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2025 State of Integrity in the Global Carbon-Credit Market

MSCI Carbon Markets

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Executive summary

Ensuring high levels of integrity remains central to scaling the global carbon-credit market. Buyers of carbon credits need ever greater assurance that the credits they are buying have the intended impacts.

This report provides a unique insight into the initiatives that are helping to create this confidence. The report builds on last year's inaugural State of Integrity in the Global Carbon-Credit Market Report, and leverages MSCI Carbon Project Ratings of over 4,400 registered projects and nearly 250 pipeline projects. The MSCI rating process builds on industry initiatives to produce consistent and detailed evaluations of individual projects using rules-based project-type specific frameworks. Each project's emissions impact and implementation approach are assessed against six criteria and over 50 sub-criteria. These criteria are combined and weighted to create a composite carbon-project rating that ranges from AAA to CCC. The key insights from this year's report are:

1. The trend toward higher integrity projects accelerated

Although only 11% of projects currently registered are rated A or above, this is up from 10% in 2024. The large number of existing projects compared to those newly registered means that the average rating of all registered projects will change slowly even if newly registered projects show significantly higher integrity.

Retirements of credits rated BBB and above have risen to over 35% in the first half of 2025, up from 25% in 2022.[1] This demand-side selectivity has contributed to the first periods of negative surplus changes for BBB-rated and above credits, as retirements outpace new issuances.

Ratings of pipeline projects show significantly higher ratings on average than the registered universe, with over 40% of projects rated BBB or higher. This increase is directly linked to improvements in project design, such as a greater share of Afforestation, Reforestation and Revegetation (ARR) projects using native species and clean-cooking projects increasingly applying more conservative, benchmarked fraction of non-renewable (fNRB) values. This progress is supported by initiatives like the Integrity Council for the Voluntary Carbon Market's (ICVCM) Core Carbon Principles (CCPs), which now cover 28 methodologies across 125 projects and 49 million surplus credits, up from 29.5 million last year.

2. Projects with higher ratings continued to achieve higher prices

MSCI's Carbon Credit Price Indexes show that higher-rated credits typically achieved higher prices than comparable projects with lower ratings, and, in recent months, the high-integrity index has traded at more than 4x the level of the low-integrity index, compared with just 2x in 2024. At the project-type level, premiums are increasingly visible, though the size of these premiums varies by project type. This price differentiation is strengthening incentives for new projects to pursue high-integrity pathways and for existing projects to revisit underlying assumptions.

[1] Retirements represent the removal of issued carbon credits from circulation so that they are unable to be used again. Retired carbon credits are mostly used against voluntary corporate climate claims.

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3. Delivery risk became more important

Delivery risk has become more prominent as more buyers look to secure future off-takes. This is particularly relevant for engineered removal projects, where there have been delays in credit issuance. For early-stage buyers and investors, this underlines the importance of incorporating delivery risk assessments into procurement decisions, considering factors such as developer track record, financial robustness and the maturity of the underlying technology.

4. Article 6 project risks need to be assessed

At the time of this report, some 176 bilateral agreements have been signed under the auspices of the Article 6 mechanism spanning 53 seller and 11 buyer countries and covering almost 30 $MtCO_2e$[2] in Internationally Transferred Mitigation Outcomes (ITMOs).

These transactions, however, carry a number of risks for potential buyers and funders, both at the project and country level. To bring analytical rigor to this market, MSCI has introduced Article 6 Integrity Scores and a new Article 6 Readiness Index.

The readiness index, covering 70 countries, shows a significant improvement: the share of countries reaching medium or above readiness rose from just over 20% in 2024 to nearly 40% so far as of September 2025.

1 Introduction

1.1 This report

This year's *2025 State of Integrity in the Global Carbon-Credit Market* builds on our inaugural 2024 edition, providing an updated view of the market's progress towards higher integrity. Using the MSCI Carbon Project Ratings framework, we assess the quality of both issued and pipeline credits, examine the forces driving improvement, and highlight emerging risks and behaviors shaping the market in 2025. Our analysis remains grounded in a rules-based, project-type-specific evaluation of thousands of registered projects, supplemented this year by the MSCI Article 6 Integrity Framework to capture policy-level and cross-border risks as market mechanisms evolve.

