Ecosystem Marketplace
A FOREST TRENDS INITIATIVE

Ecosystem Marketplace Insights Briefing: *CASH Coalition Presentation*

August 14, 2025

About Ecosystem Marketplace

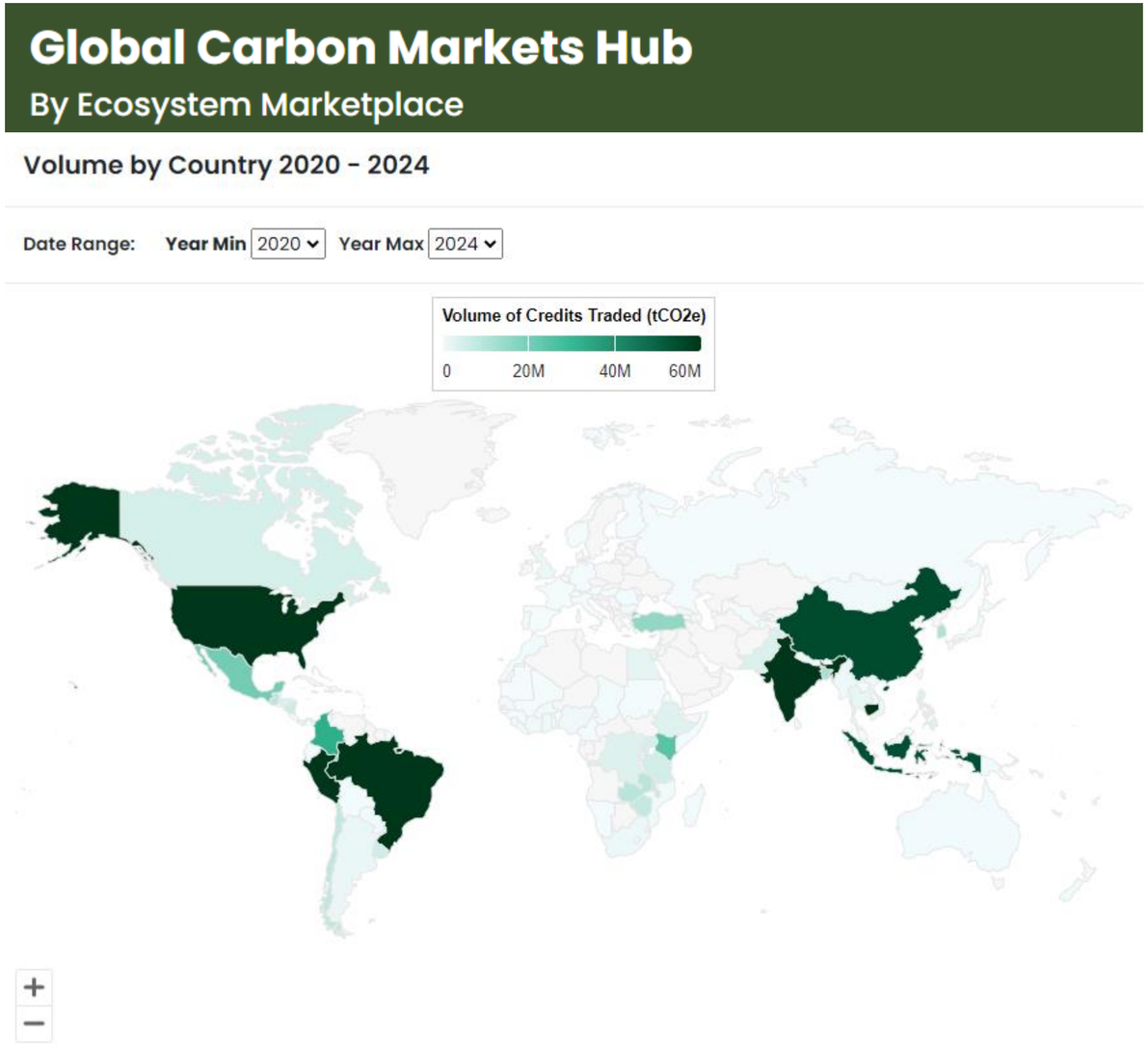
Ecosystem Marketplace (EM) is the world's first and largest voluntary carbon market disclosure system and data platform.

EM is a non-profit initiative of Forest Trends that has **driven transparency in global carbon markets for 20 years**, by:

- Engaging with a global growing network of 180+ market participants to facilitate disclosure of over-the-counter (OTC) transactions
- Analyzing registry data and proprietary OTC transaction data and information on environmental finance, markets, and payments for ecosystem services
- Publishing internationally recognized reports, webinars, and blogs/news articles

About the Data

- EM estimates VCM transaction volume and market value for the VCM based on **transaction data from actual credit sales**, received from 82 EM Respondents with transactions in 2024
- We combine these proprietary data from over-the-counter and exchange-traded transactions with **publicly available credit issuance and retirement data** from carbon project registries maintained by standards
- More data and interactive visualizations are available on EM's online **Global Carbon Markets Hub** (hub.ecosystemmarketplace.com)



