZVMGW1B1MR6L3LA6
70. United Nations Environment Programme. (n.d.). Architecture of REDD+. Retrieved from https://wedocs.unep.org/bitstream/handle/20.500.11822/28932/Architecture_REDD%2B.pdf?isAllowed=y&sequence=1
71. United Nations Framework Convention on Climate Change (UNFCCC). (n.d.). Introduction to International VCMs. Retrieved from https://unfccc.int/sites/default/files/resource/Session%204-%20Introduction%20to%20International%20VCMs.pdf
72. University of Oxford - Smith School of Enterprise and the Environment. (2020). Oxford Offsetting Principles. Retrieved from https://www.smithschool.ox.ac.uk/sites/default/files/2022-01/Oxford-Offsetting-Principles-2020.pdf
73. VCM Integrity. (n.d.). Home Page. Retrieved from https://vcmintegrity.org/
74. VCM Primer. (n.d.). Chapter 1: What is the Voluntary Carbon Market? Retrieved from https://vcmprimer.org/chapter-1-what-is-the-voluntary-carbon-market/
75. Verra. (n.d.). Joint Press Release: Singapore, Verra, and Gold Standard Partner to Develop Playbook for Carbon Crediting Under the Paris Agreement. Retrieved from https://verra.org/joint-press-release-singapore-verra-and-gold-standard-partner-to-develop-playbook-for-carbon-crediting-under-the-paris-agreement/
76. Verra. (n.d.). Methodologies. Retrieved from https://verra.org/methodologies-main/
77. Verra. (n.d.). Methodology for Carbon Capture and Storage. Retrieved from https://verra.org/methodologies/methodology-for-carbon-capture-and-storage/
78. Verra. (n.d.). Verified Carbon Standard. Retrieved from https://verra.org/programs/verified-carbon-standard/
79. Verra. (n.d.). Verra Advances the Development of New VCS Rice Methodology. Retrieved from https://verra.org/verra-advances-the-development-of-new-vcs-rice-methodology/
80. We Mean Business Coalition. (n.d.). Joint Statement: Carbon Markets Must Be a Transparent, High-Integrity Part of Broader Corporate Climate Action. Retrieved from https://www.wemeanbusinesscoalition.org/blog/joint-statement-carbon-markets-must-be-a-transparent-high-integrity-part-of-broader-corporate-climate-action/

Sources (Cont.)

When citing the present report, the following form:

D. Prittie. (2024) G2Z Climate Report: Voluntary Carbon Markets. g2z.ai.

In Text: (G2Z, 2024)

To find the latest content and register to receive sustainability related e-alerts, please visit g2z.ai.

Follow G2Z on Instagram and LinkedIn.

8/24


G2Z