Integrity has grown in importance over the past year. Heightened public and regulatory scrutiny means any gap between a credit's claimed and actual impact can carry immediate reputational and financial consequences. For many buyers — particularly those with science-based targets or regulatory obligations — integrity is now a threshold requirement, shaping procurement strategies, influencing pricing and determining whether credits will retain value in future markets.

In 2025, integrity is also central to unlocking capital flows. The expansion of mechanisms such as Article 6 of the Paris Agreement and the operationalization of the ICVCM's Core Carbon Principles have increased the need for robust, transparent quality assessments. High-integrity projects are better

[2] Million metric tonnes of carbon dioxide equivalent: This is a standard unit used to express the global warming potential (GWP) of different greenhouse gases on a common scale.

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positioned to secure offtake agreements, attract investment and gain recognition in both voluntary and compliance frameworks. In contrast, low-integrity supply faces the growing risk of exclusion from premium segments of the market and even of becoming stranded.

1.2 Carbon-credit integrity

Carbon credits have varying characteristics. These stem from differences in project types, but also from the methodologies that are used to quantify the credits, and how rigorously they are applied. Projects also differ in terms of their potential co-benefits and their legal and ethical characteristics.

This variation in quality was not intended. Standard-setting and governance bodies attempted to create a system in which all carbon credits had an equivalent climate benefit (representing a tonne of carbon dioxide equivalent [CO_2e] removed or avoided), and could be used for voluntary or compliance purposes. These procedures date back to the Clean Development Mechanism (CDM) created under the 1997 Kyoto Protocol and have continued to evolve, including through the expansion of the voluntary carbon market.

A key challenge lies in the quantification of the climate benefit of a project — i.e., whether the carbon credits calculated are genuinely equivalent to mitigating or removing one tonne of CO_2e from the atmosphere. This difficulty stems from the calculation method needed to determine what would have happened in the absence of a project, i.e., in the “baseline” scenario (sometimes referred to as the “counterfactual” scenario). Other aspects of a project’s overall quality relate to the governance of the project and its broader sustainability impacts.

While there are many aspects to the quality of a carbon credit, there is a growing consensus on how to define and measure them. Typically, these relate to:

- **Emissions impact integrity:** The effectiveness of the project in reducing emissions beyond what would have happened in the absence of the project. This comprises assessment of issues such as the actual emissions from the project, the robustness of the baseline and risks of leakage and non-permanence.
- **Implementation integrity:** Including environmental and social safeguards and general sustainable-development impacts.

The MSCI Carbon Project Ratings builds on these factors to create a consistent approach to assessing carbon-credit integrity. The rest of this report describes current initiatives to improve carbon-credit integrity (Section 2), the approach used in the MSCI Carbon Project Ratings (Section 3) and key insights from the application of the ratings (Section 4).

Within carbon markets, the terms “quality” and “integrity” tend to be used somewhat interchangeably. Throughout the rest of this document, we will use the word integrity.

2 Efforts to improve carbon-credit integrity

Efforts to improve carbon-credit integrity operate at several layers of the market. At the core are the crediting programs themselves, whose governance rules and methodologies set the baseline for credit

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quality. Around these are international initiatives that establish shared definitions and minimum standards for integrity. Complementing both are private-sector innovations in monitoring, assessment and risk management. Each group plays a distinct role in shaping the market's integrity profile — and each has continued to evolve since our 2024 report.

2.1 Crediting-program initiatives

Crediting programs and registries remain the foundation of the carbon market, setting the rules and methodologies that govern how credits are created, verified and tracked. In 2025, the most important developments are less about individual methodologies and more about how programs are responding to growing external pressure.

One of the most visible shifts has been the pace at which registries are aligning their governance processes with CCPs requirements. Seven programs have now achieved CCP-eligible status, while a further eight are under active review, reflecting growing alignment with global governance standards.

The crediting-program landscape is also diversifying. Alongside the established global standards, several more specialized or regionally focused registries are gaining traction. Isometric has positioned itself as a specialist in high-durability carbon removal technologies. In the nature-based space, new frameworks such as Equitable Earth are seeking to combine biodiversity and ecosystem health metrics directly into credit issuance rules. Regionally, platforms like EcoRegistry in Latin America have built market share by offering registry infrastructure, supporting domestic standards such as Cercarbono, and tailoring governance processes to regional contexts. This growing diversification is the reason MSCI's coverage has now extended to 20 registries worldwide and Verra and Gold Standard together in 2025 have represented their lowest share of issuances since 2017.