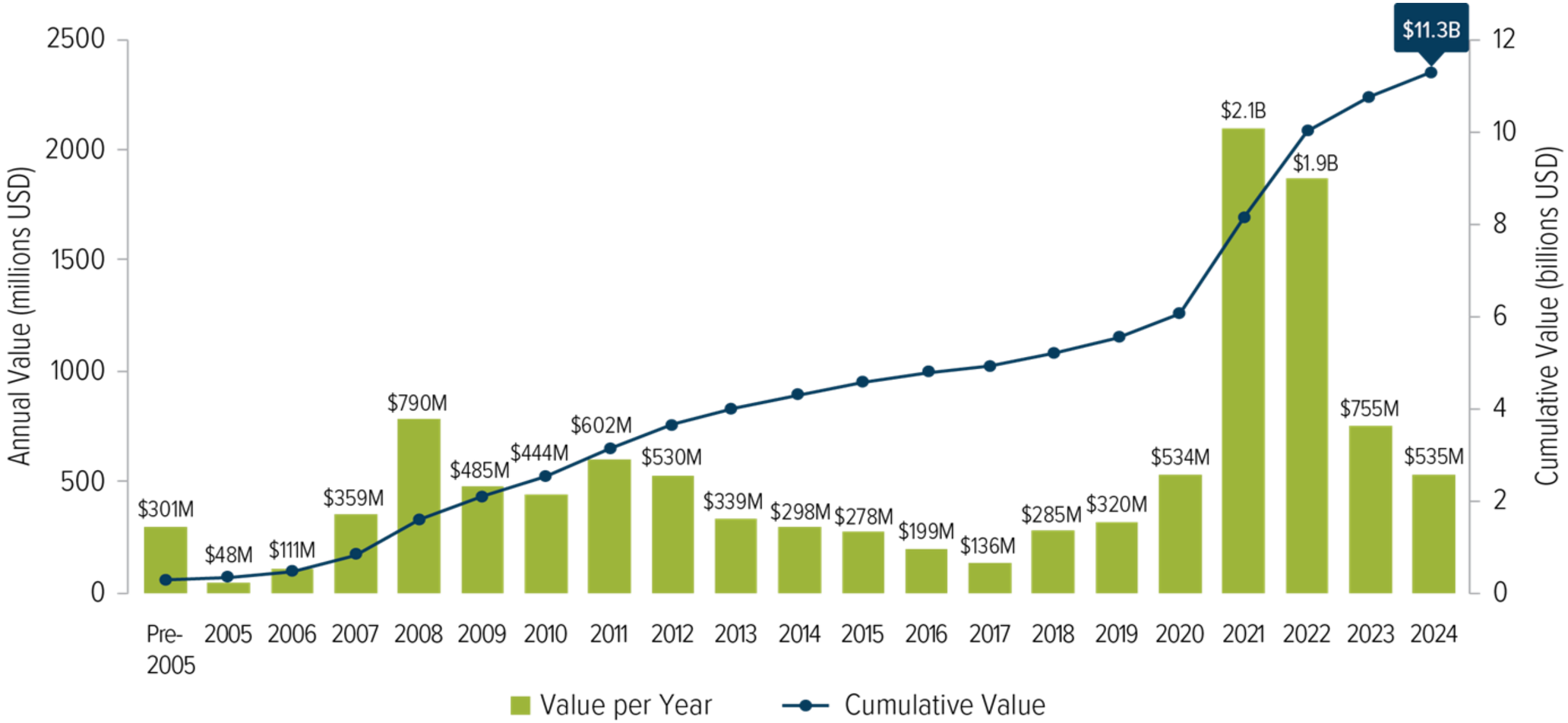
About the VCM

- What is a carbon credit?
  - Carbon credits are an environmental finance instrument representing one metric ton of carbon dioxide that was prevented from being emitted (reduction) or removed from the atmosphere (removal)
  - Credits are generated by eligible projects registered with credit issuing standards, where carbon credits finance project activities
  - The ultimate use of credits is to offset a company, institution, or individual's greenhouse gas emissions in a compliance or voluntary context
- What is the voluntary carbon market (VCM)?
  - All carbon credits that are generated through non-compliance mechanisms
  - VCM credits may be used to offset emissions in some compliance markets

- Types of market actors and stakeholders
  - Project developers
  - End users
    - Corporates
    - SMEs
    - Institutions
    - Individuals
  - Credit resellers
    - Traders
    - Investors
    - Aggregators
  - National and regional governments
  - Multilaterals
  - NGOs

