Ecosystem Marketplace

A FOREST TRENDS INITIATIVE

ECOSYSTEM MARKETPLACE INSIGHTS REPORT

Paying for Quality

State of the Voluntary Carbon Markets 2023

November 28, 2023

This report is a lead up to this year's UN Climate Change Conference, COP28 Dubai, to provide updated pricing and trends in global voluntary carbon markets, CORSIA-eligible units, and other relevant data and insights related to Article 6 of the Paris Agreement.

These carbon credit transaction and registry data focus on 2020-2023. Ecosystem Marketplace Respondents are still submitting trade reports for 2023, so 2023 data should be considered preliminary, with complete data and analysis forthcoming in early 2024.

Visionary Partners

skoll · Arbor Day Foundation · The Nature Conservancy

Strategic Supporters

3Degrees · ACR at Winrock International · ART Architecture for REDD+ Transactions · ambipar environment · Biofílica · CO2 Effect · CQuest Capital · Everland · FSC Forests for All Forever · Livelihoods Funds · STRIVE by STX · Verra

Paying for Quality
State of the Voluntary Carbon Markets 2023

AUTHORS

Stephen Donofrio
Managing Director

Alex Procton
Associate Manager, Data Solutions & Insights

RESEARCHERS

Ciro Calderon
Respondent Analysis

Laura Weatherer
Senior Associate

EDITORS

Genevieve Bennett
Director of Communications, Forest Trends

Cheyenne Coxon
Manager of Communications, Forest Trends

About Ecosystem Marketplace

Ecosystem Marketplace (EM), a non-profit initiative of Forest Trends, is a leading global source of credible information on environmental finance, markets, and payments for ecosystem services. For nearly two decades, EM has run the world's first and only globally recognized and standardized reporting and transparency platform for voluntary carbon market (VCM) credit pricing data, news, and insights.

EM holds the world's largest repository of valuable carbon market insights and data disclosed by a growing international network of more than 270 "EM Respondents," including project developers, investors, and intermediaries with headquarters in over 40 countries. Respondents share over the counter and exchange/trading platform carbon credit sales on thousands of nature-based and technological carbon projects in over 100 countries.

EM's flagship State of the Voluntary Carbon Markets reports and other analyses on carbon credit market dynamics (e.g., prices, volumes, projects, corporate buyers, sellers, etc.) and carbon standards' issuance and retirement data have become anticipated industry staples. EM also provides a publicly accessible data intelligence dashboard and a news platform for breaking news and market coverage.

EM data on prices, regulation, science, and other relevant issues on environmental services markets and climate finance have been used extensively by companies, journalists, investors, practitioners, natural resource agencies, academics, and local and indigenous communities.

Additionally, EM thanks its core partners, supporters, and collaborators.

About Forest Trends

Forest Trends Association is a 501(c)(3) organization founded in 1998. Forest Trends works to conserve forests and other ecosystems through the creation and wide adoption of a broad range of environmental finance, markets, and other payment and incentive mechanisms. Forest Trends does so by 1) providing transparent information on ecosystem values, finance, and markets through knowledge acquisition, analysis, and dissemination; 2) convening diverse coalitions, partners, and communities of practice to promote environmental values and advance the development of new markets and payment mechanisms; and 3) demonstrating successful tools, standards, and models of innovative finance for conservation. For up-to-date information on environmental markets, sign up for EM newsletters: http://www.forest-trends.org/dir/em_newsletter.

Copyright and Disclaimer

Ecosystem Marketplace is an initiative of Forest Trends, located at 1203 19th Street, NW 4th floor, Washington, DC 20036 | info@ecosystemmarketplace.com | www.ecosystemmarketplace.com | www.forest-trends.org

Attribution

Please cite this work as follows: Forest Trends' Ecosystem Marketplace. 2023. State of the Voluntary Carbon Markets 2023. Washington DC: Forest Trends Association.

Acknowledgements

EM thanks its core partners, supporters, and collaborators: Arbor Day Foundation, Skoll Foundation, The Nature Conservancy, 3Degrees, ACR, ART-Trees, Biofílica Ambipar Environment, BMO Radicle, Cool Effect, C-Quest Capital, Everland, FSC International, Livelihoods Funds, STRIVE by STX, and Verra. A special thank you to Forest Trends/Ecosystem Marketplace team members Charlotte Barber, Kate Brandaw Ellis, Verena Manolis, as well as Michael Jenkins for his leadership.

These data on voluntary carbon market dynamics come from EM's database of voluntarily disclosed over-the-counter (OTC) carbon credit transactions, which are shared with us by an international network of more than 270 "EM Respondents," including project developers, investors, and intermediaries with headquarters in over 40 countries and representing carbon credit sales from thousands of nature-based and technological carbon projects in over 100 countries.

Data on project registrations, credit issuances, and retirements come from the following project registries: ACR (formerly American Carbon Registry), Clean Development Mechanism (CDM), Climate Action Reserve (CAR), City Forest Credits, Global Carbon Council, Gold Standard, Plan Vivo, VCS, UK Peatland Code, and UK Woodland Carbon Code. We thank Garance Wood-Moulin (Peatland Code) and Vicky West (Woodland Carbon Code) for their assistance in obtaining relevant registry data.

Writing this report would not be possible without the insight of our external reviewers. We extend our thanks to: Katie Tomayko (3Degrees), Jeremy Manion (Arbor Day Foundation), Luisa Cotrim (Biofilica), Dee Lawrence (Cool Effect), Pedro Carvalho and Alexis Massot (ecosecurities), Josh McCarron (Everland), Pina Gervassi (Forest Stewardship Council), Silvia Gomez Caviglia (Greenoxx), Kelley Hamrick, Kimberly Myers, and Max Bernal Temores (The Nature Conservancy), and Nandita Molloy (Verra). The views presented here do not necessarily reflect those of the reviewers.

Introduction

In 2022, EM observed an all-time high global volume weighted average price of $7.37 per ton of CO_2e, which just slightly beats the previous market record, set in 2008 when average prices hit $7.34 per ton. EM recorded this price 15 years ago at a time when VCM volumes and value were half of what they reached in 2022 (123.4 $MtCO_2e$ and $704.8 Million in 2008 compared to 254,084,605 and $1,873,151,444 in 2022).

Prices back then were driven by profoundly different factors than they are today. One of the most significant was a hope for "pre-compliance." A decade and a half ago, the United States, which was the dominant source and demand for the VCM, was on the cusp of national climate change legislation. The high volumes in the first half of the year 2008 were largely attributed to transaction volumes on the Chicago Climate Exchange, which was angling for fungibility of its credits into a national cap-and-trade carbon market. Unfortunately, market activity in 2008 plummeted when the global recession drove companies to turn their attention away from environmental impacts and cut discretionary spending, and when any potential US climate policy went out of the window as the Obama administration instead focused on healthcare.

Just as we reflected last year in "The Art of Integrity,"[1] we find ourselves in a new cycle of VCM market growth followed by contraction, driven by uncertainties external to the market itself.

While this report largely presents 2022 data for the first time, we cannot ignore the fundamentally different position that the VCM has found itself in as we approach the final days and weeks of 2023. For this reason, we are also providing current-year data and gathered sentiments from our network of experts. Over the past ten months, we've observed strong signals of depressed market conditions for carbon sales in 2023. While some might refer to this as a "stalling" of the market, we interpret the surrounding factors and drivers to indicate a necessary "regrouping" before an anticipated "acceleration forward."

The fact is that global carbon markets are in a fundamentally different position than they were decade-and-a-half ago. Market participants we interviewed in preparation for this report are optimistic about a high integrity-focused rebound of the VCM in the near term, as opposed to the long rebuilding that we observed after the 2008-2009 market drop.

There are a number of reasons we anticipate the VCM's continued growth, including:

The world urgently needs climate solutions.

- There is scientific consensus that to have any chance of achieving the Paris Agreement 2°C pathway, the global community needs to cut predicted 2030 greenhouse gas emissions by 28 percent. Experts continue to send the message that this level of climate action cannot be achieved without project-based and jurisdictional REDD+ carbon markets, as well as new solutions such as engineered removals.[2]

Buyers that are still in the market are committed.

- The data are clear: some buyers have exited the market since 2021 or are engaging in fewer transactions in terms of volume. Yet those who remain are signaling a willingness to pay a great deal more for quality. The growth in credit prices tracked by EM over the past few years is driven by high-quality credits, full stop, whether the credits have nature-based solutions, co-benefits, and Sustainable Development Goals (SDGs), newer vintages that are signals of newer methodologies and projects, and quality criteria standardization per CORSIA.
- We're hearing from project developers that the sophistication of carbon buyers has increased, with buyers setting clear sourcing principles and/or requirements to conduct their own on-site project audits or hiring independent service providers to do this on their behalf. Relatedly, developers have told us over the past couple of years of a greater interest in buyers to have direct carbon credit procurement relationships with them.
- In fact, we've heard from market experts that co-benefits certifications like the Climate, Community, and Biodiversity Standard are helpful because they require prior examination of all impacts of a project (community, biodiversity, etc.). Interestingly, we've also heard that unlike in past years where CCB was more optional for REDD+, now it is more of a requirement for REDD+ projects from a buyer comfort perspective.

1 Ecosystem Marketplace, The Art of Integrity: State of the Voluntary Carbon Market 2022 Q3, (Washington, DC: Forest Trends, 2022), https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2022/

2 United Nations Environment Programme (UNEP), Emissions Gap Report, (Nairobi, Kenya: UNEP, 2023), https://www.unep.org/resources/emissions-gap-report-2023

- Lastly, we are seeing a return of the VCM being an end buyers' market, although it's uncertain how long this will last. Aside from the transaction data reported to EM, we've heard from market participants that in general there have been fewer transactions with fewer buyers, and fewer new buyers entering the market. Further, intermediaries appear to be stepping back in 2023, particularly for nature-based credits. The reputation of the project developer was also cited as a factor amongst buyers. The impact of this is that while there's a stable source of demand for project developers and resellers who have existing relationships, it may be more challenging for new project proponents and participants to access the buy side. In addition, prices tend to come down with higher-volume purchases.

The VCM is more mature and global, adding to stability.

- The VCM is now more diverse and global than ever before. EM transaction data for 2021-2023 alone covers 1,530 projects from 98 countries.
- Compliance carbon markets offer new opportunities for the VCM in the form of burgeoning demand for CORSIA-eligible credits and Article 6 of the Paris Agreement.

Quality continues to ratchet upward.