2.2 International integrity initiatives / frameworks

International frameworks play a critical role in setting cross-registry benchmarks for credit quality, establishing expectations that transcend individual registry standards. In 2025, three developments have been particularly significant.

CCPs

The CCPs were established to define a minimum quality threshold for carbon credits, focusing on governance, emissions impact and sustainable-development benefits. Since their initial rollout in 2023–24, coverage has expanded significantly. By the end of 2024, only a handful of methodologies and programs had received approval, but as of mid-2025 there were 28 CCP-approved methodologies, covering more than 125 projects and around 49 million surplus credits. This compares with roughly 29.5 million surplus credits under the label a year earlier.

While the early stages of CCP implementation were largely about deciding which methodologies were eligible, recent decisions have moved beyond methodology-level approval into project-level requirements. For example, when clean-cooking methodologies from Verra and Gold Standard were approved in 2025, the CCP label was made conditional on projects meeting specific monitoring and data requirements, such as using up-to-date, locally relevant fraction of non-renewable biomass (fNRB) values and adopting stricter usage monitoring protocols. This marks a shift from "methodology pass or

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fail" decisions to a more granular approach, where even projects using an approved methodology must demonstrate that they meet additional integrity safeguards to qualify for the CCP label.

CORSIA Phase I (2024–2026)

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) entered its first compliance phase in 2024. In 2025, the International Civil Aviation Organization (ICAO) Technical Advisory Body (TAB) expanded the list of approved crediting programs to include Verra, Gold Standard, CAR and GCC, alongside ACR and ART TREES. This has broadened the registry base supplying credits into the scheme.

At the same time, new restrictions were introduced. Large-scale grid-connected renewable projects (above 15 MW), certain clean-cooking methodologies, and REDD+ projects were excluded from Phase I eligibility. Removals remain under consideration. These decisions reflect a tightening of integrity requirements, with CORSIA effectively broadening the base but narrowing the integrity thresholds.

In 2025, ICAO also introduced a new integrity safeguard in the form of Article 6 Letter of Authorization (LoA) revocation insurance. Under this requirement, registries must ensure that buyers are protected against the risk of host countries revoking authorizations and undermining credit eligibility. Both Verra and Gold Standard have begun the process of selecting private insurers, with Gold Standard already offering the World Bank's Multilateral Investment Guarantee Agency (MIGA) product as one option. This measure adds an additional integrity safeguard, reinforcing the emphasis on ensuring that credits used under CORSIA remain credible throughout their lifetime.

Article 6 of the Paris Agreement

Article 6 provides a framework for countries to cooperate in meeting their climate targets by transferring mitigation outcomes internationally. It enables one country (the purchaser) to fund emissions reductions or removals in another (the host) and count these outcomes towards its own NDC. These internationally transferred mitigation outcomes (ITMOs) must be authorized, tracked, and reported to avoid double counting. Article 6 thus offers a pathway to integrate voluntary and compliance markets — but it also introduces new integrity risks.

In 2025, Article 6 activity has accelerated. There are now 176 bilateral agreements in place as of September 2025 (up 33 from 2024), involving 53 seller countries (up 23) and 11 buyer countries (up eight). Collectively, these agreements cover almost 30 $MtCO_2e$ of ITMOs. This expansion demonstrates how Article 6.2 is moving from theory to practice, with governments increasingly treating it as a channel for both climate cooperation and investment[3]. Meanwhile, following decisions at COP29, Article 6.4 is

[3] Article 6.2 covers bilateral trading of "mitigation outcomes" between countries, where authorization is granted via a Letter of Authorization (LoA) and a corresponding adjustment (CA) is applied to ensure reductions are only counted once.