About the VCM

VCM Value History, 2005-2024

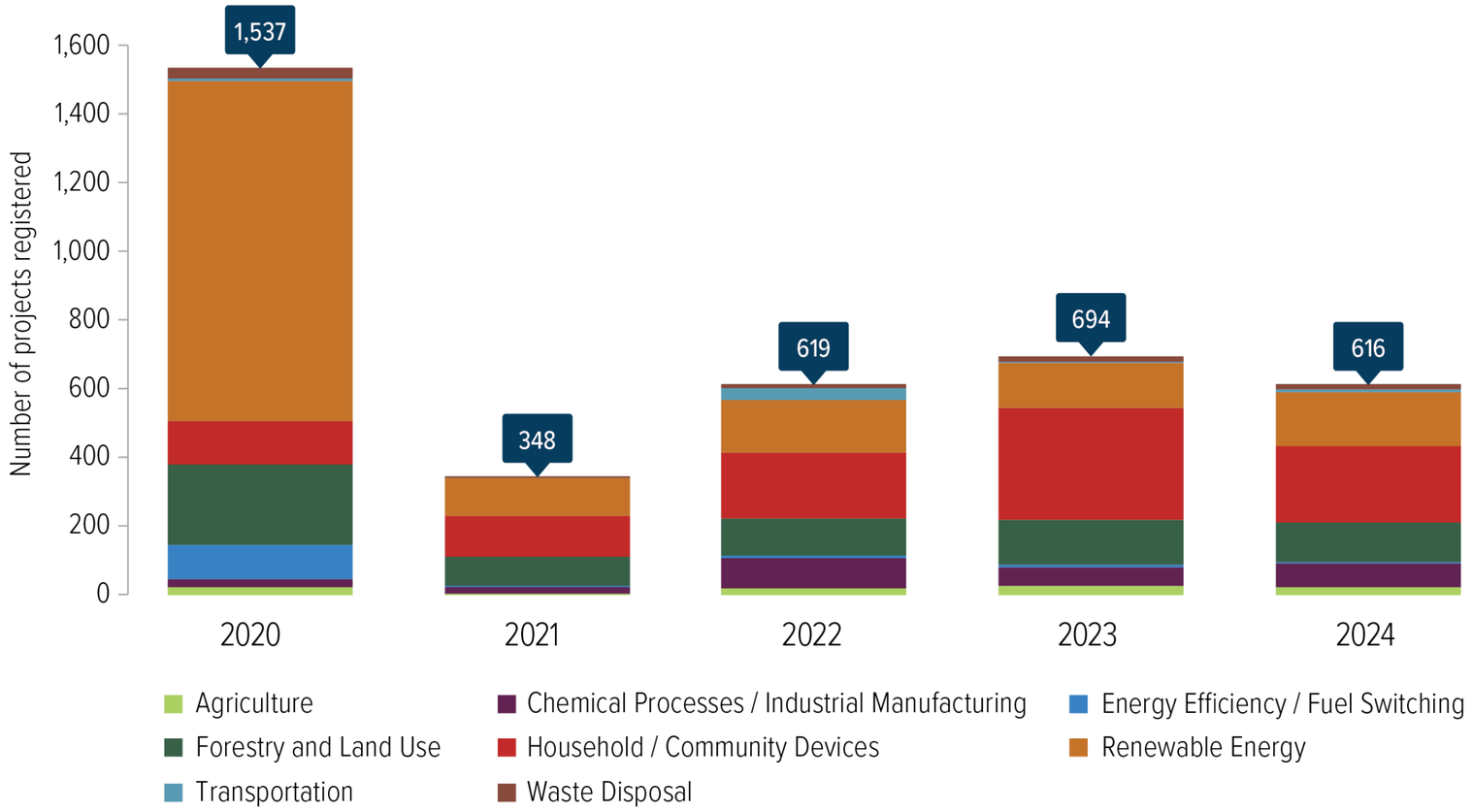


About the VCM

- How the market functions
  - Credit supply
    - The pace of project registrations and credit issuances depends on standards and VVB organizations
    - Project developers may partner with specific organizations to sell credits or sign upfront offtake agreements
  - Demand factors
    - Total demand is driven by end-of-year carbon accounting and reporting, driving peaks in purchasing in Q1 and Q4
    - Intermediaries may buy at any time of the year
    - Specific project types have seen demand outpace supply
- Project categories
  - Forestry and Land Use
  - Renewable Energy
  - Chemical/Industrial Processes
  - Household/Community Devices
  - Waste Disposal
  - Agriculture
  - Energy Efficiency/Fuel Switching
  - Transportation

About the VCM

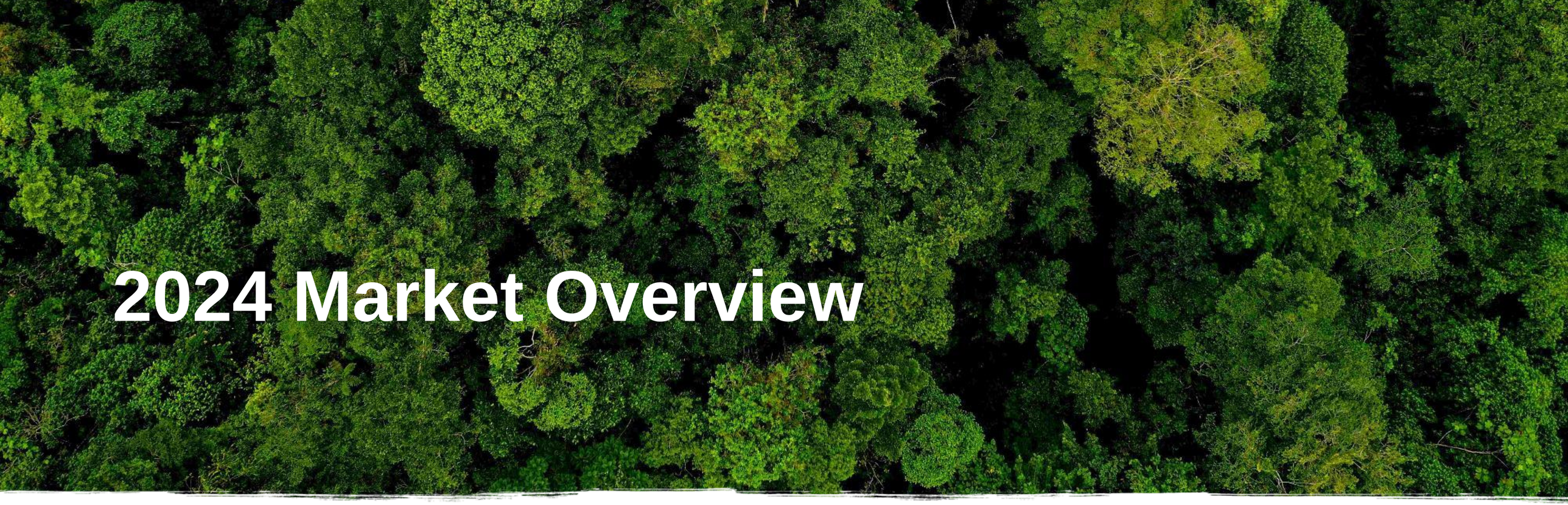
Carbon Credit Project Registrations by Category, 2020-2024



Note: Includes data on project registrations from ACR, CAR, CDM, City Forest Credits, Global Carbon Council, Gold Standard, Plan Vivo, and VCS registries.

About the VCM

- Key trends 2024-2025
  - Growing demand for recent vintage credits
  - Removals move into the spotlight
  - Ongoing questions about frameworks for claiming voluntary offsetting
  - More integration with compliance markets
    - CORSIA
    - Article 6
    - National and regional markets
  - VCM integrity and adoption initiatives
    - ICVCM
    - VCMI
    - GCMU
- Challenges
  - Media criticism
  - Lack of transparency for market actors
    - Project developers
    - Carbon standards
    - Integrity initiatives
  - Lagging market response to new developments