- Carbon credit standards such as Verra[3] are updating existing project methodologies[4] while also ensuring newly developed methodologies account for the latest science and technology. This is especially true for nature-based projects, as standards address challenges to baselines, deforestation rates, and associated climate benefits calculations, as well as monitoring, reporting, and verification (MRV) approaches. We've heard from project developers that these new developments, while beneficial in the long run, can have near-term impacts on sales as it could lead to buyers pausing their credit purchases from related projects.
- There's more focus today than ever before to ensure the VCM works for Indigenous Peoples and Local Communities (IPLCs), not just the other way around. One way this is reflected is in the work of the Integrity Council and the VCMI, which have included IPLCs in their processes, and in particular the newly developed IPs & LCs VCM Engagement Forum.[5] This forum will "elevate IPs & LCs priorities, to provide closer coordination and targeted capacity building to support strengthening their role as both beneficiaries and shareholders in a high-integrity voluntary carbon market (VCM)."
- Over the past couple of years, there's been an emergence for the first time of independent supply-side quality initiatives including the Integrity Council's Core Carbon Principles[6] and the Carbon Credit Quality Initiative,[7] as well as demand-side integrity efforts to clarify how companies can best claim credits for their climate action strategies with the Voluntary Carbon Markets Integrity Initiative. See for instance the VCMI's "Claims Code of Practice" guidance slated to be released on the same day as this report's publication.[8] That being said, we've heard from market participants that publicly traded companies are struggling to continue credit purchases in the near term with emerging requirements and regulations (e.g., California's recently approved Assembly Bill (AB) Number 1305)[9] around claims. In addition, there are a legion of other stakeholders working to service the growing network of governments implementing CORSIA and Article 6 of the Paris Agreement, carbon project developers, carbon credit buyers, investors, and more.

Other forces have the potential to fundamentally alter the VCM trajectory. There is an array of regulatory and oversight issues we're keeping a close eye on – from stock exchanges' disclosure requirements to regulation by the United States Commodities Futures Trading Commission to government-enforced claims regulations. And widely read media coverage of unethical and/or ineffective carbon projects and standards – fair or not – can having a chilling effect on the market, as seems to have been the case of late.

EM continues to track all of the above dynamics, and are committed to bringing our readers new data, analysis, and market insights together with our global market of carbon market experts and survey respondents and grounded in nearly two decades of experience tracking the VCM as an unbiased, not-for-profit information provider.

3 "Verra Conducts Quality Review of VCS Methodologies, Inactivates 10 with No Use", Verra, September 11, 2023, https://verra.org/verra-conducts-quality-review-of-vcs-methodologies-inactivates-10-with-low-or-no-use/

4 "Verra Launches New Era of Forest Protection with Transformative REDD Methodology", Verra, November 27, 2023, https://verra.org/verra-launches-new-era-of-forest-protection-with-transformative-redd-methodology/

5 "The IPs & LCs VCM Engagement Forum", The Integrity Council for the Voluntary Carbon Market, accessed November 27, 2023, https://icvcm.org/the-ips-lcs-vcm-engagement-forum/

6 "The Core Carbon Principles", The Integrity Council for the Voluntary Carbon Market, accessed November 27, 2023, https://icvcm.org/the-core-carbon-principles/

7 The Carbon Credit Quality Initiative, https://carboncreditquality.org/

8 VCMI Claims Code of Practice, Voluntary Carbon Markets Integrity Initiative (VCMI), accessed November 27, 2023, https://vcmintegrity.org/vcmi-claims-code-of-practice/

9 Jay Tipton, "California Aiming to Improve the VCM", *Ecosystem Marketplace*, October 24, 2023, https://www.ecosystemmarketplace.com/articles/california-aiming-to-improve-the-vcm/

Key Findings

Average voluntary carbon markets (VCM) credit prices in 2022 were higher than they have been in 15 years, while overall trade volumes dropped from a 2021 peak. While the volume of VCM credits traded dropped by 51 percent, the average price per credit skyrocketed, rising by 82 percent from $4.04 per ton in 2021 to $7.37 per ton in 2022.

This price hike allowed the overall value of the VCM to hold relatively steady in 2022, at just under $2 billion.

To date in 2023, the average credit price is down slightly from 2022, to $6.97 per ton.

Credits connected to nature-based solutions were a primary driver of high market value. Nature-based projects, including Forestry and Land Use and Agriculture projects, made up almost half of the market share at 46 percent. From 2021 to 2022, the average price of these kinds of credits increased by 75 percent and 14 percent, respectively. Credits from Agriculture projects also increased in volume by 283 percent.

Credits that certified additional robust environmental and social co-benefits "beyond carbon" had a significant price premium. Credits from projects with at least one co-benefit certification had a 78 percent price premium in 2022, compared to projects without any co-benefit certification. Experts interviewed by Ecosystem Marketplace (EM) emphasized that these certifications are increasingly becoming required by buyers, and many are preferentially seeking them out. Projects working towards the UN Sustainable Development Goals (SDGs) also demonstrated a substantial price premium at 86 percent higher prices than projects not associated with SDGs – yet another indicator of buyer emphasis on carbon credits that do more for people and the environment.

Newer credits are attracting higher prices, indicating that buyers are seeking newer vintages with more robust recent methodologies, or are paying more for credits that align with their current emissions years as much as possible. In 2022, the price premium for carbon credits with a more recent vintage representing more recent emissions reductions activities was 57 percent higher than "older" credits, compared to a 38 percent recency premium in 2021 (using a historical five-year rolling cutoff date from the year of transaction).

CORSIA-eligible project credits gained market value, driven by a 126 percent increase in price. CORSIA's notable growth in the VCM in 2022 indicates a growing relationship between compliance markets and the VCM. This is a key consideration for market participants for three main reasons: 1) quality criteria set by CORSIA have been incorporated by the Voluntary Carbon Markets Integrity Initiative (VCMI) until the Integrity Council's core carbon principles are implemented, 2) CORSIA enters its first compliance phase in 2024, and 3) countries are beginning to implement Article 6 of the Paris Agreement.

Market Overview

VOLUNTARY CARBON MARKETS (VCM) TOTAL VOLUME, VALUE, AND PRICE BY TRANSACTIONS

In 2022, the value of the voluntary carbon market (VCM) held pace with 2021 at just under 1.9 Billion for the year, largely due to a staggering 82 percent increase in the price of VCM credits from 2021 (Table 1), counterbalanced by a near-halving in transaction volume year-over-year. In other words, the value of the VCM shrank only 11 percent from 2021, even though transaction volume decreased by 51 percent over the same period (Figures 1 and 2).

This prompts further investigation to understand what drove up prices, which is explored further in this report. In general, we observe a distillation of the VCM, with lower transaction volumes and higher prices in 2022 that has continued into 2023. According to insights gathered from market participants interviewed in preparation for this report, one of the key reasons for the drop in transaction volume in 2023 is due to a 38.5% decline in issuances from 2022 by about 162.7 million tons CO_2e ($MtCO_2e$) - see the Issuances & Retirements section below. Further, we can derive from EM data that credit buyers' focus on key attributes associated with higher-quality projects and credits from these projects that are typically of a more recent vintage. In general, these carbon credit buyers are investing in durable removals of carbon from the atmosphere and provide robust beyond-carbon co-benefits, and often take advantage of nature-based solutions to achieve these ends.

Table 1. Annual Total Voluntary Carbon Markets Transaction Volume, Value, and Price per tCO_2e for All Projects. 2021-2023 (YTD)

2021			2022			2021-2022 PERCENT CHANGE			2023 (YTD)*		
VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME	VALUE	PRICE	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE** (USD)
517	$2.1Bn	$4.04	254	$1.9Bn	$7.37	-51%	-10%	+82%	49.2	$343M	$6.97

Notes:

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

* 2023 Volumes and Values will be reported in early 2024.

** 2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies. The totals above represent 151 unique respondents in 2021, 113 unique respondents in 2022, and 74 unique respondents in 2023 to date.

Figure 1. Voluntary Carbon Market Size by Value of Traded Carbon Credits, pre-2005 to 2022

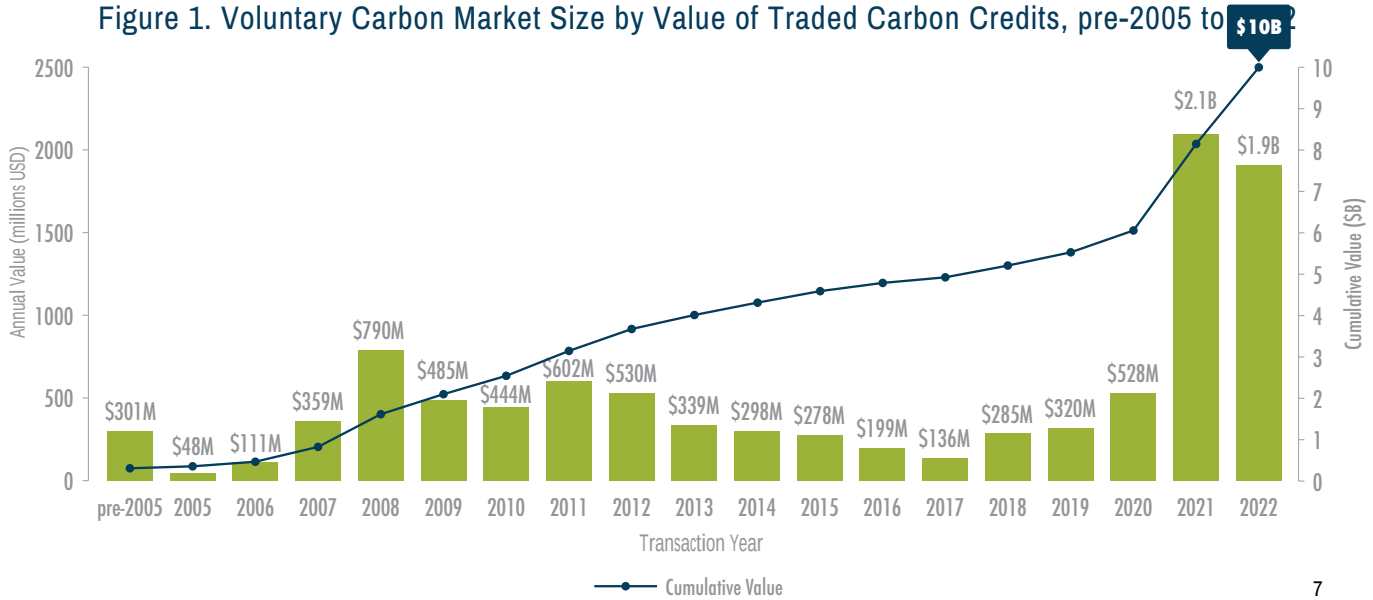
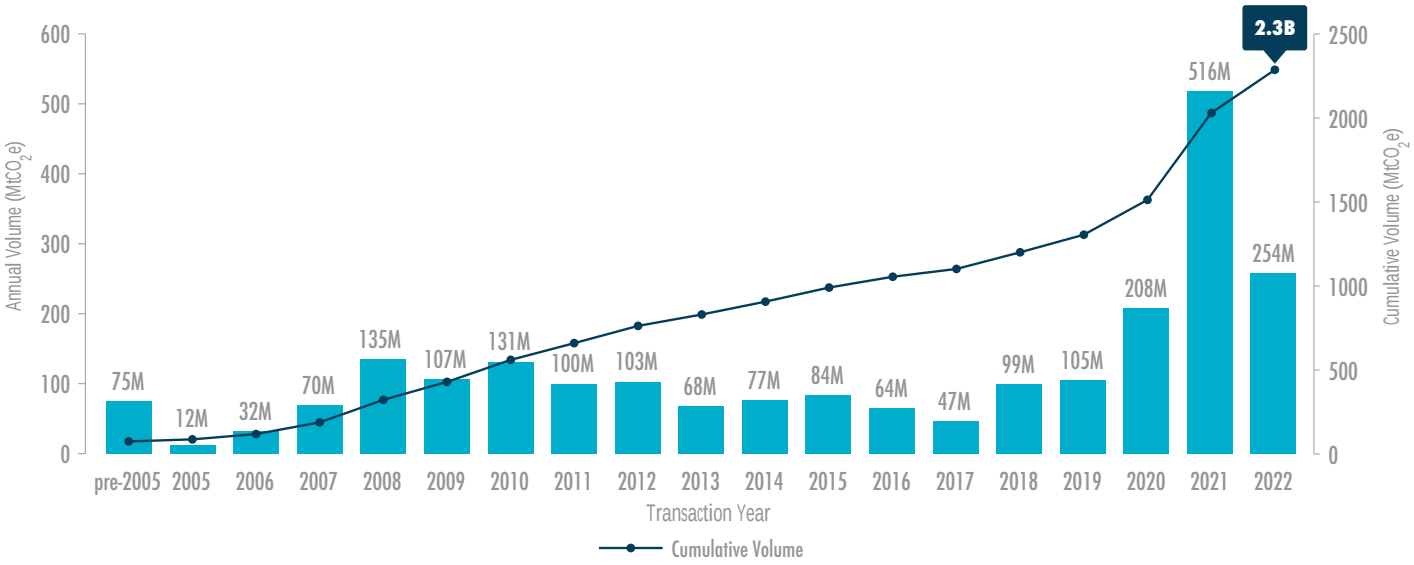