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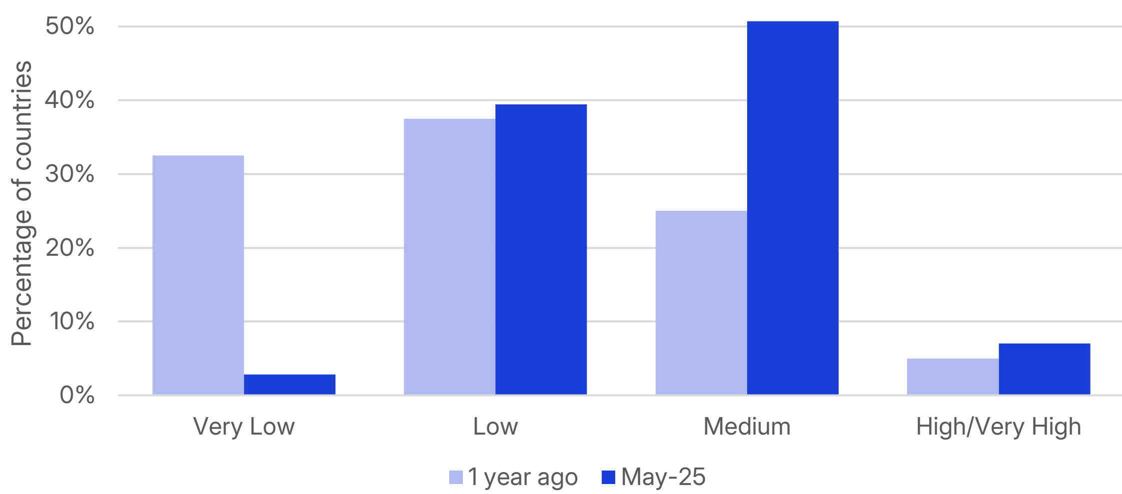
progressing towards operationalization with the first credits expected to be issued this year, including projects transitioning from the CDM[4].

Country readiness for Article 6 has also increased. A corresponding adjustment is the accounting step where a host country adds exported emissions reductions back into its national inventory, ensuring they are not double counted. The MSCI Article 6 Readiness Score measures countries' capacity to carry out these adjustments and meet reporting requirements. This score is based on three pillars: market activity, institutional infrastructure and transparency. Each criterion is scored from 1 (low) to 5 (high), weighted and aggregated into readiness levels ranging from very low to very high. Results in 2025, shown below, demonstrate a clear upward shift, with more countries demonstrating the institutional and governance capacity to implement Article 6 — though gaps remain.

Article 6 readiness has increased significantly in the past year



Article 6 readiness by country, % of countries. Source: MSCI Carbon Markets, as of June 1, 2025.

Carbon-credit insurers

A small but growing number of insurers are offering products aimed at managing carbon-credit risks, particularly delivery risk for pre-issuance transactions and reversal risk for nature-based projects. In 2025, this segment has moved from niche pilots to more structured offerings, with policy terms becoming more standardized and capacity increasing through partnerships between specialist underwriters and mainstream insurance groups. While the market remains young and largely untested by large-scale claims, the presence of insurance cover is increasingly seen by some buyers as a sign of project credibility, particularly in higher-value, engineered-removal transactions.

[4] Article 6.4, modelled on the CDM, is a UN-administered project-level standard designed to channel resources to climate projects worldwide.

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Independent carbon ratings

Independent ratings providers continue to expand their influence in the carbon market. In 2025, their role has evolved from being primarily a due diligence tool for sophisticated buyers to becoming embedded in formal procurement requirements. An increasing number of corporate buyers now stipulate a minimum project rating (for example, BBB or above) as a precondition for purchase. Investors and developers are also integrating ratings earlier in the project lifecycle — in some cases commissioning preliminary ratings at the pipeline stage to identify potential integrity gaps before seeking finance or registry approval. This earlier and more prescriptive use of ratings reflects a shift towards proactive integrity management rather than reactive screening.

3 MSCI Carbon Project Ratings

3.1 Overview

MSCI Carbon Project Ratings are composite ratings that independently assess the integrity and risks of carbon-credit projects across multiple criteria, including their impact on the climate, the environment and society.

The ratings are built on a detailed integrity assessment system developed since 2021, and apply rules-based, project-type-specific frameworks to evaluate both the climate performance and the implementation practices of individual projects. The methodology draws on thousands of project documents, registry data, geospatial analysis and third-party datasets to produce a comparable rating for each project.

Each project is assessed across six core criteria. Three — additionality, quantification and permanence — capture emissions-impact integrity, or how much CO_2e a project has reduced or removed. The other three — co-benefits, legal and ethical risks and delivery risks — relate to implementation integrity, assessing the way those outcomes are achieved and the wider environmental and social context. Each criterion is scored on a scale of 1 (low integrity) to 5 (high integrity), then the scores are combined using a weighted formula that emphasizes the most critical factors. An inverse weighting mechanism ensures that a low score in any one area cannot be offset by strong performance elsewhere. The composite score is then mapped to a familiar AAA–CCC letter scale.