2024 Market Overview

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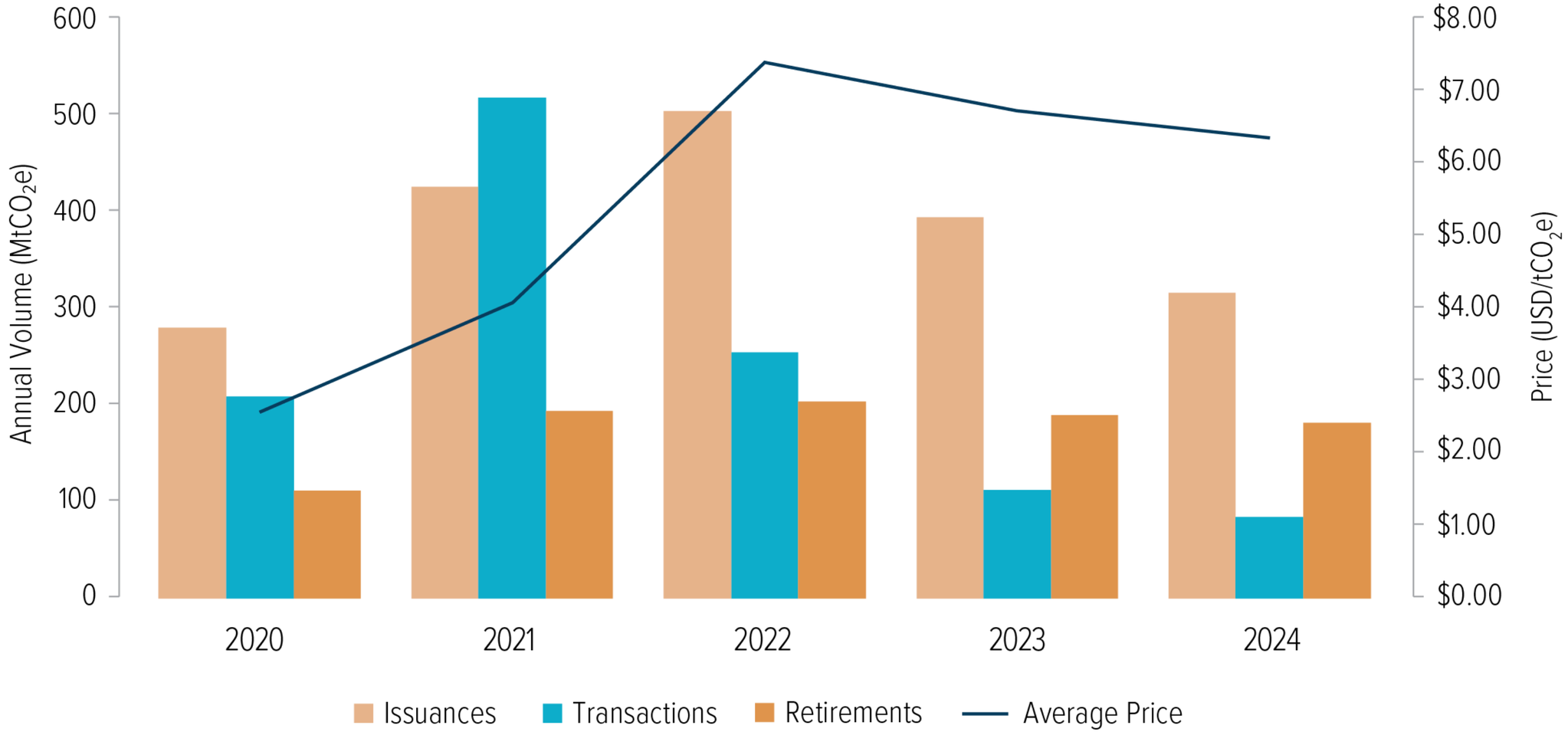
Historical Market Overview

VCM Issuances, Transactions, Retirements, and Price, 2020-2024



Breakdown by Project Category

VCM Transaction Volumes, Values, and Prices, by Project Category, 2023-2024

	2023			2024			Percent Change		
CATEGORY	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume	Value	Price
Forestry and Land Use	37.1	$372.3M	$10.04	37.0	$342.5M	$9.27	0%	-8%	-8%
Renewable Energy	29.0	$113.5M	$3.92	22.3	$59.5M	$2.67	-23%	-48%	-32%
Chemical Processes / Industrial Manufacturing	12.2	$50.2M	$4.10	5.7	$20.8M	$3.66	-53%	-58%	-11%
Household / Community Devices	10.2	$78.3M	$7.71	5.1	$37.4M	$7.30	-50%	-52%	-5%
Waste Disposal	1.5	$10.9M	$7.46	4.8	$32.0M	$6.72	226%	193%	-10%
Agriculture	4.7	$30.7M	$6.51	0.6	$4.7M	$7.66	-87%	-85%	18%
Energy Efficiency / Fuel Switching	9.4	$34.4M	$3.65	0.6	$1.9M	$3.05	-93%	-95%	-16%
Transportation	-	-	-	0.2	$0.6M	$3.24	-	-	-

Category Spotlight: Forestry and Land Use Projects

VCM Transaction Volumes, Values, and Prices, by Forestry and Land Use Project Types, 2023-2024

	2023			2024			Percent Change		
Project Cluster	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume	Value	Price
REDD+	28.2	$222.3M	$7.87	13.6	$82.1M	$6.03	-52%	-63%	-23%
Improved Forest Management (IFM)	2.6	$41.9M	$16.2	8.8	$132.3M	$14.97	242%	216%	-8%
Afforestation-Reforestation and Revegetation (ARR)	4.8	$82.4M	$17.15	3.8	$77.7M	$20.44	-21%	-6%	19%
Agroforestry	0.7	$8.1M	$11.58	0.6	$8.3M	$14.11	-17%	1%	22%
Blue Carbon	0.4	$3.2M	$8.33	0.2	$5.2M	$29.72	-54%	64%	257%

- Greatest decline in value was in REDD+ credits (63% lower than 2023). Volume declined by 51% and price declined by 23%.
- Volume of ARR credits declined by 20%, but price increased by 19%
- Average price of IFM credits declined by 8%, but volume increased by 242% and value increased by 216%
- Agroforestry volume declined by 17%, but price increased by 22%
- The volume of Blue Carbon credits declined by half, but the price increased by 257%

Project Location

VCM Transaction Volumes, Values, and Prices, by Project Region, 2023-2024

	2023			2024			Percent Change		
Region	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume	Value	Price
Latin America and Caribbean	23.2	$129.0M	$5.56	14.6	$95.1M	$6.52	-37%	-26%	17%
North America	20.8	$150.5M	$7.24	13.6	$157.1M	$11.52	-34%	4%	59%
Asia	17.1	$123.2M	$7.19	9.2	$53.1M	$5.74	-46%	-57%	-20%
Africa	13.8	$82.5M	$5.98	7.2	$54.5M	$7.53	-48%	-34%	26%
Europe	0.5	$13.3M	$27.17	0.7	$19.0M	$29.19	33%	43%	7%
Oceania	0.06	$1.8M	$32.17	-	-	-	-	-	-

Note: EM cannot report an average price for credits from Oceania in 2024 because of the confidentiality of individual EM respondent data.

