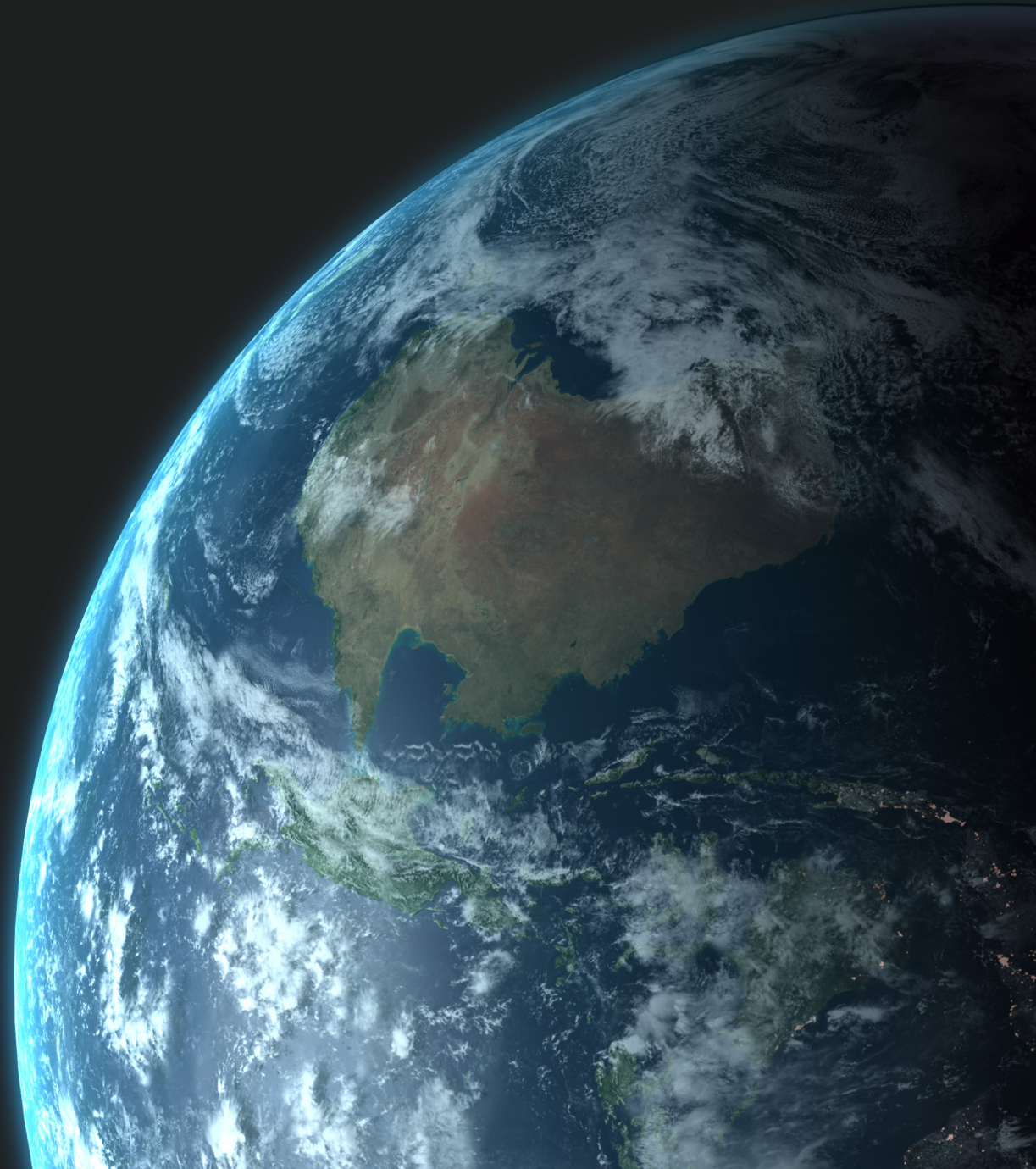


The State of Quality in the Voluntary Carbon Market

A Calyx Global Report



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Carbon credit quality: Are we on track?

The start of 2021 marked the beginning of a crisis of confidence in the Voluntary Carbon Market (VCM). While it has been a difficult time for market participants, there is an upside: Increased scrutiny has sparked a collective push toward increasing the integrity of carbon credits. For markets to get back on track and serve as an effective lever in the fight against climate change, quality must be addressed. Market participants are already working to improve the quality of carbon markets. The question is, how are they faring in their attempts?

Calyx Global's data suggests that "VCM 2.0" is just beginning to emerge. While market quality cannot change overnight, early 2024 shows some signs of improvement. That said, several recent quality-related initiatives will not yield significant payoffs for years to come. It takes time for emerging approaches to gain traction and deliver new issuances of higher-quality credits. Meanwhile, older credit issuances with substantial quality variability are still in the market.

Overall, though, the data gives us reason to be optimistic about the future. This report shares insights from our rating of 500+ projects, comprising over half of the voluntary carbon market.

The data used in this report comes from Calyx Global's ratings of over 500 carbon projects that comprise over 50% of issuance volume in the market over the past five years. The 500+ projects represent 20 project types that together comprise over 85% of total market issuances. In addition, data was used from the UC Berkeley database (Barbara K. Haya, Aline Abayo, Ivy S. So., Micah Elias. (2024, May). Voluntary Registry Offsets Database v11, Berkeley Carbon Trading Project, University of California, Berkeley.), which includes the four major registries (ACR, CAR, Gold Standard and VCS, which currently make up 98% of the market, according to the ICVCM) when commenting on total market statistics.



The state of GHG quality

Calyx Global evaluates the GHG integrity of carbon credits using a peer-reviewed rating framework developed by leading carbon market experts. GHG integrity is assessed based on the risk of non-additionality, over-crediting, non-permanence and overlapping claims. The assessment process results in a score that communicates the level of risk that a credit does not represent a unique, permanent tonne of CO₂ avoided or removed from the atmosphere. This score generates comparable ratings for multiple project types across the entire carbon market. These ratings were used to evaluate the overall quality of the VCM for this report.