Figure 2. Voluntary Carbon Market Size by Volume of Traded Carbon Credits, pre-2005 to 2022



In fact, average prices to date in 2023, despite dipping below 2022 prices by ~$0.40 per ton, remain higher than they have been in 15 years. The $7.37 per ton average price of VCM credits in 2022 represents a high that has not been seen since 2008.

Although it's too early to substantively report on 2023, we are seeing clear indications from initial volumes and value data that the market is stepping back to accelerate forward. In fact, the EM Respondents that have currently reported nearly 50 million tons of carbon dioxide equivalent ($MtCO_2e$)[10] represented roughly 75 percent of all transactions reported to EM for 2022 and 2021, and around 65 percent of total transaction volume for 2020. This is an early indication that 2023 will be an even lower volume year than 2022. It is important to note that the busiest times of year for VCM trading are quarters 4 and 1, so it is still too early to make any complete assumptions about total volume and value in 2023.

THE BUYER MATTERS: END USERS PAY MORE FOR CREDITS THAN RESELLERS

In 2022, VCM sellers continued to receive a premium when transacting credits either directly to end users or to intermediaries that operate as a go-between the seller and buyer but do not take delivery of the credits themselves. Meanwhile, consistent with data from years past, intermediaries who take ownership of credits (e.g., speculative interests) are more risk- and price-sensitive and pay less for credits (Table 2). Preliminary 2023 data confirm this buyer type relationship with price at even higher margins.

Table 2. Annual Voluntary Carbon Markets Transaction Price (USD), by Buyer Type, 2021-2023 (YTD)

BUYER	2021	2022	2023 (YTD)
TOTAL VCM	$4.04	$7.37	$6.97
END USER	$5.68	$8.52	$8.35
INTERMEDIARY	$4.24	$6.54	$5.96

Notes:
2023 data are being processed and will be published in early 2024.
Price data is expressed as volume-weighted averages.
"End User" includes transactions where the buyer is identified as an Intermediary that doesn't take ownership of credits.
"Total VCM" includes some transactions that were reported with unknown End User/Intermediary status. In 2021, 108 unique respondents reported sales to End Users and 69 unique respondents reported sales to Intermediaries. In 2022, 81 unique respondents reported sales to End Users and 44 unique respondents reported sales to Intermediaries.

10 Transactions reported to Ecosystem Marketplace cover dates up through November 21, 2023, however it should be noted that by the time of finalizing the dataset for the writing this report that some EM Respondents have reported only partial year data for 2023. In addition, there are a number of EM Respondents that have not yet reported transactions as they disclose their sales to EM on an annual cycle, and other EM Respondents have not had sales in 2023 due to a variety of reasons.

EM data show that the biggest premiums are for sales to end users for Energy Efficiency and Waste Disposal credits. EM analysis also finds that end users pay more for Gold Standard credits than their intermediary counterparts. It appears that many buyers still rely more on intermediaries for Agriculture, Forestry and Land Use, and Household/Community Devices projects than other project types. This may either be because those intermediaries had previously purchased supplies of these credits for resale knowing there would be future market opportunities, or for other reasons, such as buyers engaging with an intermediary to vet projects and credits for quality.

REGISTRY DATA CONFIRMS BROAD VCM TRENDS

Our analysis of publicly available[11] data from carbon credit project registries supports our analysis of transaction data reported by EM respondents; the VCM is currently (2022-2023) less active than it was during its peak transaction volume year of 2021. We have also found that global carbon markets have continued to grow since 2020, which is a more realistic and recent benchmark year. However, we are likely to see a different picture in 2024 as registry activity catches up with the downturn in market trading activity that we have witnessed in 2022-2023. See Box 1 for details on the nuances of registry data as it pertains to market assessment.

BOX 1. WHAT YOU NEED TO KNOW ABOUT REGISTRY DATA

It is important to note the following nuances to registry data – date of project registration, as well as volumes of credit issuances and retirements, that make it challenging to assess the market based on this data alone:

1. ***The timeframe from project idea to project implementation:*** Project developers tell us that it can take months , sometimes years, to move a project from concept to registration. The market can change dramatically over time, meaning that demand preferences could shift (e.g., for or against certain project attributes, prices actors are willing to pay, etc.). These factors, among others, can impact what is transacted to secondary market actors for future sales or end users for retirement. There could also be delayed or expedited influence on which projects are being registered and/or issued.
2. ***There can be a lag between transaction for end use and retirement.*** Most transactions occur bilaterally between seller and buyer, and the date of those transactions do not necessarily match the retirement date reflected on the registries, even for spot market transactions. EM often receives questions about why its data does not align perfectly with registry data, and this is a key reason why. EM datasets include only transactions confirmed as completed by EM Respondents.
3. ***Transactions between parties not resulting in a retirement are not reflected in registries:*** This is one of the fundamental differences between confidential transaction data reported to EM and registries. Registries do not capture transactions between buyer and seller unless it's a transfer to another registry account and/or a retirement. Even in these instances, registries do not capture transactions, pricing data or transfers, or retirements.
4. ***Issuance dates are often correlated with sales dates and are sometimes a better indicator of "current" market conditions than retirements are (if using registry data in isolation).*** For many years, EM has heard from project developers and other actors that, due to the costs they must incur from the carbon credit standards to process and issue credits, they often wait to issue their credits until they sell them.
5. ***Retirements are often made on behalf of the end user without transferring registry accounts:*** Buyers who do not wish to have a registry account with the relevant carbon standard can elect to have credits retired on their behalf by a registry account holder. In these cases, the retiree has the option to have their name recorded as part of the registry transfer data.

[11] While EM considers the carbon standards' registry data to be publicly available, while some standards allow for a data export from their registries (e.g., Verra, Gold Standard, ACR, ART TREES, CAR, CDM, City Forest Credits), it should be noted that not all do (e.g., Plan Vivo, Peatland Code, Woodland Carbon Code). For these cases, EM receives the data directly from the standards through data sharing arrangements.

NEW PROJECT REGISTRATIONS

The Project Categories below have vastly different issuances potentials related to their underlying overall supply potential. Therefore, the number of project registrations, separate from issuances and retirements from new and historical projects, is an important metric to evaluate market demand.

Encouragingly, by-category trends in project registrations line up with observations from our own transactions data, as well as with insights shared during interviews with market participants in preparation for this report (Figure 3). Forestry and Land Use, Household/Community Devices, and Renewable Energy continued to be the most prevalent categories for new projects in 2022, a trend which appears will continue into 2023. Agriculture projects made a strong showing in 2022 and 2023, and continued growth is expected in this space as market participants seek out climate solutions within Agriculture, Forestry, and Other Land Use (AFOLU) that were either previously underexplored or have since become viable after a market price increase. The growth in new project registrations in the Transportation category in 2022 is also notable – almost all these projects are registered with ACR.

Figure 3. Carbon Credit Project Registrations by Category, 2020-2023

Notes:

Figure 3 includes data on project registrations from ACR, CAR, CDM, City Forest Credits, Global Carbon Council, Gold Standard, Peatland Code, Plan Vivo, Woodland Carbon Code, and VCS registries.