Project Location

VCM Transaction Volumes, Values, and Prices, by Project Region, 2023-2024

- The value of transactions for credits originating in Asia fell by 57% driven by a 20% decline in price
  - Renewable Energy prices fell, while Forestry & Land Use held steady and Household/Community Devices increased
- Latin America and the Caribbean, originated the largest volume of credits in 2024
  - Volume fell 37% but prices increased 17%, driven by increasing prices for Household/Community Devices credits
- Africa originated credit volumes fell 48% but prices increased 26%
  - Driven by increasing prices for Forestry and Land Use credits, while Household/Community Devices credits prices held steady year-over-year
- Global North saw increases in reported market value

Project Standard

VCM Transaction Volumes, Values, and Prices, by Project Standard, 2023-2024

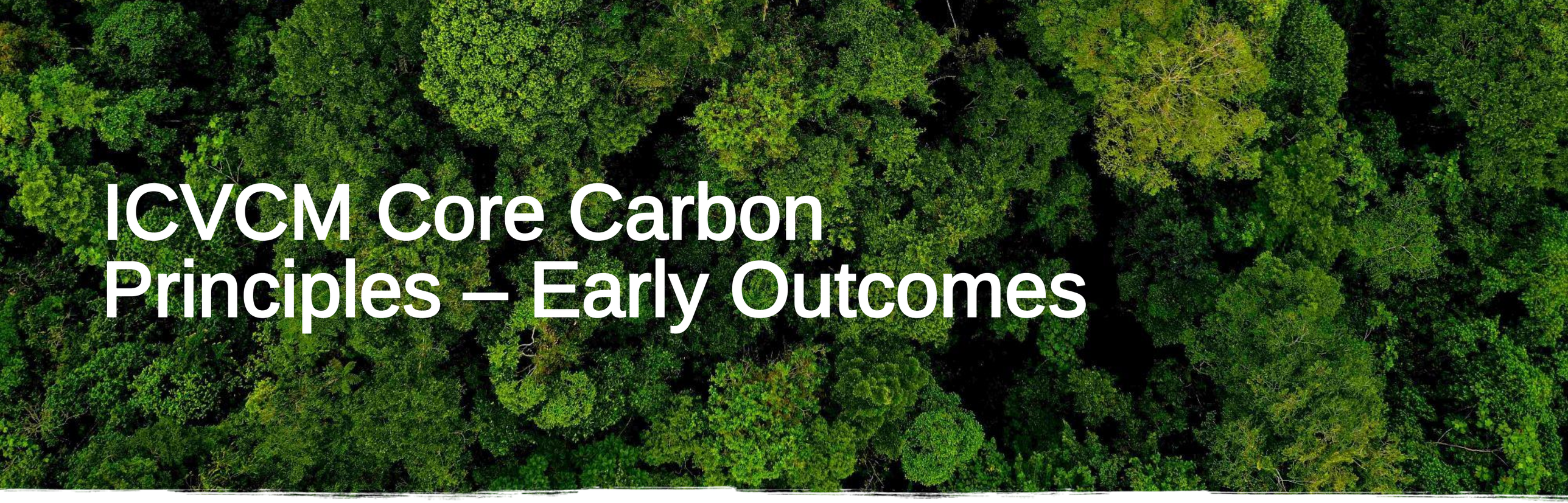
	2023			2024			Percent Change		
Standard	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume ($MtCO_2e$)	Value (USD)	Price (USD)	Volume	Value	Price
VCS	56.6	$394.1M	$6.96	41.9	$194.8M	$4.65	-26%	-51%	-33%
ACR	10.8	$61.7M	$5.74	10.3	$121.4M	$11.82	-5%	97%	106%
Gold Standard	16.3	$103.9M	$6.37	9.8	$69.5M	$7.10	-40%	-33%	11%
CDM	6.9	$18.0M	$2.63	6.2	$8.3M	$1.35	-10%	-54%	-49%
CAR	3.4	$26.5M	$7.80	3.1	$32.5M	$10.60	-10%	23%	36%
Plan Vivo	1.6	$18.8M	$11.51	1	$12.8M	$13.14	-40%	-32%	14%
UK Woodland Carbon Code	0.3	$10.5M	$30.25	0.3	$9.5M	$34.18	-20%	-9%	13%
Canadian Standards Association	-	-	-	0.3	$1.7M	$6.62	-	-	-
Cercarbono	0.6	$2.4M	$4.17	0.2	$0.9M	$4.25	-64%	-63%	2%

Note: EM cannot report an average price for credits from Canadian Standards Association projects in 2023 because of the confidentiality of individual EM respondent data.

Project Standard

VCM Transaction Volumes, Values, and Prices, by Project Standard, 2023-2024

- Average price of VCS credits fell by 33%
  - Market share of VCS, the largest standard, remained steady at about 50% of the total VCM
- Average prices fell for CDM credits by 49%
  - This drove a 54% decline in total value despite transaction volume decreasing by only 10%
- For ACR, volume held steady, while price doubled
  - ACR became the second largest standard by transaction volume and value
  - CCP approval of ACR Landfill Gas and Ozone Depleting Substances (ODS) credits helped drive this
- For CAR, value of credits increased by 23% and price increased by 36%
  - CCP approval of CAR Landfill Gas and ODS projects helped drive this
- Gold Standard, Plan Vivo, UK Woodland Carbon Code and Cercarbono saw prices increase, but volumes decline



ICVCM Core Carbon Principles – Early Outcomes

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Current Status of Core Carbon Principles

- ICVCM's CCP program evaluates carbon credit standards and specific methodologies to label high-integrity credits
- As of August 2025, methodologies from 10 project categories have been approved:

  - ✅ Landfill Gas
  - ✅ ODS Destruction
  - ✅ Fugitive Emissions
  - ✅ Adipic Acid
  - ✅ Biochar
  - ✅ REDD+
  - ✅ ARR
  - ✅ IFM
  - ✅ Cookstoves
  - ✅ Biodigesters

- ICVCM has continued to add programs and methodologies for assessment, including additional ARR, waste disposal and methane abatement, and carbon dioxide removal methodologies
- Still awaiting final assessment results for sustainable agriculture

NbS and Core Carbon Principles

REDD+

- **One project-based** REDD+ methodology has been approved:
  - VCS – VM0048
  - No projects have been registered/ transitioned as of July 2025
- **Two jurisdictional** REDD+ methodologies have been approved
  - ART – TREES (non HFLD)
  - VCS – JNR Framework
- Volumes have declined, but REDD+ remains the largest project type by transaction volume as of 2024

ARR

- **Two ARR methodologies** have been approved
  - VCS – VM0047 (Dec 2024)
  - ACR – Afforestation and Reforestation of Degraded Lands (Jul 2025)
- Demand for this category remains robust despite lack of CCP-approved supply
  - Price increased 19% from 2023 to 2024, while transaction volume shrank 21%