The VCM today has a highly divergent range of quality

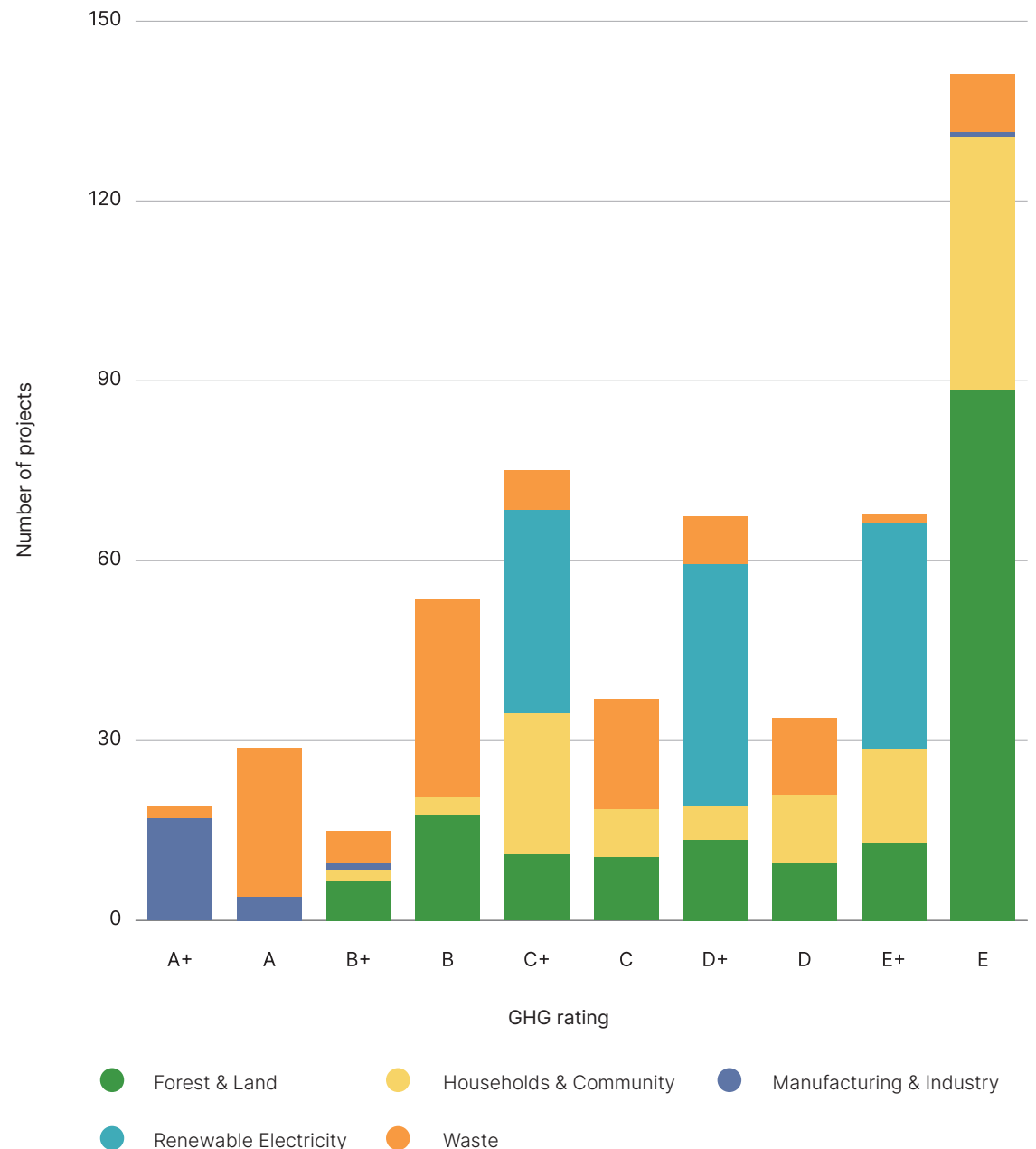
Calyx Global has rated over 500 carbon projects.

Quality in the market today is highly variable. We find both high-quality and poor-quality projects in each sector. There are few project types that consistently deliver high or low quality.

Manufacturing & Industry is the sector in which, to date, we have found the most projects with the highest GHG integrity.

Examples of project types within project categories: Forest & Land (REDD, afforestation/reforestation, blue carbon, grassland management, etc.); Household & Community (e.g., cookstoves, household-scale biodigesters, etc.); Manufacturing & Industry (nitric acid, ozone-depleting substances, etc.); Renewable Electricity (e.g., solar, wind, hydro, etc.); Waste (e.g., landfill gas, manure management, biochar, etc.).