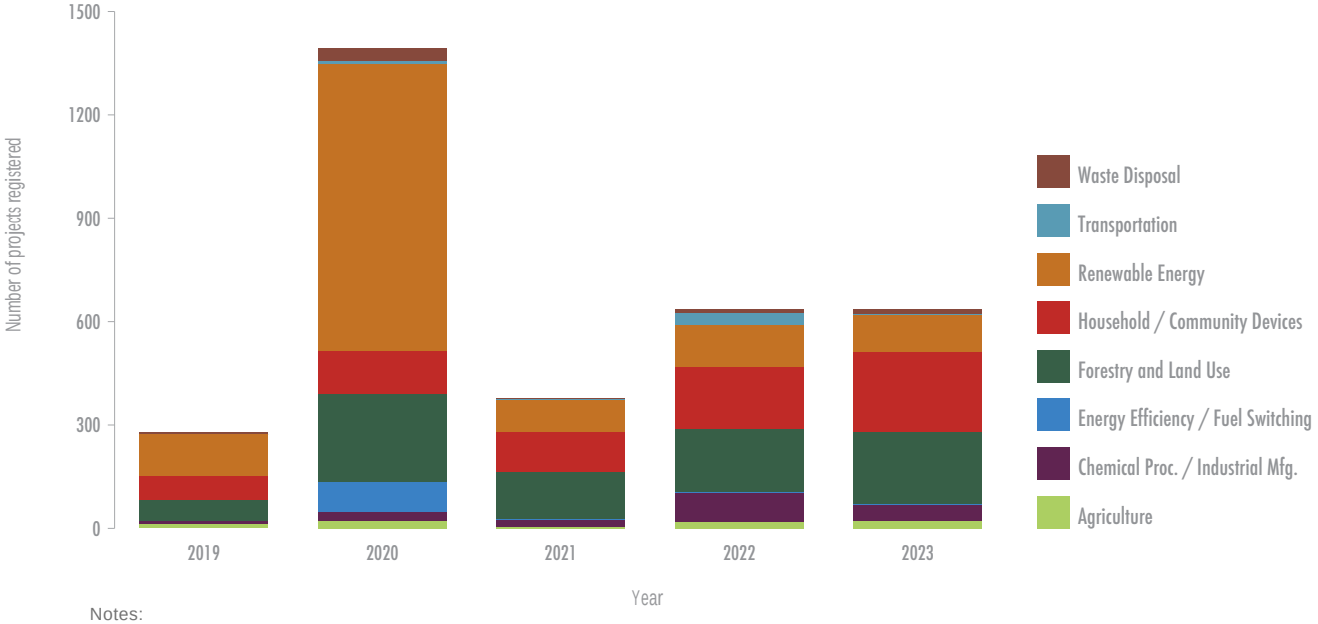
2023 data is partial and includes project registrations through October 16, 2023.

NEW PROJECT REGISTRATIONS

The Project Categories below have vastly different issuances potentials related to their underlying overall supply potential. Therefore, the number of project registrations, separate from issuances and retirements from new and historical projects, is an important metric to evaluate market demand.

Encouragingly, by-category trends in project registrations line up with observations from our own transactions data, as well as with insights shared during interviews with market participants in preparation for this report (Figure 3). Forestry and Land Use, Household/Community Devices, and Renewable Energy continued to be the most prevalent categories for new projects in 2022, a trend which appears will continue into 2023. Agriculture projects made a strong showing in 2022 and 2023, and continued growth is expected in this space as market participants seek out climate solutions within Agriculture, Forestry, and Other Land Use (AFOLU) that were either previously underexplored or have since become viable after a market price increase. The growth in new project registrations in the Transportation category in 2022 is also notable – almost all these projects are registered with ACR.

Figure 3. Carbon Credit Project Registrations by Category, 2020-2023

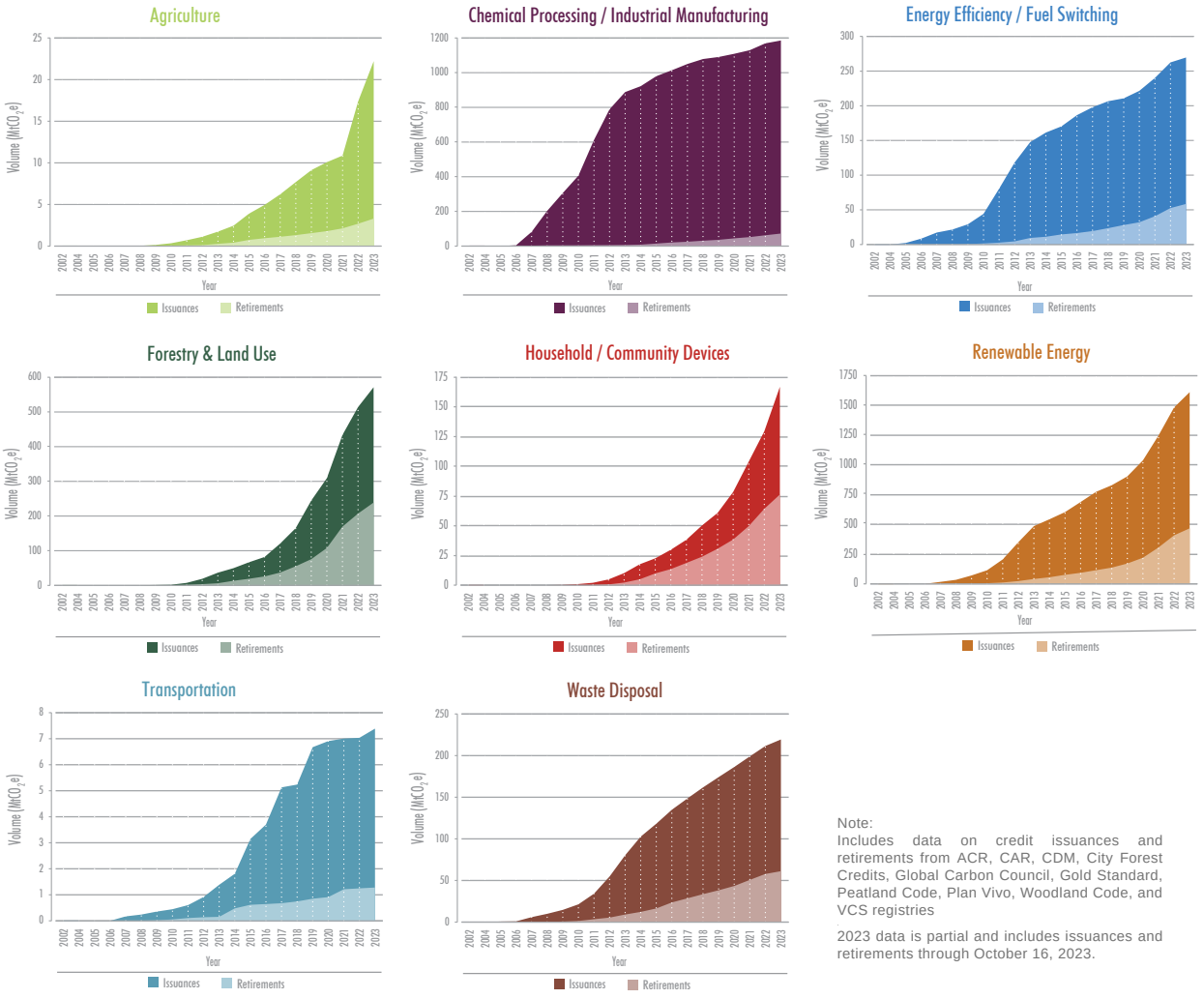


Notes:

Figure 3 includes data on project registrations from ACR, CAR, CDM, City Forest Credits, Global Carbon Council, Gold Standard, Peatland Code, Plan Vivo, Woodland Carbon Code, and VCS registries.

2023 data is partial and includes project registrations through October 16, 2023.

Figure 5. Cumulative VCM Issuances and Retirements, by Project Category, 2002-2023 YTD



Note:
Includes data on credit issuances and retirements from ACR, CAR, CDM, City Forest Credits, Global Carbon Council, Gold Standard, Peatland Code, Plan Vivo, Woodland Code, and VCS registries

2023 data is partial and includes issuances and retirements through October 16, 2023.

VCM Prices, Volume, and Value, by Project Attributes

1530 PROJECTS FROM 98 COUNTRIES OF 131 PROJECT TYPES TRADED GLOBALLY IN 2021-2023

While there was a secular drop-off in VCM transaction volume and value from 2021 to 2022, not all types of climate solutions in the VCM were affected in the same way (Table 3). The volume of Agriculture credit transactions reported to EM in 2022 grew 283 percent year-on-year from 2021, led by Grassland/Rangeland Management projects, while the volume of Household/Community devices projects was up 4 percent from 2021.

Due to increases in the average price of credits across all project categories in 2022, the value of the Chemical Processes & Industrial Manufacturing, Household/Community Devices, Energy Efficiency, Waste Disposal, and Agriculture credit sectors all grew from 2021. While the volume of Transportation project credits reported to EM declined 97 percent from 2021, the average price for Transportation credits grew 277 percent, suggesting that credit buyers are distinguishing the highest-quality projects from the total available supply.

Table 3. VCM Transaction Volumes, Values, and Prices, by Project Category, 2021-2023 YTD

	2021			2022			2021-2022 PERCENT CHANGE			2023 (YTD)
CATEGORY	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME	VALUE	PRICE	PRICE (USD)
FORESTRY & LAND USE	242,339,151	$1,401,461,426	$5.78	113,253,651	$1,148,848,783	$10.14	-53%	-18%	+75%	$11.21
RENEWABLE ENERGY	214,508,581	$463,950,451	$2.16	92,477,042	$386,054,729	$4.16	-57%	-17%	+93%	$3.97
CHEMICAL PROCESSING & INDUSTRIAL MANUFACTURING	17,253,275	$53,877,016	$3.12	13,338,781	$68,531,895	$5.14	-23%	+27%	+65%	$4.69
HOUSEHOLD / COMMUNITY DEVICES	8,687,821	$46,606,814	$5.36	9,070,331	$77,590,244	$8.55	+4%	+66%	+60%	$7.33
ENERGY EFFICIENCY / FUEL SWITCHING	10,936,656	$23,583,132	$2.16	6,601,354	$35,577,952	$5.39	-40%	+51%	+150%	$3.69
WASTE DISPOSAL	11,647,530	$42,292,142	$3.63	6,207,615	$44,870,139	$7.23	-47%	+6%	+99%	$9.00
AGRICULTURE	987,026	$9,525,119	$9.65	3,783,393	$41,700,362	$11.02	+283%	+338%	+14%	$6.43
TRANSPORTATION	5,405,466	$6,257,391	$1.16	176,338	$770,485	$4.37	-97%	-88%	+277%	-

Notes:

We cannot report an average price for Transportation credits in Q1-Q3 2023 because of the confidentiality of individual EM respondent data.

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

2023 Volumes and Values will be reported in early 2024.

2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies. The totals above represent 151 unique respondents in 2021, 113 unique respondents in 2022, and 74 unique respondents in 2023 to date.

Table 4. VCM Transaction Volumes, Values, and Prices, by Forestry and Land Use Project Types, 2021-2023 YTD

	2021			2022			2023 (YTD)
PROJECT TYPE	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	PRICE (USD)
AFFORESTATION, REFORESTATION & REVEGETATION (ARR)	14.7	$116.8M	$7.97	9.9	$116.6M	$11.79	$15.60
IMPROVED FOREST MANAGEMENT (IFM)	24.5	$199.5M	$8.14	4.5	$65.8M	$14.77	$12.34
REDD+	167.1	$861.3M	$5.15	58.5	$600.6M	$10.26	$10.84
ALL FORESTRY & LAND USE	242.3	$1.4Bn	$5.78	113.3	$1.2Bn	$10.14	$11.21

Notes:

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

2023 Volumes and Values will be reported in early 2024.

2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies.