IFM

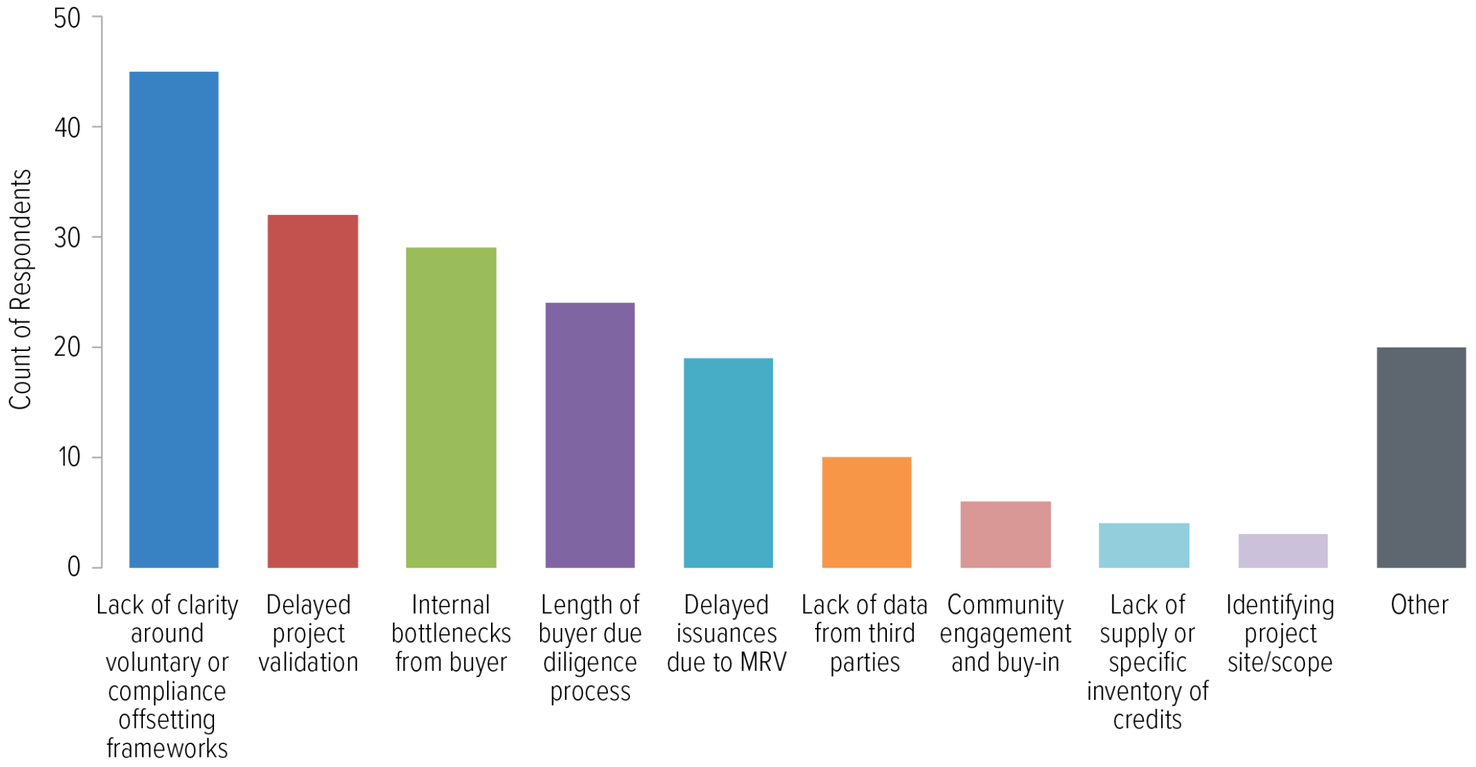
- **Three IFM methodologies** have been approved (Aug 2025)
  - ACR – IFM on Non-Federal U.S. Forestlands v2.1
  - CAR – Mexico Forest Protocol v3.0
  - VCS – VM0045
- CCP approval has the potential to unlock additional demand for the fastest-growing Forestry and Land Use project type

Findings from EM Respondent Survey

- In follow-up to the 2025 SOVCM report, EM surveyed respondents to understand their **perception of the CCP program and demand factors influencing credit transactions**:
  - **75 respondents** completed the survey
  - Mostly representing **project developers (61%)** and **credit brokers/traders (12%),** other respondents included credit standards, market researchers, and multilateral organizations
  - **80%** of respondents develop/transact **Forestry and Land Use** credits, **28% Agriculture** credits, **24% Renewable Energy**

Findings from EM Respondent Survey

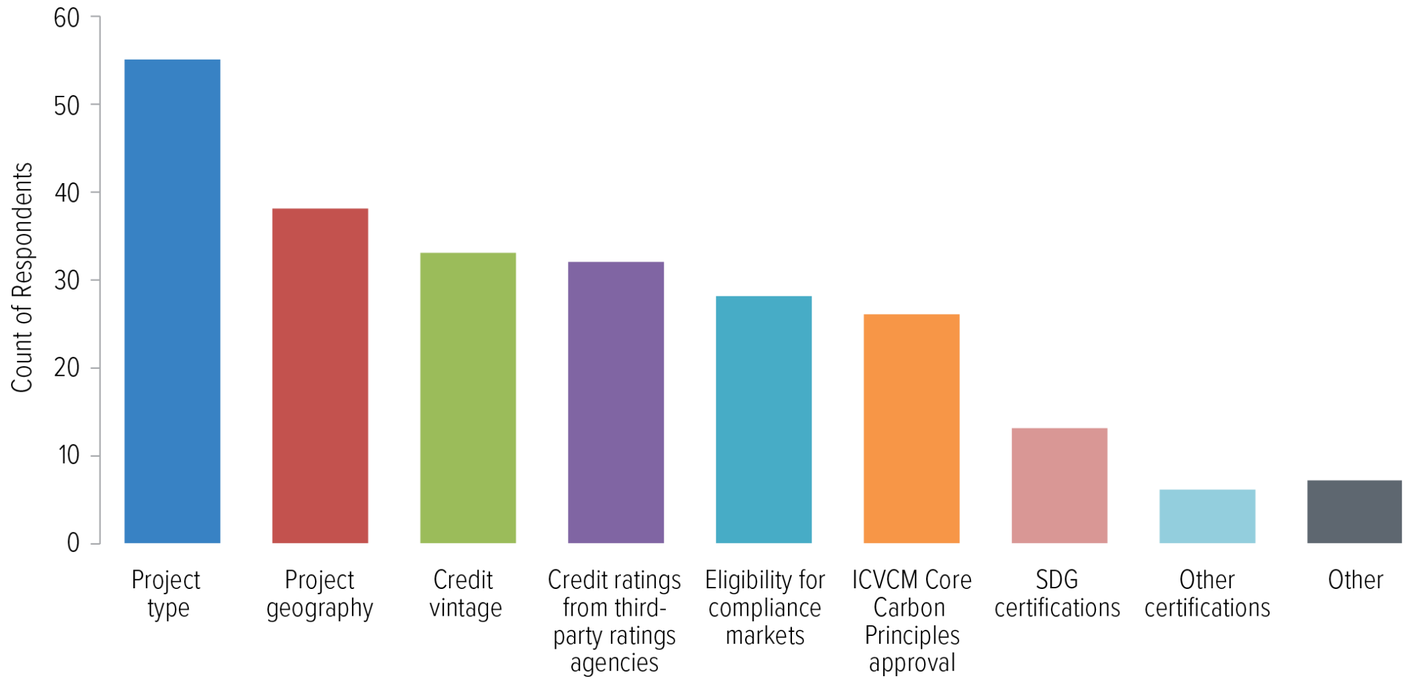
Respondent Perceptions of the Biggest Bottlenecks for Project Development, Credit Issuance, and Sales