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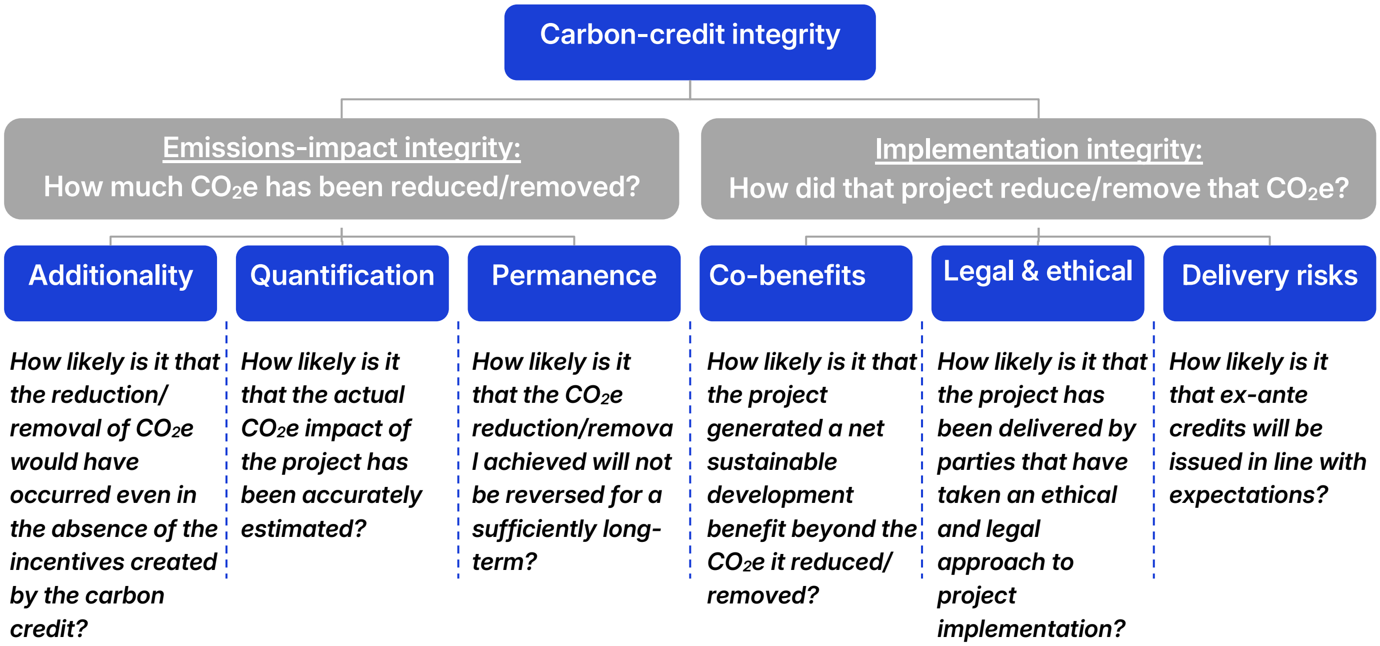
MSCI Carbon Project integrity framework



Source: MSCI Carbon Markets.

Last year's State of Integrity in the Global Carbon-Credit Market report describes the methodology for assessing the key criteria for evaluating the integrity of a carbon-credit project. We also offer a more detailed methodology document for the MSCI Carbon Project Ratings.

3.2 Updates in 2025

The MSCI Carbon Project Ratings framework has continued to evolve in 2025, with wider coverage, deeper early-stage assessments and new tools to help market participants understand both project-level and Article 6 risks. Key enhancements include:

- **Expanded coverage**: More than 4,400 registered projects are now rated, including the first J-REDD project, giving a clearer and more comprehensive view of integrity across all major credit types and registries.
- **Pipeline project assessments**: Nearly 250 pre-registration projects have been evaluated using an adapted framework, providing forward-looking insights into the likely integrity of future supply before credits are issued.
- **Preliminary assessments**: For over 1,900 projects without a full MSCI Carbon Project Rating, preliminary assessments now include more project-specific factors, such as clean-cooking *fNRB*