BOX 2: SPOTLIGHT ON FORESTRY & LAND USE PRICES BY EM "CLUSTER" LEVEL TYPE

In 2022, EM received transaction data for 27 distinct types of projects (e.g., Afforestation, Peatlands, Mangroves, Agro-forestry, REDD+ variations of planned and unplanned deforestation and degradation, etc.), which are rolled up into "clusters" within the category of Forestry & Land Use. Clusters include REDD+ All, Blue Carbon, Afforestation/Reforestation/Revegetation, among others (contact EM at info@ecosystemmarketplace.org for a full breakdown). In these public State of the Voluntary Carbon Markets reports, EM typically provides category level data. However, due to differences widespread within Forestry and Land Use, we have provided cluster level data for ARR, IFM, and REDD+ (Table 4).

Agriculture

2022 EM Data Consists of: 11 projects, 7 types, 7 standards, 5 countries

The fastest-growing category in 2022 by transaction volume, Agriculture includes project types centered around sustainable management of farmland and pasture, including natural ecosystem preservation and restoration, management of animal manure and fertilizer emissions, and methane reduction through sustainable rice cultivation and methane biodigesters. Almost all (96 percent) of Agriculture credits in transactions reported to EM were registered with the VCS standard. In 2022, Agriculture credits became the most expensive credits by average price, surpassing Forestry and Land Use. According to Verra, its pipeline for Agriculture projects is still robust, especially for projects under VM42 (Methodology for Improved Agricultural Land Management). Up from 6% of projects that entered the pipeline in 2022 were VM42; today, this is 13%.

Chemical Processes/Industrial Manufacturing

2022 EM Data Consists of: 24 projects, 14 types, 6 standards, 7 countries

A broad category encompassing many chemical and industrial project types, Chemical Processes/Industrial Manufacturing includes projects that improve the efficiency of industrial processes as well as those that capture and destroy greenhouse gases such as nitrogen oxides, methane, and hydrofluorocarbons used and generated in industrial applications. This category also includes carbon capture and storage projects, either at the source of emissions or through direct air capture. This was the third largest category for credits traded in 2021 and 2022 by volume. Most Chemical Processes/Industrial Manufacturing credits traded in 2022 originated from projects in Asia (73 percent) and almost all other credits in this category came from North America (26 percent). VCS is the most prevalent standard for Chemical Processes/Industrial Manufacturing credits, representing 73 percent of transactions reported to EM in 2022, followed by CAR (22 percent).

Energy Efficiency/Fuel Switching

2022 EM Data Consists of: 32 projects, 10 types, 4 standards, 13 countries

The Energy Efficiency/Fuel Switching category includes projects that increase energy efficiency for power generation and distribution and those that switch from fossil fuels to renewable energy sources or other fossil fuels with less emissions intensity, such as natural gas. This was the fifth largest category by volume in 2021 and 2022. Most credits traded in 2022 originated in Asia (81 percent), followed by Latin America and the Caribbean (10 percent). Most credits were from projects registered with VCS (89 percent), with 5 percent coming from Gold Standard projects.

Forestry and Land Use

2022 EM Data Consists of: 381 projects, 27 types, 22 standards, 43 countries

This is the largest and most high-value category in both 2021 and 2022, with the greatest number of unique projects reported for 2022 transactions. Credits from Forestry and Land Use projects are consistently in high demand because they represent nature-based solutions that can both reduce and remove carbon emissions. This category includes popular project types such as Reduced Emissions from Deforestation and Degradation (REDD+; the most prevalent project type in Forestry and Land Use), Afforestation, Reforestation, and Revegetation (ARR), and Improved Forest Management (IFM). Other less well-known Forestry and Land Use project types include Mangrove Conservation, Wetland Restoration, and Urban Forestry, among others. Projects in Latin America and the Caribbean were the largest source of Forestry and Land Use credits in 2022 (47 percent by transaction volume), followed by Asia (29 percent) and Africa (11 percent). Most of the Forestry and Land Use credits traded in 2022 were from VCS projects (73 percent).

Household/Community Devices

2022 EM Data Consists of: 95 projects, 11 types, 3 standards, 28 countries

Household/Community Devices projects reduce emissions by providing infrastructure that reduces the dependence of individual households and communities on fossil fuels for cooking, clean water, heat, and electricity. Project types can include clean cookstove distribution projects, water purification and delivery system projects, rural electrification projects, and community-focused biogas and biodigester projects. Transaction volume for projects in this category grew slightly year-over-year, which moved Household/Community Devices from the sixth largest category by volume in 2021 to the fourth largest by volume in 2022. The largest portion of projects in this category originated in Africa (45 percent by transaction volume), followed by Asia (20 percent) and Latin America and the Caribbean (17 percent). The most common project standard in this category is Gold Standard (69 percent of traded credits), followed by VCS (23 percent).

Renewable Energy

2022 EM Data Consists of: 282 projects, 20 types, 10 standards, 37 countries

This category includes all projects focused on the development of new renewable energy sources to replace fossil fuels, including wind, hydropower, solar, geothermal, biomass, and projects using methane from industrial, agricultural, or waste sources for electrical generation. Renewable Energy is consistently the second largest and second most valuable category of transactions in both 2021 and 2022, with wind power projects representing the largest portion of those credits. Renewable Energy credits also had the lowest average price in 2022, and they remain among the least expensive credit categories in Q1-Q3 2023. The majority of Renewable Energy credits traded in 2022 came from projects located in Asia (56 percent), and the most prevalent standard for these projects was VCS (55 percent), followed by CDM (29 percent) and Gold Standard (13 percent).

Transportation

2022 EM Data Consists of: 4 projects, 4 types, 4 standards, 3 countries

Transportation projects relate to the efficiency of individual modes of transportation, as well as the development of more efficient systems, such as mass transit and electrification of vehicles. Fewer credits from Transportation projects were reported to EM in 2022 than any other category, representing a 97 percent decline in transaction volume from 2021. Transportation credits also persistently trade for

a relatively low price compared to other project categories, including in 2023. This could indicate that demand is moving away from Transportation credits, as credits from Agriculture, Forestry and Other Land Use, and Community/Household Devices projects that have obvious co-benefits continue to grow in market share.

Waste Disposal

2022 EM Data Consists of: 19 projects, 9 types, 5 standards, 8 countries

Waste Disposal includes project types that focus on capturing and destroying methane from wastewater, coal mines, and landfills, recycling oil and plastics, and composting. Note that per EM's Project Typology, last updated in 2023, any methane projects that capture methane to utilize it are included in the Renewable Energy category, while projects for methane capture and destruction (e.g., flaring) without utilization are in Waste Disposal. Waste Disposal went from the fourth largest volume of transactions in 2021 to the sixth largest in 2022, and average prices nearly doubled over the same period, possibly indicating that demand is shifting towards higher-quality Waste Disposal projects that show clear additionality in terms of emissions reduction. The largest share of Waste Disposal credits traded came from North America (47 percent by volume), and the most prevalent standards were CAR (44 percent) and VCS (41 percent), followed by Gold Standard (12.1 percent).

CREDITS FROM NATURE-BASED SOLUTIONS FETCH MORE THAN TWICE THE PRICE OF TECHNOLOGY-BASED CREDITS

Despite VCM volumes for nature-based solutions (NBS) credits and technology-based credits being nearly on par with each other in both 2021 and 2022, prices were more than double for NBS credits across those same years. We're seeing an even greater premium for NBS credits in preliminary 2023 VCM data.

Nature-based credits are dominated by REDD+ but also include the other types within the Agriculture and Forestry and Land Use project categories, including Sustainable Agriculture Land Management, Afforestation/Reforestation/Revegetation (ARR), Agroforestry, Improved Forest Management (IFM), Blue Carbon (e.g., Mangroves, Seagrasses, etc.) as well as smaller volume types. We continue to see differential demand for credits in these categories in 2023, with the average price of Agriculture and Forestry and Land Use credits increasing further, while the price increases of 2022 are receding for categories such as Energy Efficiency and Fuel Switching, and, Renewable Energy.

Table 5. Annual Total VCM Volume, Value, and Price, Nature-based Solutions vs. Technology-based Projects (2021-2023 YTD)

	2021			2022			2023 (YTD)
TYPE	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	PRICE (USD)
NATURE-BASED	243	$1.4Bn	$5.80	117	$1.2Bn	$10.17	$10.61
TECHNOLOGY-BASED	270	$640M	$2.37	130	$617M	$4.76	$4.66

Notes:

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

2023 Volumes and Values will be reported in early 2024.

2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies.

REMOVALS VS. REDUCTIONS

VCM buyers are interested in purchasing credits based on other project attributes besides nature-based or technology-based projects. Buyers also want to know whether a carbon credit represents a reduction (also referred to as "avoidance") in future emissions (these are largely technology-based solutions from Chemical Processes, Industrial Manufacturing, Energy Efficiency, Fuel Switching, Household / Community Devices, Renewables, Transportation, Waste Disposal, and in some cases also Agriculture) or the removal and sequestration of carbon dioxide from the atmosphere (typically nature-based solutions such as Afforestation/Reforestation/Revegetation, Agro-forestry, but Industrial Carbon Removal and Biochar Production are also included).

When credits are ultimately retired, the end user will be able to make a claim about the type of carbon-negative activity that the credit represents. EM Data shows that there is currently a premium in the VCM for durable removals over emissions reductions. Also notable are projects that represent both, which include nature-based solutions such as Improved Forest Management (IFM), REDD+, and Sustainable Agricultural Land Management, among others.

EM analysis shows that credits representing removals have an average price nearly two and a half times that of reduction credits in 2022, consistent with the large premium for removals in 2021 (Table 6). The volume of removal credits traded dropped 30 percent from 2021, compared to a 52 percent transaction volume decrease for reduction credits, suggesting sustained demand for carbon removals, even as the broader VCM contracts.

Table 6. VCM Transaction Volumes, Values, and Prices, Reductions vs. Removals, 2021-2023 (YTD)

	2021			2022			2023 (YTD)
REMOVAL VS. REDUCTION	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	PRICE (USD)
REMOVALS	18	$141M	$7.84	12.7	$150M	$11.80	$14.78
REDUCTIONS	268	$635M	$2.37	128.4	$612	$4.76	$4.69
BOTH	192.5	$1.1Bn	$5.56	67.1	$716M	$10.66	$10.04

Notes:

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

2023 Volumes and Values will be reported in early 2024.

2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies.

CARBON CREDIT STANDARDS

EM analysis of transactions for third-party carbon credit standards (Table 7) shows that although VCS remains the largest registry by volume, smaller, more localized/niche standards continue to have their place in the market. In fact, while most standards saw a decrease in transaction volume for their credits, including VCS, the volume of reported Gold Standard credits transacted increased 10 percent, the volume of CAR credits increased 28 percent, and the volume of ACR credits increased 1 percent from 2021 to 2022.