- Respondents view **lack of clarity around credit use** for offsets as the biggest bottleneck for the VCM
  - CCP may be one component of a framework to provide clarity
- **Delayed project validation** can be tied to efforts to improve credit integrity

Findings from EM Respondent Survey

Respondent Perceptions of the Most Important Factors Affecting Buyer Demand for Credits



- Currently, project-specific factors such as **project type**, **geography**, and **credit vintage** are the most important to buyers
- Buyer demand is increasingly influenced by **CCP approval** and other indicators of integrity and quality

Findings from EM Respondent Survey

- Overall, **63% of Respondents tended to have a positive view** of the impact of the CCP program, with 26 Respondents seeing a strong positive impact and 21 seeing a weak positive impact
  - 29 Respondents considering transitioning an existing project to CCP-approved methodologies, and 29 considering establishing a new project using CCP-approved methodologies
- Many Respondents expressed that **the current pace of CCP approvals is out of step with the expectations of the larger VCM**, but the program is still in an early phase of implementation
- Most existing methodologies **have not yet been evaluated** for CCP approval, so Respondents developing these project types are unsure of the impact that the CCP program will have
- Other Respondents indicated that there are **other indicators of project quality** that their buyers prioritize at this time

What's Next for the VCM?

- Continuing development of integrity frameworks for buy- and sell-side actors
- Establishing best practices around credit vintage, durability, etc.
- Examining the role of reductions vs. removals
- Market segments EM is watching
  - Agriculture & Agroforestry
  - Blue Carbon
  - Household & Community Devices
  - Waste Disposal
  - Biogas Renewable Energy
- COP30
  - Article 6
    - More announcements of Article 6.2 agreements and transactions
    - Article 6.4 decisions
    - Interoperability with national carbon markets and registries
  - Focus on IPs and LCs

Additional Slides

1. Historical Market Overview
2. Registry Data
3. Forestry and Land Use Project Types
4. Project Standard
5. Project Location

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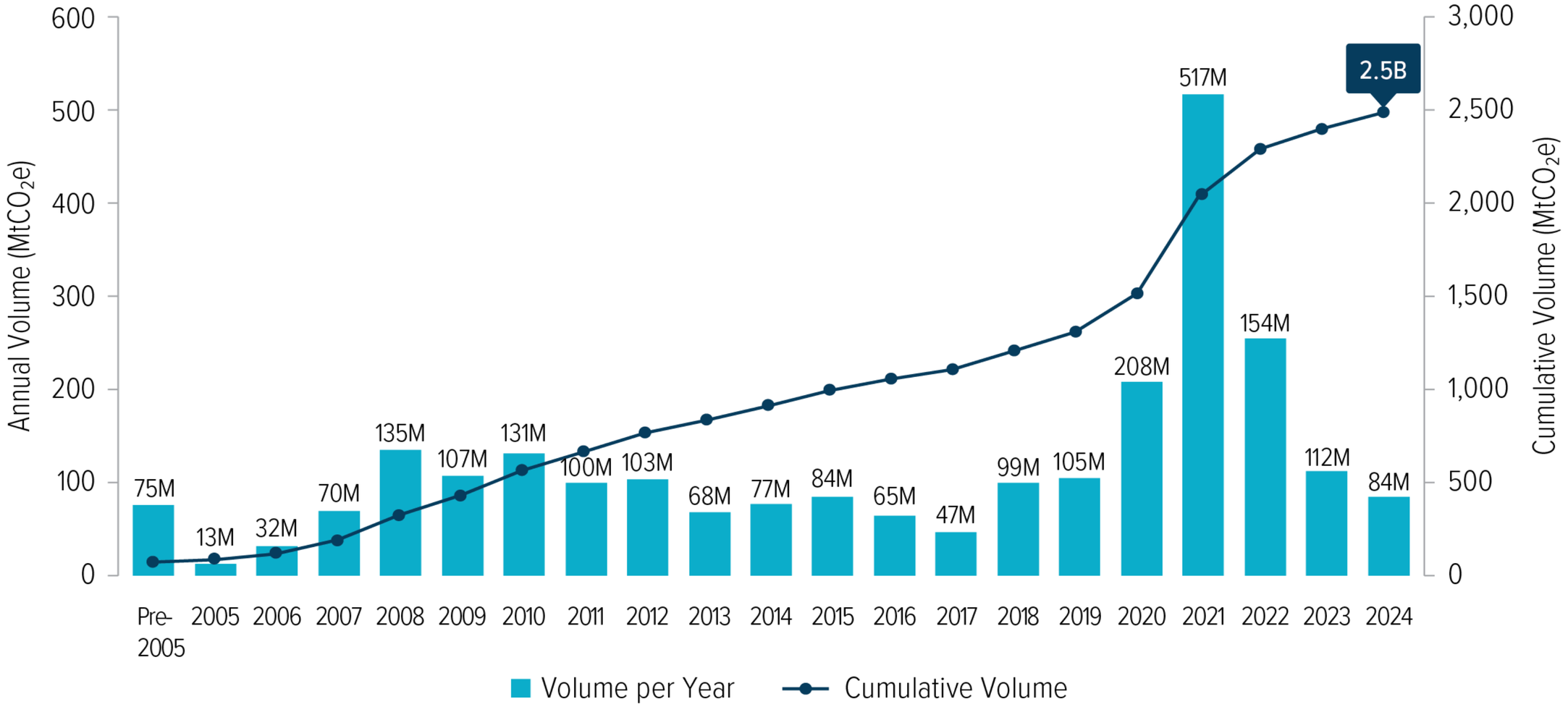
Historical Market Overview