Figure 1: GHG ratings by Calyx Global, based on number of projects



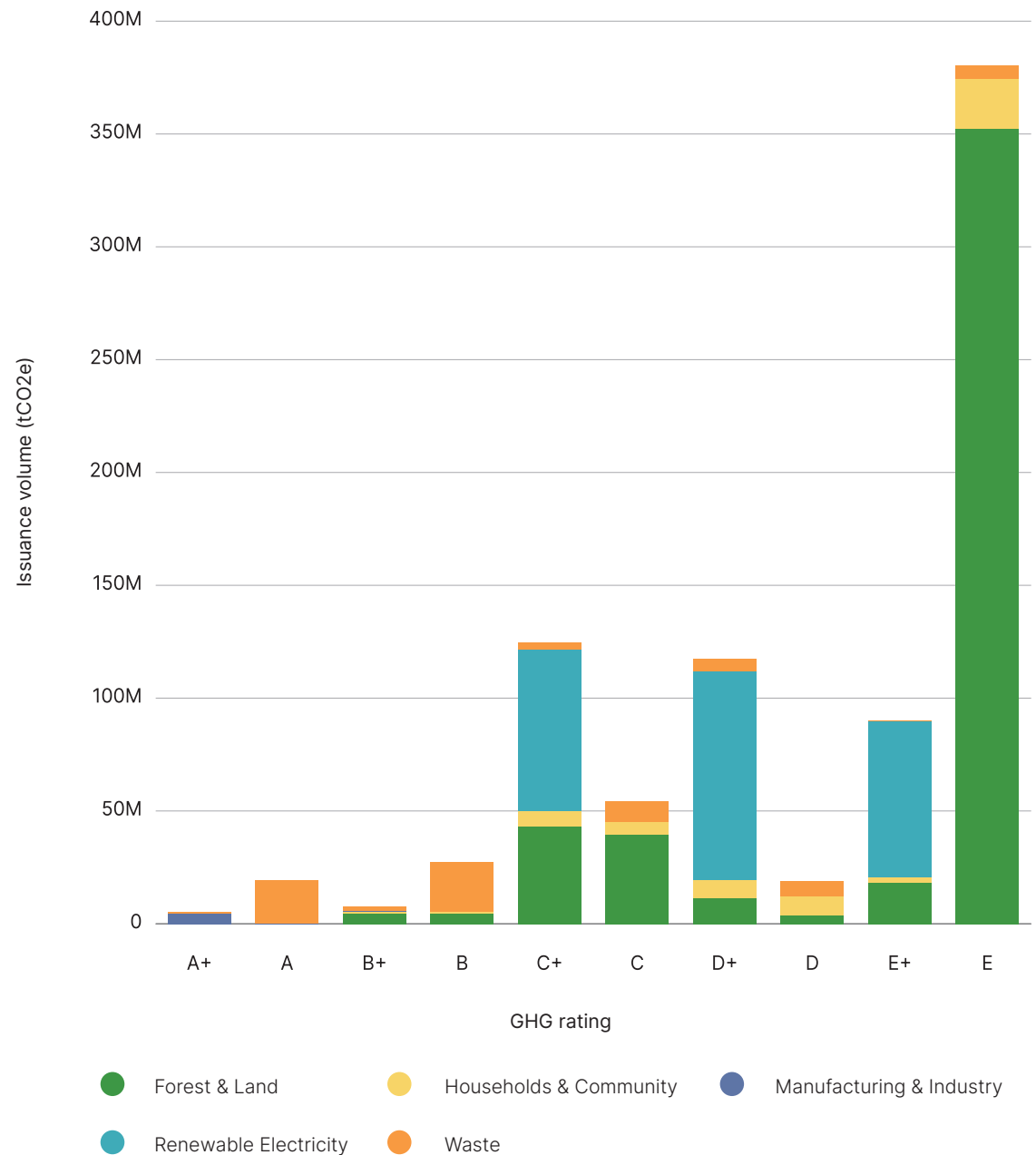
Higher-quality credits are currently in low supply

Higher-rated credits are particularly challenging to find when looking at issuance volumes.

This is because mega-projects, including a number of REDD and large-scale grid-connected renewable energy projects, are usually not among the higher-rated (i.e., A and B) credits.

Calyx Global has rated more than half of all credits issued in the last five years. Of these, around 20% of credits are in the top half of our rating scale (C+ and above), but less than 10% received a B rating or higher.

Figure 2: GHG ratings by Calyx Global, based on volume of issuances



The quality of new credit issuances is improving

Media scrutiny over the VCM has intensified since 2021, following the rise in carbon credit issuances. Both market volume and media criticism hit a peak in 2023.

The quality of credit issuances appears to be changing, especially since the beginning of 2024. Notably, there has been a decrease in the issuance of low-rated credits (Figure 3). The proportion of E-rated credits to total issued credits has dropped by almost 50%. This is largely due to the decline in issuances of credits from REDD projects (Figure 4) — which, proportionately, are skewed towards lower ratings. These appear to be replaced by issuances from

household and community projects, largely cookstove credits, which have more issuances in the “C” range.

It may take time for poorer quality to work its way out of the system. Some low-quality credits may be tied up in forward contracts. Also, A and B credit issuances remain rare, likely because there are fewer of these projects actively issuing credits in the market today, and those projects tend to be smaller.

Figure 3: Calyx Global ratings for credits issued

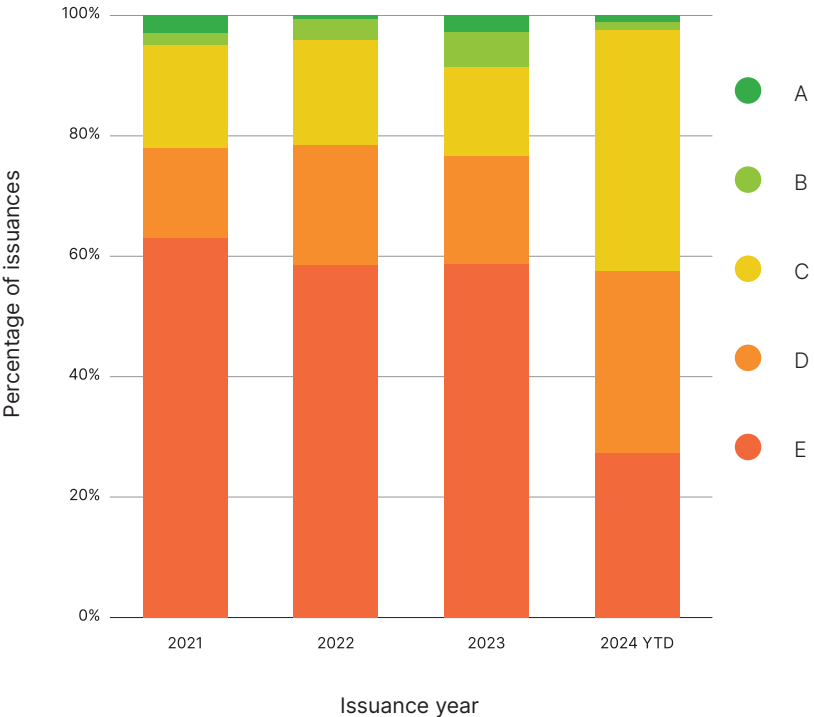
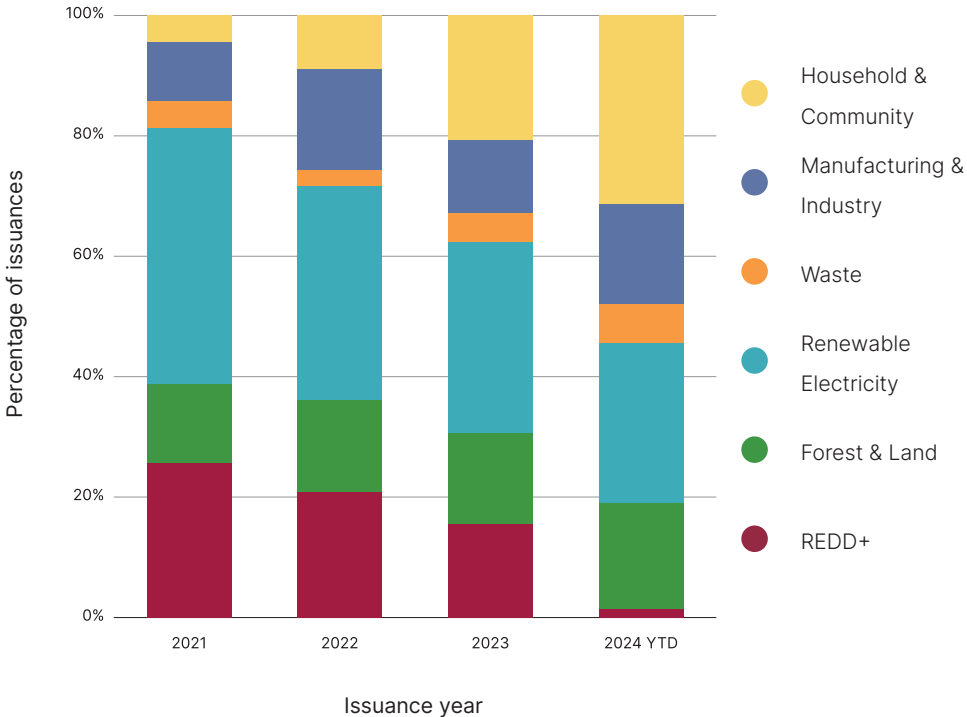