As its important to be able to confirm project attributes that are clearly linked to a Project ID, Table 7 represents a predominant subset of EM Data of transactions reported with official project identification; any volumes reported to EM without a Project ID were excluded from this analysis.

Table 7. VCM Transaction Volumes, Values, and Prices, by Project Standard for Trades with Project ID, 2021-2023 (YTD)

	2021			2022			2021-2022 PERCENT CHANGE			2023 (YTD)
STANDARD	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME	VALUE	PRICE	PRICE (USD)
VERIFIED CARBON STANDARD (VCS)	203.8	$945M	$4.64	79.3	724.5M	$9.14	-61%	-23%	+97%	$9.06
CLEAN DEVELOPMENT MECHANISM (CDM)	37.7	$73M	$1.94	18.2	51.7M	$2.84	-52%	-29%	+46%	$2.24
GOLD STANDARD	10.8	$58M	$5.42	11.8	98.4M	$8.35	+10%	+69%	+54%	$6.25
CERCARBONO	-	-	-	4.1	23.5M	$5.73	-	-	-	$4.14
CLIMATE ACTION RESERVE (CAR)	3.1	$14M	$4.56	4	28.5M	$7.18	+28%	+101%	+57%	$6.58
AMERICAN CARBON REGISTRY (ACR)	1.8	$22M	$12.14	1.8	36.6M	$19.85	+1%	+65%	+64%	$9.50
PLAN VIVO	2.3	$23M	$9.92	1.2	16.3M	$13.29	-46%	-28%	+34%	$12.49
UK WOODLAND CARBON CODE (WCC)	0.233	$4.7M	$20.25	0.212	5.2M	$24.41	-9%	+10%	+21%	$30.81
CANADIAN STANDARDS ASSOCIATION (CSA)	0.062	$177,190	$2.84	0.161	620,400	$3.85	+159%	+250%	+36%	-
UK PEATLAND CODE	-	-	-	11,416	351,696	$30.81	-	-	-	-

Notes:

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports. 2023 average price is preliminary and represents the volume-weighted average price for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies.

For the purposes of this analysis by standard, data provided in this table include all transaction volumes, values, and average prices only for transactions with a known project ID, as reported by the EM Respondent.

EM cannot report volumes, values, or average prices for CERCARBONO and UK Peatland Code credits in 2021 and average prices for Canadian Standards Association and UK Peatland Code credits in 2023 Q1-Q3 because of the confidentiality of individual EM respondent data.

SPECIAL NOTE ON THE UK WOODLAND CARBON CODE AND UK PEATLAND CODE

In Q1 2023, Ecosystem Marketplace partnered with Scottish Forestry (the Scottish Government agency responsible for forestry policy, support, and regulation) and IUCN UK Peatland Programme, to run a consultation and commence tracking of carbon prices of Woodland Carbon Code and Peatland Code credits. In October of the same year, EM for the first time released voluntary carbon market prices[12] for the United Kingdom's domestic carbon units of Woodland Carbon Code and Peatland Code projects covering transactions in 2021, 2022, and in the partial year 2023. This work is continuing with Scottish Forestry and IUCN in an ongoing effort to drive transparency in voluntary carbon markets.

This work was funded by the Nature-based Solutions for Climate Change at Landscape Scale programme, sponsored by Defra and DESNZ.

Ecosystem Marketplace A FOREST TRENDS INITIATIVE | nature returns | PEATLAND CODE | Woodland Carbon CO_2de

12 Stephen Donofrio, "New Ecosystem Marketplace Price Transparency for UK Voluntary Carbon Market," *Ecosystem Marketplace*, October 11, 2023, https://www.ecosystemmarketplace.com/articles/new-ecosystem-marketplace-price-transparency-for-uk-voluntary-carbon-market/

PRICE PREMIUMS FOR PROJECTS WITH BEYOND-CARBON ENVIRONMENTAL AND SOCIAL BENEFITS

One of the most consistent themes, both in our analysis of EM Respondent data and our outreach to VCM experts, has been the importance of robust "beyond-carbon" environmental and social benefits associated with a VCM project (often referred to as "co-benefits" or "core benefits").

Many VCM buyers of Verra's VCS credits preferentially seek out projects with certifications with the Climate, Community, and Biodiversity Standards (CCB), SD VISta, and Social Carbon, a finding confirmed by the experts we interviewed in preparation for this report.

In fact, credits from projects with at least one of these co-benefit certifications had a 78 percent premium in 2022, up from a 49 percent premium in 2021. Zeroing in on the largest project standard, VCS, showed that credits from these projects with co-benefits had a 92 percent premium in 2022, compared to a 69% premium in 2021 (Table 8).

Table 8. VCM Transaction Volumes, Values, and Prices, With vs. Without Co-benefits for Trades with Project ID, 2021-2023 (YTD)

	2021			2022			2023 (YTD)
CO-BENEFIT STATUS	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	PRICE (USD)
ALL VCM	260.2	$1.15Bn	$4.41	121.5	$988M	$8.13	$7.59
NO CO-BENEFITS	97.1	$327M	$3.37	66.2	393M	$5.94	$6.07
HAS CO-BENEFITS	163.1	$819M	$5.02	55.4	587M	$10.60	$10.08
ALL VCS TRANSACTIONS	203.8	945M	$4.64	79.3	725M	$9.14	$9.06
NO CO-BENEFITS	42.1	126M	$2.99	24.1	133M	$5.52	$5.63
HAS CO-BENEFITS	161.7	816M	$5.05	55.1	586	$10.62	$10.08

Notes:

For the purposes of this analysis by project co-benefit status, data provided in this table include all transaction volumes, values, and average prices only for transactions with a known project ID, as reported by the EM Respondent.

Co-benefits are defined in this context on the basis of project certification through one of the following co-benefit certification schemes: CCB, SD VISta, and Social Carbon

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies.

Another way projects can demonstrate their beyond-carbon attributes is through Sustainable Development Goals (SDGs). Most carbon crediting standards now require SDGs to either be declared at the time of project registration or retroactively for projects that were previously registered without this requirement, and in most cases these SDG claims are validated by project validation/verification bodies. It should be noted that a key driver for these carbon standards to implement their SDG requirements was for the standard itself to comply with the International Civil Aviation Organization's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) eligible offset credit programs' criteria.

The SDGs include objectives that can be accomplished alongside carbon-negative project activities, like providing clean water and sanitation and affordable, clean energy, and building sustainable cities and communities. In 2022, credits from projects with associated SDGs had an 86 percent premium over credits from projects that do not work towards any SDGs, up from a 57 percent premium in 2021 (Table 9).

Table 9. VCM Transaction Volumes, Values, and Prices, With vs. Without SDGs for Trades with Project ID, 2021-2023 (YTD)

	2021			2022			2023 (YTD)
SDG STATUS	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	PRICE (USD)
ALL VCM	260.2	$1.147Bn	$4.41	121.5	$988M	$8.13	$7.59
NO SDGS	128	$438M	$3.42	77.9	$485M	$6.23	$6.35
HAS SDGS	132.2	$709M	$5.36	43.7	$505M	$11.58	$8.76

Notes:

For the purposes of this analysis by project SDGs, data provided in this table include all transaction volumes, values, and average prices only for transactions with a known project ID, as reported by the EM Respondent.

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies.

Box 3. SDG Criteria by Carbon Credit Standard

STANDARD	DESCRIPTION	PROCESS FOR CONFIRMING
AMERICAN CARBON REGISTRY (ACR)	ACR Standard v8.0 requires all projects to use the ACR SDG Contributions Reporting Template or 'other tool(s) approved by ACR'. "Project Proponents must identify in the GHG Project Plan environmental and social impacts of their project(s). Project Proponents shall also disclose and describe positive contributions as aligned with applicable Sustainable Development Goals. Project Proponents must describe the safeguard measures in place to avoid, mitigate, or compensate for potential negative impacts, and how such measures will be monitored, managed, and enforced."[13]	"The ACR SDG Contributions Reporting Tool is designed to help project developers identify the targets and impacts that are then reported in the appropriate SDG Contributions Report. For AFOLU projects, this tool is used in tandem with the Template for ACR AFOLU Project SDG Contributions Report. For Industrial projects, this tool is used in tandem with the Template for ACR Industrial Project SDG Contributions Report."[14]
CLIMATE ACTION RESERVE (CAR)	"The ACR SDG Contributions Reporting Tool is designed to help project developers identify the targets and impacts that are then reported in the appropriate SDG Contributions Report. For AFOLU projects, this tool is used in tandem with the Template for ACR AFOLU Project SDG Contributions Report. For Industrial projects, this tool is used in tandem with the Template for ACR Industrial Project SDG Contributions Report."[15]	"Each project is unique; it is the responsibility of the project developers and proponents to accurately identify and report on relevant SDGs in good faith. Where possible, quantitative information is strongly encouraged to ensure integrity when reporting on project co-benefits."[16]
GOLD STANDARD	Gold Standard for the Global Goals specifies that all projects and funds shall demonstrate a clear, direct contribution to sustainable development, defined as making demonstrable, positive contributions to at least three SDGs, one of which must be SDG 13, Climate Action. These must be a significant and primary effect of the projects and must be permanent or lasting (with any time-limit to the project's effect transparently declared).[17]	Certified SDG Impacts are third-party verified and reviewed by an approved Certification Body and are certified to Gold Standard.
GLOBAL CARBON COUNCIL	"The GCC Program provides a global platform for GHG emission reductions with an integrated GCC registration and issuance process to ensure that GCC Project Activities… contribute to achieving the United Nations Sustainable Development Goals (SDGs), by applying the GCC Project Sustainability Standard, and enable Project Owners – depending on the number of SDGs that the project contributes to – to demonstrate this achievement by obtaining additional GCC certification labels."[18]	During Project Verification, the approved GCC Verifier shall also verify the defined project-level SDG targets and indicators reported in the PSF if the project owner has indicated their preference to apply for SDG label.
PLAN VIVO	"Projects are encouraged to adopt Livelihood and Ecosystem Indicators related to the United Nations Sustainable Development Goals."	Plan Vivo requires projects to monitor livelihoods status of Project Participants and other Local Stakeholders and monitor ecological conditions and threats in the Project Region, both relative to the Baseline Scenario.
VERIFIED CARBON STANDARD (VCS)	Project proponents must demonstrate that a project contributes to at least three United Nations SDGs by the end of the first monitoring period and in each subsequent monitoring period.[19]	Verra reviews as a part of the VCS project Monitoring Report. Projects that complete verification to the CCB or SDVIsta programs and report contributions to at least three SDGs in their documentation automat-cally meet VCS SDG contributions requirements