VCM Volume History, 2005-2024



Registry Data

Carbon Credit Issuances by Category, $MtCO_2e$, 2020-2024

Project Category	2020	2021	2022	2023	2024
Agriculture	1.1	4	9	6.6	3.2
Chemical Processes/ Industrial Manufacturing	18.2	20.3	43.1	23.8	23.8
Energy Efficiency/Fuel Switching	9.5	14.5	25.1	11.8	7.9
Forestry & Land Use	75.9	140	146.5	124	86.7
Household/Community Devices	18.4	26.4	25.2	56.7	66
Renewable Energy	147.1	209.9	244.7	161	117.9
Transportation	0.2	0.1	0.03	0.4	0.2
Waste Disposal	8.5	7.9	7.8	5.8	6
Total	278.8	423.1	501.3	390	311.6

- Overall seeing year-on-year decline in issuances with a few holding steady
- Increased issuances in Household/ Community Devices
- Biggest declines in issuances in Renewable Energy, Forestry & Land Use, Energy Efficiency/Fuel Switching

Registry Data

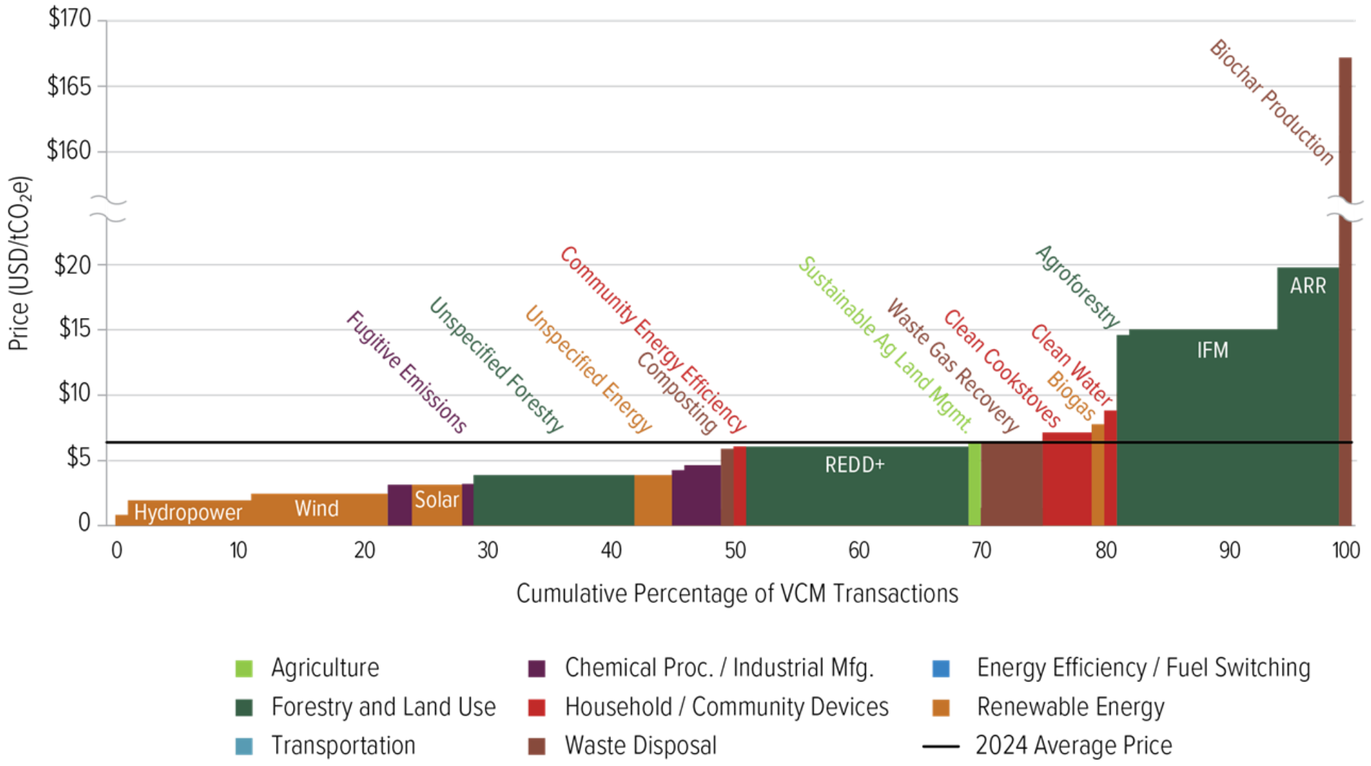
Carbon Credit Retirements by Category, $MtCO_2e$, 2020-2024

Project Category	2020	2021	2022	2023	2024
Agriculture	0.2	0.7	1.1	1.8	2.8
Chemical Processes/ Industrial Manufacturing	8.4	7.0	10.5	15.4	9.6
Energy Efficiency/Fuel Switching	3.1	7.4	12.3	5.7	2.8
Forestry & Land Use	39.0	67.6	56.8	67.4	67.8
Household/Community Devices	7.5	11.5	14.1	16.0	27.5
Renewable Energy	48.7	92.7	104.4	79.9	67.0
Transportation	0.06	0.3	0.03	0.03	0.03
Waste Disposal	4.5	5.5	4.2	3.2	4.0
Total	111.6	192.6	203.4	189.4	181.5

- Retirements holding steady with 2021-2023 trend – ~8 Mt CO2e decline from 2023
- Growing retirements in Household/Community Devices, Waste Disposal and Agriculture
- Forestry & Land Use demand holding steady despite scrutiny
- Declining retirements of Renewable Energy, Energy Efficiency, Chemical Processes

VCM Market Structure – Supply and Demand

Carbon Credit Cost Curve, by Project Cluster, 2024



- About 50% of credits sold in 2024 were below average price – typically **older project types**
- The next 25% of credits sell at **around average price**
- About 24% of credits are **more expensive** than the market average, but within reach of **ambitious buyers**
- The last 1% of credits are from **engineered CDR solutions** that cost **8x as much** as the next most expensive credits

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