Figure 4: Issuances by project type

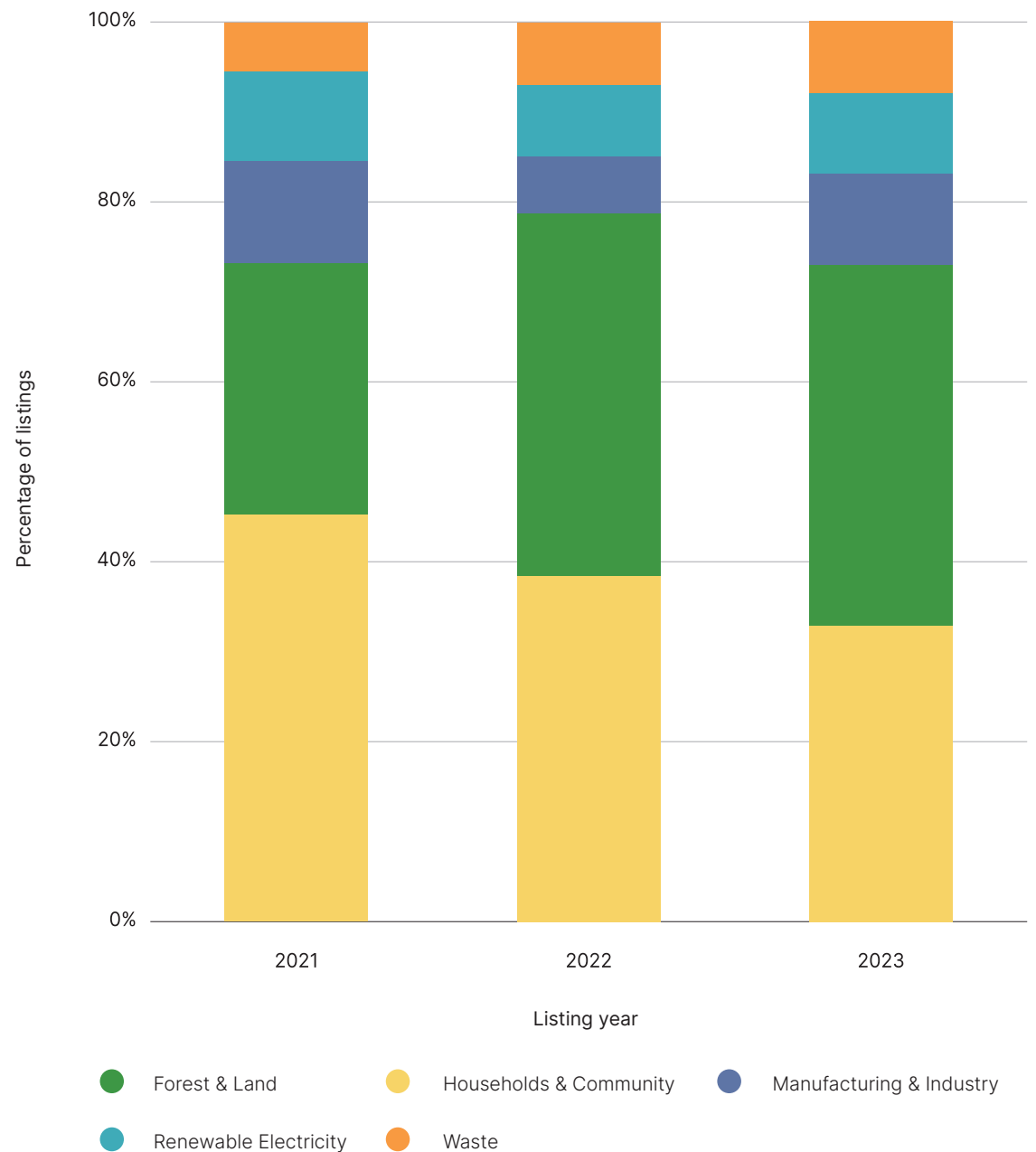


Is the market moving to “safer” sectors?

There is not (yet) a discernible trend. Over 75% of new listings on the four major registries (ACR, CAR, Gold Standard and VCS) are from the Forest & Land and Household & Community sectors. Currently, these sectors deliver mixed results in our rating system.

The Forest & Land sector is dominated by new listings of improved forest management (IFM) and afforestation/ reforestation (AR) projects, while the Household & Community sector is dominated by new listings of cookstove projects. These project types, however, are undergoing changes. New methodologies have been proposed for AR and IFM projects, and efforts are underway to improve cookstove methodologies as well.