13 American Carbon Registry, *The ACR Standard Version 8.0 (July 2023)*, (Little Rock, AR: American Carbon Registry, 2023), https://acrcarbon.org/wp-content/uploads/2023/10/ACR-Standard-v8.0.pdf

14 "ACR SDG Contributions Reporting Tool", American Carbon Registry, published July 1, 2023, https://acrcarbon.org/program_resources/acr-sdg-contributions-reporting-tool/

15 "Program-wide Project Forms," Climate Action Reserve (CAR), accessed November 27, 2023, https://www.climateactionreserve.org/how/program-resources/forms/

16 "SDG Reporting Tool v1.0", Climate Action Reserve (CAR), October 28, 2020, https://www.climateactionreserve.org/wp-content/uploads/2020/10/SDG-Reporting-Tool-v1.0_beta_EXTERNAL_10.28.2020.xlsx

17 Gold Standard, Claims Guidelines Version 2.0, (Geneva: The Gold Standard Foundation, 2022), https://globalgoals.goldstandard.org/105-par-claims-guidelines/

18 Global Carbon Council, Global Carbon Council Project Sustainability Standard V3.1 – 2023, (Doha, Qatar: Global Carbon Council, 2023), https://www.globalcarboncouncil.com/wp-content/uploads/2023/01/Project-Sustainability-Standard_V3.1_.pdf

19 "Updates to VCS Program Released", Verra, January 20, 2022, https://vcmintegrity.org/vcmi-claims-code-of-practice/

NEWER VINTAGE CREDITS GARNER HIGHER PRICES

The "vintage" of a carbon credit refers to the year in which the verified emissions reduction or removal occurred and therefore represents the year of the issued credits. On carbon standards registries, every serialized unit of a carbon credit is denoted with an associated vintage year. In some cases, because the carbon credit project registration process can take months to years, it is possible for verifications to cover multiple vintage years for historical emissions reductions or removals, and in turn, project proponents may be issued more than one vintage year upon carbon standard approval of the third-party verification report.

In recent years, vintage has arisen as a metric of interest for buyers. This is due to concerns over the legitimacy of certain older projects and/or project types, the methodologies used to implement the projects as buyer preferences for newer more robust methodologies are confirmed by experts, or sometimes even specific standards (e.g., CDM). EM has also heard growing corporate buyer interest in aligning, as much as possible, the years of emissions reductions and the years of a buyer's emissions that are being addressed with the credit. In fact, the Voluntary Carbon Markets Integrity Initiative (VCMI) requires buyers to report vintage, in addition to the project quality thresholds, for carbon credit use in its Claims Code of Practice.[20]

In response, carbon standards have worked with stakeholders to improve project methodologies and monitoring, reporting, and verification technology, and the VCM is making progress in addressing early criticisms of baseline measurement errors, poor accountability, and questionable additionality. To address these issues and others, credit rating agencies (e.g., BeZero[21], Sylvera[22], and Calyx Global[23]) have begun to develop "discounting" protocols that allow for end users to combine multiple credits to offset a single ton of carbon emissions. The theory is that by purchasing credits with a recent vintage from trusted, highly rated projects, end users reduce the risk of having to discount their credits when offsetting their greenhouse gas-emitting activities in the future.

In other words, not only has there been an increase in preference for credits of more recent vintage, but also a premium for newer vintages. In 2022, the premium for credits with a vintage younger than five years was 57 percent above older credits, compared with a 38 percent recency premium in 2021 (Table 10). Pricing data as it relates to vintage for 2023 will be available in early 2024.

Table 10. Year-over-year Comparison of VCM Transaction Price by Credit Vintage Status, 2021-2022

CREDIT VINTAGE	2021	2022
OLDER THAN 5 YEARS	$3.57	$5.50
MORE RECENT THAN 5 YEARS	$5.05	$8.68
RECENCY PREMIUM	41%	58%

Notes:

Transactions were included in this analysis on the basis of the earliest or latest credit vintages reported for a single transaction. The cutoff year was five years before the year of analysis (i.e., 2016 for 2021 transactions and 2017 for 2022 transactions). All transactions with the latest vintage before the cutoff year were included in "older than five years," and all transactions with the earliest vintage during or after the cutoff year were included in "more recent than five years." Transactions with a range of vintages spanning both sides of the cutoff year are not included in the above table.

Price data is expressed as volume-weighted averages.

20 VCMI, Claims Code of Practice, (VCMI, 2023), https://vcmintegrity.org/vcmi-claims-code-of-practice/

21 "BeZero launches new tool to help buyers construct risk-adjusted and credible net zero strategies,", BeZero, November 6, 2023, https://bezerocarbon.com/insights/making-credible-claims-a-risk-adjusted-approach-to-using-carbon-credits/

22 "Discounting and carbon credits: accounting for imperfection," Sylvera, August 24, 2023, https://www.sylvera.com/blog/discounting-and-carbon-credits-accounting-for-imperfection

23 Calyx Global, Rightsizing Carbon Credits, (Calyx Global, 2023), https://calyxglobal.com/resource-post?q=14

PROJECT LOCATION

EM data is specified to the state or provincial level, which can be rolled up to country and region. While there are over 98 countries represented in EM's transaction data, we have focused on project region for this analysis.

It can be difficult to understand the ultimate cause of changes in transaction volume or value in a region, as this can be linked to an increase or decrease in transactions for a key project type that is overrepresented in that region. In line with broader VCM trends for the year, transaction volumes were also down across most regions in 2022. However, transaction volumes in Europe increased by 54 percent, despite projects from this region still making up a very small portion of available credits (Table 11). Average prices for European project credits also declined by 28 percent in 2022 from 2021, bringing European credit prices more in line with credits from North America and Oceania. Preliminary 2023 data suggest a rebound in the price of European credits, with prices more than doubling.

Table 11. VCM Transaction Volumes, Values, and Prices, by Project Region, 2021-2023 (YTD)

	2021			2022			2021-2022 PERCENT CHANGE			2023 (YTD)
PROJECT REGION	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME	VALUE	PRICE	PRICE (USD)
ASIA	218.3	$673M	$3.09	102.8	$765M	$7.45	-53%	+14%	+141%	$6.61
LATIN AMERICA & CARIBBEAN	102.8	$450M	$4.38	72.3	$506M	$7.00	-30%	+12%	+60%	$8.71
AFRICA	23.3	$145M	$6.21	18.3	$164M	$8.93	-22%	+13%	+44%	$7.33
NORTH AMERICA	23.9	$183M	$7.67	11.8	$136M	$11.59	-51%	-26%	+51%	$7.31
EUROPE	0.394	$7.5	$19.05	0.605	$8.4M	$13.82	+54%	+11%	-27%	$25.41
OCEANIA	0.608	$8.1	$13.32	0.199	$2.5M	$12.73	-67%	-69%	-4%	$40.33

Notes:

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

2023 Volumes and Values will be reported in early 2024.

2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies.

CORSIA-ELIGIBLE PROJECT CREDITS GAIN MARKET VALUE

Another market force that may drive demand for credits from certain projects or standards is the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)[24]. CORSIA is a compliance framework adopted in 2016 allowing certain carbon credits (otherwise referred to as Eligible Emissions Units) to be used to offset emissions from international airplane travel. Only some credit vintages from specific carbon credit projects are eligible for the CORSIA market.

If they meet the eligibility criteria,[25] issuances for projects registered with carbon crediting standards are tagged as CORSIA Eligible Emissions Units in the carbon standards' registries: ACR, Architecture for REDD+ Transactions (ART), China GHG Voluntary Emission Reduction Program, Clean Development Mechanism (CDM), Climate Action Reserve (CAR), Forest Carbon Partnership Facility (FCPF), Global Carbon Council (GCC), The Gold Standard (GS), and Verified Carbon Standard (VCS).

24 CORSIA Eligible Emissions Units, International Civil Aviation Organization (ICAO), March 2019, https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Emissions-Units.aspx

25 CORSIA Eligible Emissions Units, International Civil Aviation Organization (ICAO), March 2023, https://www.icao.int/environmental-protection/CORSIA/Documents/TAB/CORSIA%20Eligible%20Emissions%20Units_March2023.pdf

As these issuances can be purchased by any buyer, including international airlines, the CORSIA-eligibility tag became an indicator of carbon credit quality for buyers across the board. The VCMI has welcomed the work of CORSIA's Technical Advisory Board to say that to make a VCMI Claim companies must disclose the "number of credits purchased and retired that the company applied towards the VCMI Claim (These shall be CORSIA label credits, and once the ICVCM Assessment Framework is implemented, companies shall transition to purchase and retire CCP label credits)."[26]

In 2022, the value of the CORSIA-eligible market segment reported to EM grew by 51 percent, driven by an increase in average credit price of 126 percent. This segment's transaction volume decreased only 33 percent, compared to a 51 percent decline in overall VCM volume (Table 12). However, as we near the end of 2023, the final year of the 2021-2023 Compliance Period (Pilot Phase), EM analysis suggests a downturn in prices for CORSIA-eligible units in the VCM in 2023. This may be due to VCM buyers instead looking towards the Integrity Council for Voluntary Carbon Markets' Core Carbon Principles. It may also be due to a changing supply of eligible units as in the next phase of CORSIA, formally considered to be the "first phase (2024-2026 compliance period)" and "all programmes [ACR and ART] that Council has already approved for this phase should continue to be eligible". Several new programs have also been approved as conditionally eligible: BioCarbon Fund Initiative for Sustainable Forest Landscapes, Cercarbono, Forest Carbon Partnership Facility, Global Carbon Council, and the Premium Thailand Voluntary Emission Reduction Program.[27]

Table 12. Volumes, Values, and Prices for Credits from CORSIA-eligible projects, 2021-2023 (YTD)

	2021			2022			2023 (YTD)
CORSIA ELIGIBILITY STATUS	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	VOLUME ($MtCO_2e$)	VALUE (USD)	PRICE (USD)	PRICE (USD)
CORSIA-ELIGIBLE	17.8	$75M	$4.18	11.9	$113M	$9.46	$5.23

Notes:

Note: For the purposes of this analysis, CORSIA eligibility is defined at the project level credits from any vintage of a project are considered CORSIA-eligible, then the entire project is counted as CORSIA-eligible. CORSIA-eligibility is assessed only for transactions that are reported to EM with a corresponding Project ID that can be matched to the carbon credit standard registry where that project is registered, and the CORSIA tag can be derived directly from the registry data.

Price data is expressed as volume-weighted averages.

2021 and 2022 volumes, values, and prices update as new data are reported by EM Respondents, which may cause discrepancies between the data in the table above and data reported in previous EM reports.

2023 Volumes and Values will be reported in early 2024.

2023 average price is preliminary for transactions taking place from January 1-November 21, 2023, which were reported to EM as of November 20, 2023. However, the above-reported 2023 price is not inclusive of all EM Respondents through this date due to variances in their trade reporting frequencies.