Figure 5: Percentage of new project listings by sector

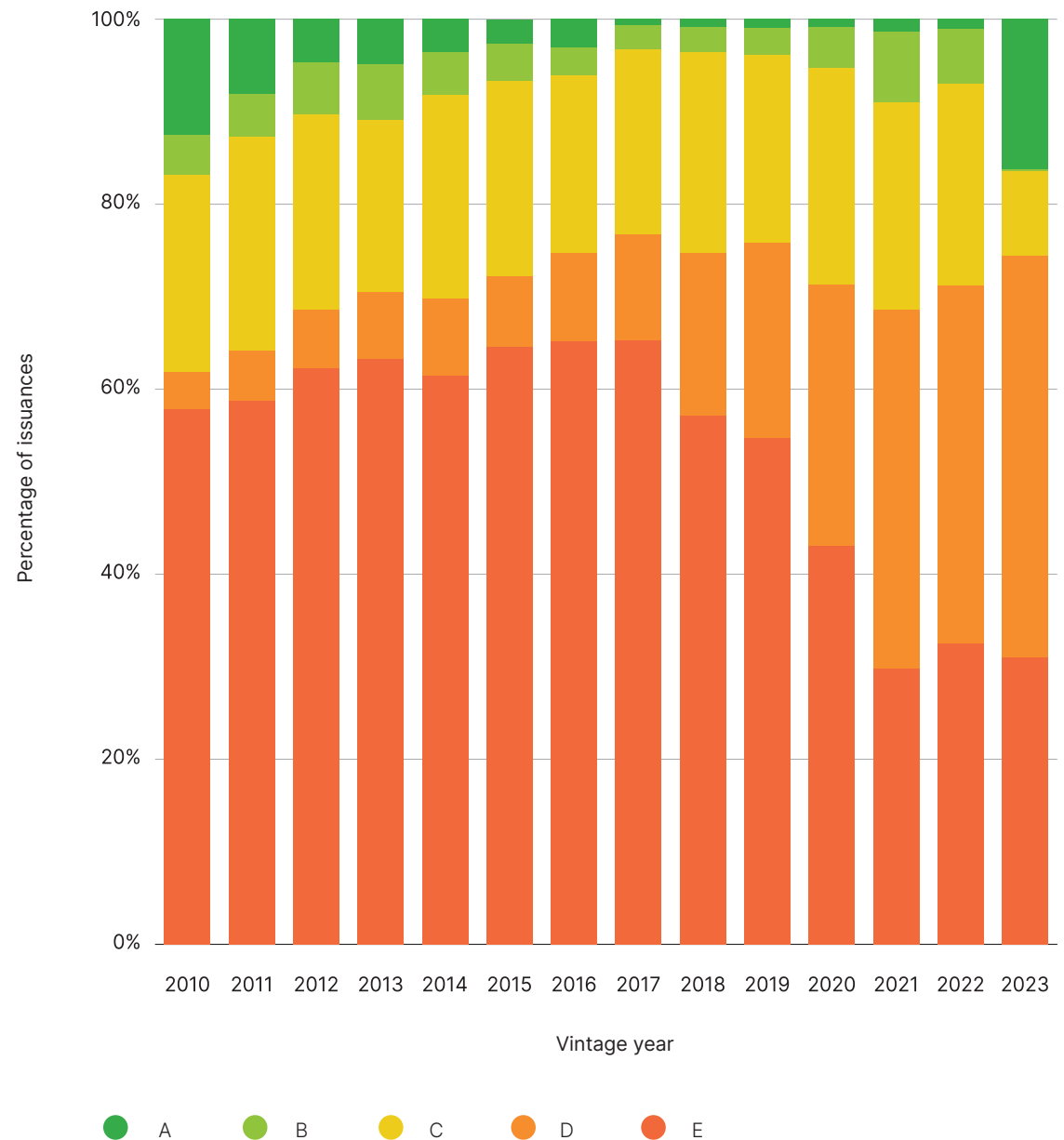


Vintage is not (yet) a good indicator of quality

There is a concept that newer credits equate to higher quality. Looking at issuances and their quality across a longer time horizon suggests that, currently, using vintage as a proxy for quality is not a reliable approach. From the perspective of GHG integrity, every vintage brings a spread in quality.

The recent increase in early-stage project investment with the intent to deliver higher-quality credits, as well as the updating/upgrading of methodologies, should help improve quality over time. The pace with which this picture changes will also depend on how the market manages unissued, lower-quality legacy credits.

Figure 6: Quality spread for issuances by vintage



The state of credit quality beyond carbon

Calyx Global evaluates verified contributions to the United Nations' Sustainable Development Goals (SDGs). The analysis is performed by experts using a rigorous, peer-reviewed rating framework. The systematic analysis, spanning all 17 goals and 169 targets, generates comparable ratings of the level of SDG impact for each verified contribution for all carbon project types — from protecting forests to destroying methane from landfills. Our contribution-level analysis allows credit buyers to make more discerning decisions about the impact of credits. The ratings data was used to develop the following analyses, and to track progress on how the VCM is delivering on SDGs.

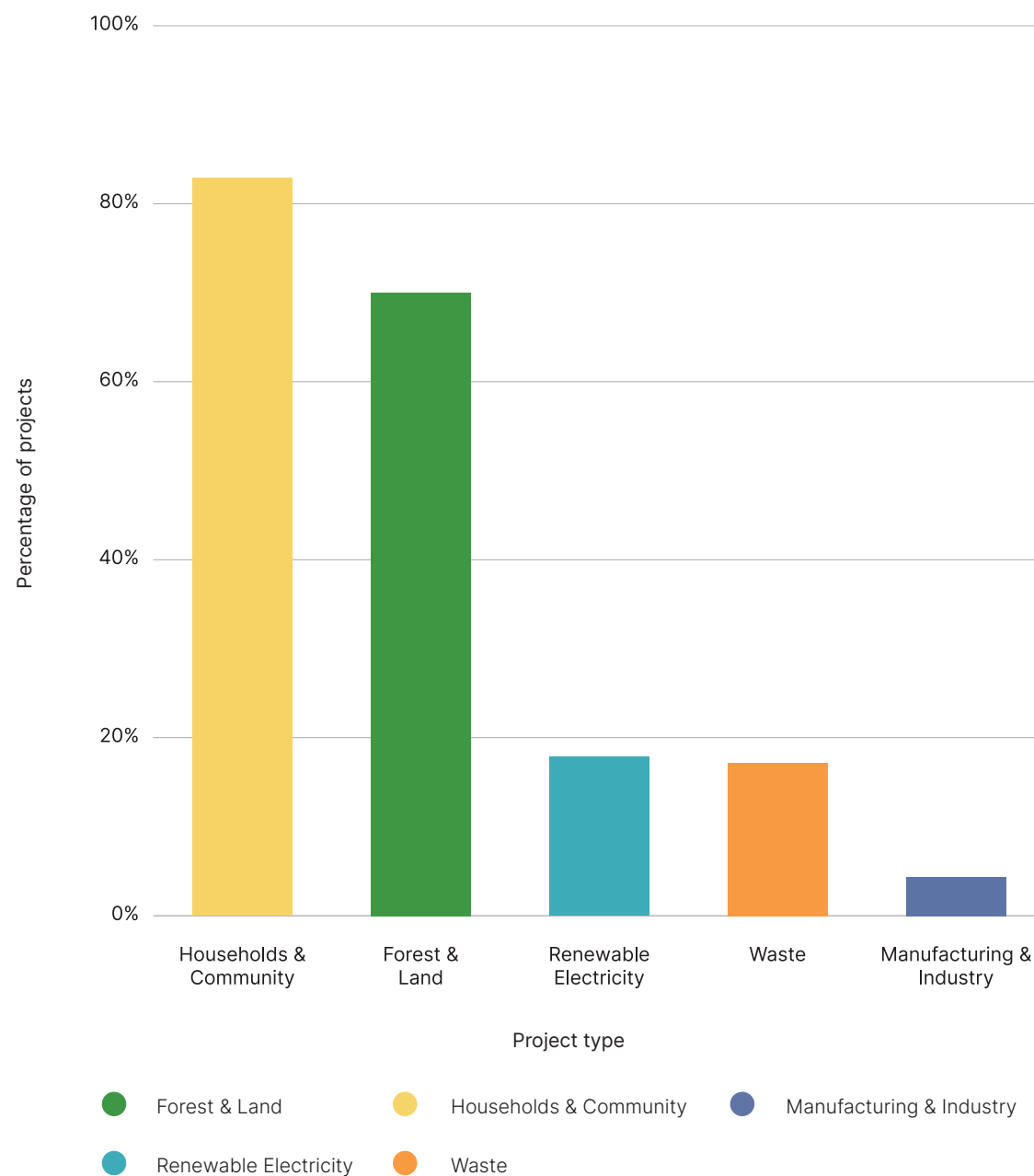


SDG verification is concentrated in particular sectors

Approximately 54% of Calyx Global GHG-rated projects have SDG contributions verified by a third party. Most nature-based projects pursue additional SDG certification, such as Verra's Climate, Community, and Biodiversity (CCB) and SD VSta, resulting in verified contributions. In contrast, waste and renewable energy projects often do not seek this extra SDG certification or are registered under programs that do not require SDG claims to undergo a verification process.

Many household-based projects have verified contributions, primarily due to the Gold Standard requirement to report, monitor, and verify at least three SDGs per project. Verra now has a similar requirement. We anticipate a significant increase in SDG-certified projects overall, particularly in renewable energy and waste projects.

Figure 7: Percentage of projects with SDG certification



A range of project types are needed to deliver on the SDGs

All 17 Sustainable Development Goals are important. However, different greenhouse gas mitigation activities contribute to different SDGs.

Most nature-based and technology projects contribute to the UN's goals of zero hunger and economic growth. However, each type of project will sometimes contribute to SDGs that the other cannot.

For example, nature-based projects often contribute to protecting ecosystems and promoting sustainable agriculture. By contrast, technology projects contribute to energy access, responsible consumption, and health improvement, which are typically not the focus of nature projects.

We provide here a few examples of typical SDG contributions made by specific project types.

SDGs that projects deliver

At least 50% of projects in each category contribute to the SDGs listed, ordered by the most commonly seen contributions. Note that SDG 13 (Climate Action) is excluded, as it applies to all projects.



There has been a preference for credits that deliver nature-based solutions

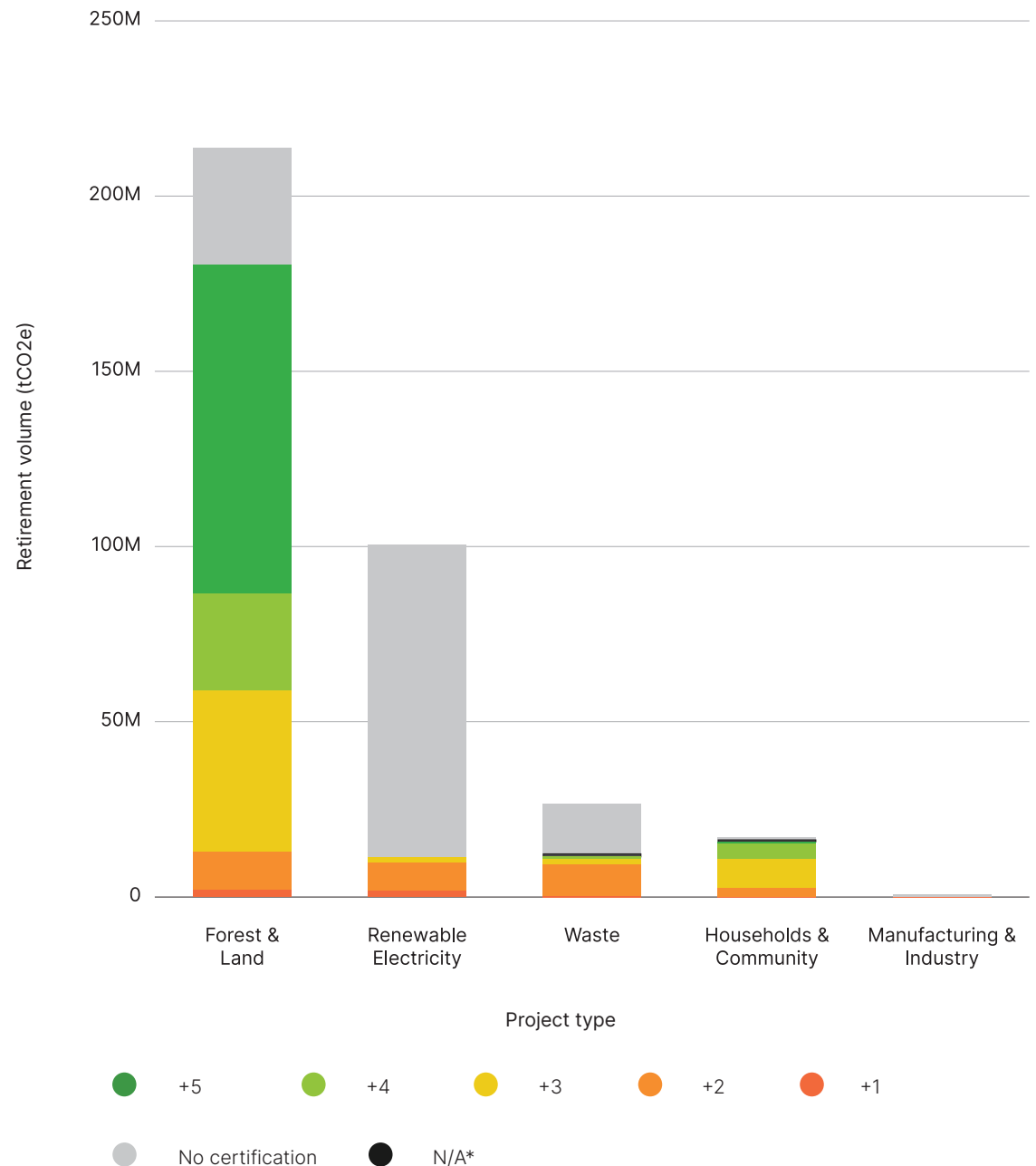
In the past five years, Forest & Land credits have seen the highest retirements. These credits typically deliver stronger SDG impacts than those from other sectors. While it is true that these credits have been more readily available in the market, we note availability in other sectors (with relatively lower SDG contributions), too.