26 VCMI, Claims Code Annexes, (VCMI, 2023), https://vcmintegrity.org/wp-content/uploads/2023/06/Claims-Code-Annexes.pdf

27 ICAO, TAB ASSESSMENT AND RECOMMENDATIONS ON APPLICATIONS AND PROCEDURAL UPDATES (ICAO, 2023), https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Emissions-Units.aspx

A SPOTLIGHT ON JURISDICTIONAL REDD+

While this report focuses on project-based carbon credit transactions in the VCM, EM is also tracking jurisdictional REDD+ sales activities.

There are many ways to implement a project to originate carbon credits in forests and other natural settings, and the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) framework developed by the United Nations Framework Convention on Climate Change has steadily grown to become the most well-known and well-scrutinized concept in the VCM. REDD+ projects reduce emissions through a variety of methodologies focused on avoiding planned or unplanned deforestation or degradation, and they can also include reforestation and agroforestry components.

Since the inception of these REDD+ frameworks, one persistent criticism has been the issue of "leakage," the phenomenon whereby protecting one parcel of land from logging and extractive activities pushes the people and entities who would engage in damaging activities in that parcel to do the same activities in the next closest suitable area. Leakage eats into the emissions reduction benefits from REDD+ because some amount of these carbon-emitting activities still occur. As a potential solution, the Jurisdictional REDD+ framework was developed. In this framework, REDD+ activities are accounted for across a single broad national or sub-national jurisdiction, and so all leakage within the regional boundary is accounted for.

To administer Jurisdictional REDD+ projects, Winrock International, the nonprofit administrator of ACR (formerly, American Carbon Registry), established Architecture for REDD+ Transactions (ART) and The REDD+ Environmental Excellence Standard (TREES) to develop standardized procedures to credit emissions reductions and removals for large-scale REDD+ programs. In December 2022, ART announced the first sale of Jurisdictional REDD+ credits, 37.5 million tons sourced from the national government of Guyana, to be delivered to the fossil energy company Hess (which is a major player in offshore fossil fuel extraction in Guyana). Note, all of Guyana's issued credits are CORSIA Eligible Emissions Units.

This credit sale, and Jurisdictional REDD+ in general, have not been without their share of scrutiny. The Guyana credits are High Forest – Low Deforestation (HFLD) credits, which have been criticized by a limited set of market participants because of the perceived lack of one-to-one fungibility with fossil fuel emission reductions. However, it is important to note that the ART HFLD crediting approach has also been strongly supported by credit buyers such as Climate Impact X and the World Economic Forum's NCS Alliance, as well as by the NGO and IPLC community, including members of the Forests for Life Partnership, Wildlife Conservation Society (WCS), and members of the Tropical Forest Credit Integrity Initiative (TFCI). In addition, a Guyanese Indigenous Peoples advocacy organization filed a formal complaint that Indigenous Peoples were not properly consulted. The complaint was investigated, including as part of the independent third-party verification, and the complaint was resolved and documented per ART's requirements.

Related, the VCS Jurisdictional and Nested REDD+ (JNR) Framework may help to alleviate some of these concerns for future Jurisdictional REDD+ projects. Nested REDD+ allocates responsibility and custody for carbon credits to individual projects within a larger Jurisdictional REDD+ scheme, allowing individual communities and project developers to make choices about sales of the credits originating from their projects. And as we've heard from project developer interviews, there's great anticipation for projects to successfully nest within a VCS JNR Framework, which is currently holding up issuances from certain projects, and ultimately sales as well.

Appendix

DATA AND METHODOLOGY

Most of the data in this report comes from self-reported transaction data from EM respondents, typically project developers, investors, and intermediaries (i.e., sell-side market participants). Data on project registrations, credit issuances, and credit retirements are sourced from carbon standards' registries.

Average carbon credit prices are volume-weighted, calculated from transactions with reported price and volume (the majority of transactions reported to EM). To calculate the total transaction value, this average price is multiplied by the total volume of transactions (including transactions without an associated price). In other words, the volume-weighted average price for transactions with price is assumed to extend to transactions reported without price.

For project registrations, we only included projects that had been approved by the relevant registry, whether or not credits were issued for projects. We used the provided project registration date where available; for Gold Standard projects we used the date of the first credit issuance for a project. We removed any reserve or buffer volume from registry data on issued credits, where provided data made that possible.

EM is the largest repository of VCM transaction data, however, the volumes presented throughout this report should not be considered to be a complete representation of market trading activity. EM works actively to engage with all market participants. As reporting to EM is voluntary, we are aware of the many market participants not yet reporting to EM, so the actual volume of credits transacted in the voluntary market is likely higher than the amounts we publish. See below for a list of current EM Respondents.

EM RESPONDENTS, 2021-2023

Ecosystem Marketplace is grateful for valuable carbon market insights and data, disclosed by a growing international network of EM Respondents. The following respondents provided data on transactions taking place in 2021 and 2022 that are included in this report (* indicates respondents also among the 74 respondents reporting 2023 transactions as of November 21, 2023):

*3Degrees**
ACCIONA
*Across Forest AS/Across Nature AS**
*AGL**
*Agrocortex**
*Agroempresa Forestal**
AIDER
*Akre**
*ALLCOT**
American Forest Foundation
Anew Climate
*Arbor Day**
AzzeroCo2
*Beijing Qianyuhui International Environmental Investment Co., Ltd. (QYH)**
BeZero
*BioCarbon Partners**
*Biofílica Ambipar Environment**
*BIOFIX**
BMO Radicle
*BOCS Foundation**
*Bonneville Environmental Foundation**
*Bosques Amazonicos**
Bosques Sostenibles
BrasilMataViva
BTG Pactual
BVRio
Caledonian Climate
Carbone boréal (Université du Québec à Chicoutimi)
*Carbon Expert**
*Carbonext**
Carbonfund.org
Carbon Green Investments / Africa
Carbon Offsets To Alleviate Poverty (COTAP)
*CarbonReset**
CarbonSink (acquired by South Pole)
CarbonStore – Tillhill
Carbon Tanzania
Cassinia Environmental
CBL Markets (Xpansiv)
*CIMA**
Clean Air Action Corporation (TIST Program)
Clean Air Trade
Climate Bridge Ltd.
Climate & Conservation Consortium (formerly Carbon Consulting Company)
ClimatePartner GmbH
ClimateSeed
*ClimeCo**
*CO2CERO**
*CO2Logic**
Compensate

*Conservation International**
*Cool Effect**
Cool Planet
*Cooperativa AMBIO Programa Scolel'te**
*C-Quest Capital**
Credible Carbon
Cultivo.Land
DelAgua
Ducks Unlimited
*Eco2librium**
EcoAct (Atos owned)
Econegocios
*Ecopart Assessoria em Negocios Empresariais Ltda. (EQAO)**
EcoPlanet Bamboo
*Ecosecurities**
Ecosphere+ (acquired by Abatable)**
Ecotierra
EFM Investment & Advisory
*EKI-EnergyServices**
Element Markets, LLC (now part of Anew Climate)
*Emergent Ventures**
*ENGIE**
*Enviro-Mark Solutions Ltd (trading as Toitū Envirocare)**
Esti Impact
EthioTrees
*Everland**
Face the Future
FairClimateFund (formerly, Hivos Carbon Credits)
Fauna & Flora International
First Climate Markets AG
Fondo Acción
Forest Carbon (Indonesia)
*Forest Carbon Ltd (UK)**
*FORLIANCE-CO2OL**
Fundação Carbon Offset Timor (FCOTI)
*Fundación para el Ecodesarrollo y la Conservación (FUNDAECO)**
FutureCamp Climate
global-woods-international AG
Gold Standard
GoodPlanet
*Gould International**
*Greenoxx**
Green Resources
*Grupo Ecologico Sierra Gorda**
*Highland Carbon**
Hivos (now, fairclimatefund)
InfiniteEARTH
*Infinite Solutions**
*Integrador de Comunidades Indígenas y Campesinas de Oaxaca AC (ICICO)**
Khasi Hills Ecosystem Pvt Ltd (KHEPL)
*King County, Washington**
KKI Warsi
Lavola Anthesis (Climate Neutral Group)
Life Climate and Energy Limited (Life Enerji)
*Livelihoods Venture**
*Louis Dreyfus Company**
*MEXICO2**
*Microsol**
Mikro-Tek
*Mongolian Society for Rangeland Management**
Moss.Earth
*Nature Conservancy Canada**
NCX (formerly, SilviaTerra)
NedBank
Nexus for Development
*Nordic Offset**
Nova Institute
ONFInternational
OstromClimate (formerly NatureBank)
OurOffset
Pachama
PacificHydro
PermanentForestsNZ
PRIMAKLIMA
Pronatura
*Prosustentia**
ProTeak
*Proyecto Mirador**
*Quadriz**
Rabobank
Redshaw Advisors Limited
Regen Network Development
Respira International
RSPBGola
South Pole
STX Group (formerly Vertis-Strive)
Sustainable Carbon
Sustainable Forestry Investments
*Swiss Climate**
Taking Root
*Terra Global Capital**
*The Climate Trust**
*The Nakau Program**
*The Nature Conservancy**
The Voluntary Climate Marketplace
*Timing Carbon Asset Management Co., Ltd.**
United Purpose (UP) / Self Help Africa (SHA) (formerly Concern Universal)
UPC Renewables
*UPM**
Vi-Agroforestry
Waara
WayCarbon
We Are Neutral
*WeForest**
Wellington Management
World Land Trust (WLT)
Worldview International Foundation
World Vision Australia
WWF AU
Yayasan PRCF Indonesia
YPF
*ZeroMission**

FOREST TRENDS

Pioneering Finance for Conservation

Biodiversity Initiative

Promoting development of sound, science-based, and economically sustainable mitigation and no net loss of biodiversity impacts

Coastal and Marine Initiative

Demonstrating the value of coastal and marine ecosystem services

Communities and Territorial Governance Initiative

Strengthening local communities' capacity to secure their rights, manage and conserve their forests, and improve their livelihoods

Ecosystem Marketplace

A global platform for transparent information on environmental finance and markets, and payments for ecosystem services

Forest Policy, Trade, and Finance Initiative

Supporting the transformation toward legal and sustainable markets for timber and agricultural commodities

Public-Private Finance Initiative

Creating mechanisms that increase the amount of public and private capital for practices that reduce emissions from forests, agriculture, and other land uses

Supply Change

Tracking corporate commitments, implementation policies, and progress on reducing deforestation in commodity supply chains

Water Initiative

Promoting the use of incentives and market-based instruments to protect and sustainably manage watershed services

Learn more about our programs at www.forest-trends.org