We also note that buyer preferences are sometimes based on the 'perception of SDG contributions' (assumed inherent to the project type) and not always on verified SDG contributions. For example, there are a number of credits purchased in the Forest & Land category with no verification, but we see buyers prefer these over projects in, e.g. the waste sector with verified SDG contributions.

Buyers might want to consider the value of reported and audited SDG contributions, as they offer greater assurance of quality.

*N/A represents projects with no Calyx Global SDG Rating due to missing registry documentation.

Figure 8: Volume of retired units (2020-2024) and their SDG rating



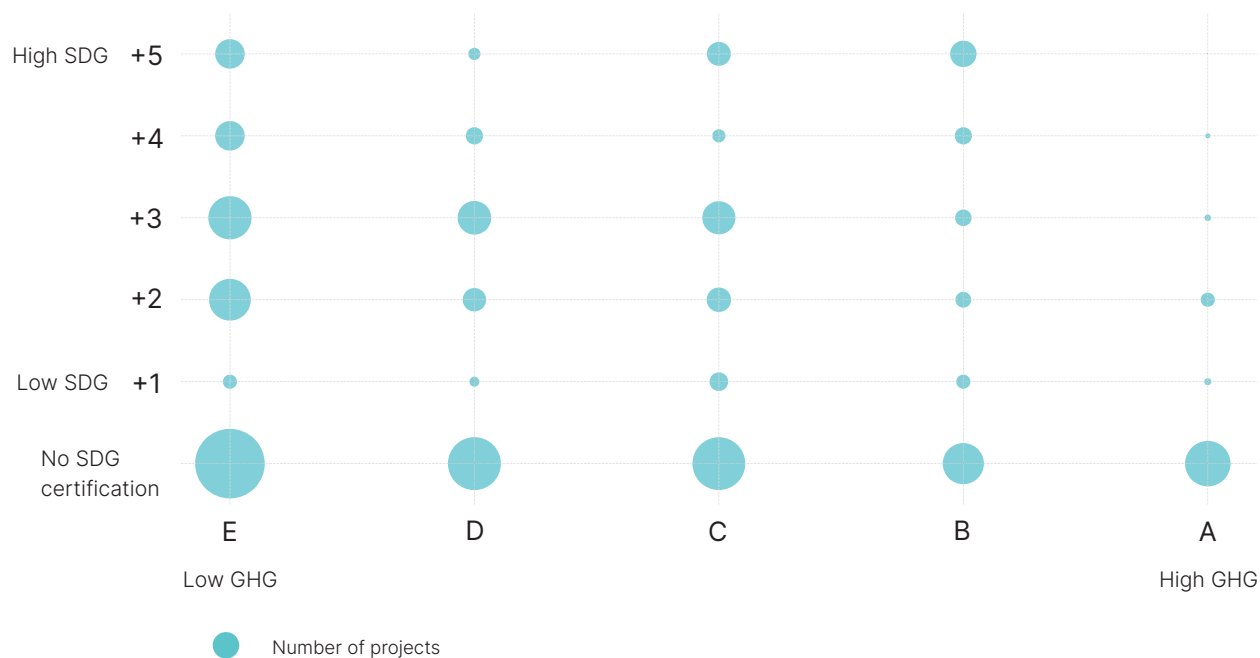
SDG impact is often a tradeoff with GHG integrity

Some would say that an ideal carbon credit has both high GHG integrity and high SDG impact. But these credits are not easy to find. As it stands, there appears to be a tradeoff between GHG integrity and SDG impact.

This is, in part, because many projects that deliver the highest SDG impacts, such as REDD and cookstoves, have over-crediting issues. However, we anticipate improvements for both of these project types in the near future and expect this situation to change in the coming years.

We will continue to monitor this.

Figure 9: GHG integrity vs. SDG impact for 500+ projects



Safeguards: Room for improvement

Most standards include “do no harm” requirements. However, many still do not provide sufficient guidance, or they fail to adequately include environmental and social safeguards to prevent potential negative impacts.

Calyx Global screens projects against 10 safeguard areas and 55 sub-areas drawn from international best practices. This table shows that there is room for improvement among all standards.

On a positive note, since mid-2023, carbon crediting programs have recognized several shortfalls and started to discuss and implement improvements.

Updated since mid 2023:

- All 10 safeguard areas of GS4GG
- 4 safeguard areas of VCS
 - Biodiversity conservation and sustainable management of natural resources
 - Human rights and Indigenous peoples
 - Labor rights and working conditions
 - Resource efficiency

**Safeguarding principles & requirements v. 2.1 (2023), Gender equality requirements & guidelines v. 2.0 (2023), and Stakeholder consultation and engagement requirements v. 2.1 (2022)

	Screened by Calyx Global	CCB V. 3.1.21 (2017)	GS4GG**	SD VISTA V.1.0 (2019)	VCS V.7 (2024)
Access to justice					
Biodiversity conservation and sustainable management of natural resources					
Community health, safety, and security					
Cultural heritage					
Gender equity					
Human rights and Indigenous peoples					
Labor rights and working conditions					
Land rights and involuntary resettlements					
Resource efficiency					
Transparency, participation, and benefit sharing					

Covered
 Mostly covered
 Some covered
 Not covered

Conclusion: Are we moving to a VCM 2.0?

In short, yes, it appears the market is moving in a good direction.

Calyx Global has collected a vast amount of data on the quality of the VCM. From this, we see early indications that the market may be moving to higher GHG integrity. In particular, the first quarter of 2024 saw a significant drop in issuances of credits with very low GHG integrity (i.e., E-rated in the Calyx Global system).

Two project types that tend towards lower ratings on average — large-scale renewable energy and REDD — are decreasing their stronghold on the market. From 2021-2023, these two project types alone accounted for around half of VCM issuances. The two major issuers of large-scale renewable energy credits — VCS and Gold Standard — halted new registrations of such projects in 2020, except in very limited circumstances (e.g., in Least Developed Countries, LDCs). Meanwhile, VCS is updating and transitioning all REDD projects to a new methodology that should improve the GHG integrity of such credits. However, large volumes of the original credits have already been verified or issued, but not yet retired, so it may take time for them to work their way out of the market.

At the same time, we expect to see an increase in higher-integrity GHG credits come to market. This assessment is based on two observations: First, GHG methodology improvements are on the horizon for popular project types, such as reforestation and cookstoves. Second, we have many conversations with (and support) investors engaging in early-stage projects who ask Calyx Global to help drive quality upstream.

The market continues to value benefits beyond carbon — and this trend does not appear to be changing. Projects that deliver strong contributions to the United Nations' Sustainable Development Goals (SDGs) continue to capture a significant portion of retirements, often despite their lower GHG integrity. However, we observe that changes in retirement trends are currently driven by a desire for higher GHG integrity (as noted on page 13), while there is no clear trend in the selection of credits based on SDG contributions.

We encourage market participants to consider the importance of certifying SDG contributions, as these are highly context-



dependent and deserving of third-party auditing, similar to the GHG benefits of carbon projects. We also encourage buyers of carbon credits to consider the full suite of SDGs — not just those related to nature. Credits that deliver high GHG integrity in the industrial, manufacturing and waste sectors can also contribute to energy access, health, employment and other areas.

One area with potential for improvement is assurance of the “do no harm” principle. Every standard can improve its coverage of environmental and social risk, providing more robust guidance for projects to implement safeguards. Calyx Global has developed a framework to systematically assess such risks and we find that this is an area where more attention is needed by the VCM. On a positive note, we see carbon crediting programs starting to discuss and implement improvements (as shown on page 15), and we’re encouraged that the ICVCM is addressing safeguards within one of their Continuous Improvement Working Groups.

For Calyx Global, all this points to a nascent transition to a higher-quality VCM 2.0. We believe that higher GHG integrity will help scale and sustain the market and are glad to see these early signs of change. We are also encouraged that buyers appear to be integrating SDG impact into their credit purchasing decisions — and we hope to continue to see improvements in safeguards.

How should companies and organizations engage during this time of transition?

Companies looking to retire carbon credits should consider:

- What claims are you seeking to make? If compensatory (i.e., offsetting), then make sure there is sufficient GHG integrity in the credits you purchase — and don’t assume newer vintages will be higher-quality.
- How important are benefits “beyond carbon” to your climate goals? It is good to understand this because there is often a tradeoff in today’s market between high GHG integrity and strong SDG impact. Furthermore, consider SDG-certified credits and look closely at the strength of each claim.

Companies looking to invest and resell carbon credits should consider:

- Trends in demand for carbon credits are currently driven by GHG quality, but buyers still appear committed to credits that deliver benefits beyond carbon.
- There are high GHG integrity credits in the manufacturing, industry and waste sectors that may be undervalued.
- Emerging methodology changes for REDD and cookstove projects mean higher integrity versions of these historically in-demand credits are likely on the horizon.

We recognize that it can be challenging for companies to confidently offset emissions in today’s market, but doing nothing will not drive progress on climate goals. We believe that being transparent about the efforts taken to drive impact, both within one’s value chain and beyond, deserves praise, not criticism. We applaud companies and organizations that work on and invest in multiple ways to take climate action and focus on the highest-quality credits where they use them.

For a deeper dive into VCM quality, join our webinar with the authors of this report. [View it live or on-demand here](#)

About the report

Calyx Global's mission is to improve the quality of the carbon market for people and the planet. To achieve this, we track, analyze and rate carbon projects' GHG claims and SDG contributions and screen for environmental and social risk. This report aims to assess global progress toward the goal of more impactful carbon markets. If you have questions on this report or Calyx Global ratings [reach out](#).

About Calyx Global

Calyx Global is a carbon credit ratings platform that helps organizations confidently realize their high-quality climate goals. Rigorous GHG integrity and SDG contribution ratings across an unmatched variety of project types, from nature-based to emerging technological solutions, enable customers to discover credits that do good for their reputation and the planet. Calyx Global leads the market with over 500 projects rated - and counting. To learn more, visit www.calyxglobal.com.

For further reading on the topics discussed here, see:

[Comparing demand for REDD and ACM0002 carbon credits](#)

[Is there a correlation between carbon credits' GHG integrity and SDG impact?](#)

[Wasted Potential: What we've learned after rating 100+ landfill gas projects](#)

[How carbon credit standards address safeguards](#)

[Calyx Global ratings explained](#)

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