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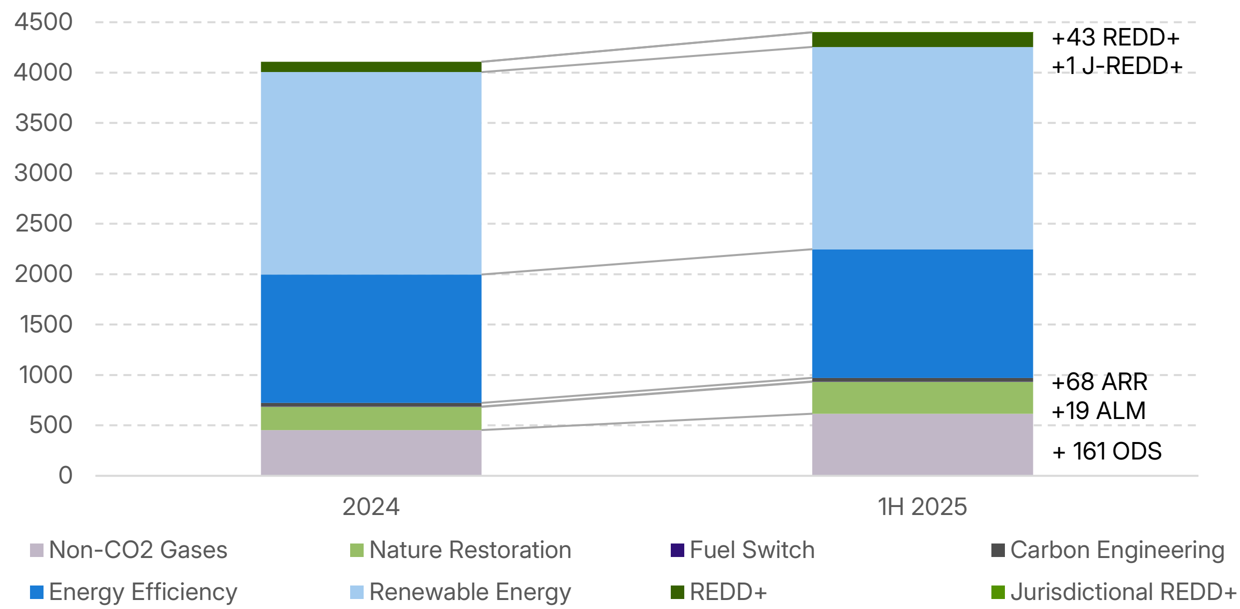
values benchmarked against MoFuSS data.[5] They also extend to newer carbon engineering project types such as direct air capture (DAC), carbon capture and storage (CCS) and enhanced rock weathering (ERW), all of which help to anticipate integrity challenges in emerging segments.

- **Article 6 integrity scores**: Newly released MSCI Article 6 Integrity Scores assess nationally determined contribution (NDC) ambition, corresponding adjustment robustness and policy stability at the country level. Used alongside project ratings, these scores provide a holistic view of Article 6 project risks.
- **MSCI One platform deep-dives**: Ratings are now accompanied by richer transparency tools on the MSCI One platform, including more than 50 deep-dive dashboards and 25 due diligence reports. Together these offer in-depth commentary on the drivers behind each score and help inform buyer, investor and developer decision-making.
- **Innovative geospatial analysis:** Incorporation of dynamic baseline modelling for ARR projects and jurisdictional baseline deforestation modelling based on expected population growth and a comparison of deforestation trends in peer countries at similar stages of the forest transition curve.

The number of projects with an MSCI Carbon Project Rating has continued to rise across project types



Source: MSCI ESG Research. Data as of Aug. 4, 2025. REDD+ = Reduced Emissions from Deforestation and Degradation; JREDD+ = Jurisdictional REDD+; ARR = Afforestation / Reforestation / Revegetation; ALM = Agricultural Land Management; ODS = Ozone-depleting Substances.

[5]MoFuSS refers to the Modelling Fuelwood Savings System, a modelling tool developed to estimate the fraction of non-renewable biomass (fNRB) used in clean-cooking projects. MoFuSS provides location-specific benchmarks by combining satellite imagery, national forestry data, and household energy-use surveys to estimate the share of fuelwood that would not be replaced through regrowth. In MSCI Carbon Project Ratings, project-level fNRB assumptions are compared against MoFuSS-derived benchmark values to assess whether they are conservative and locally appropriate.

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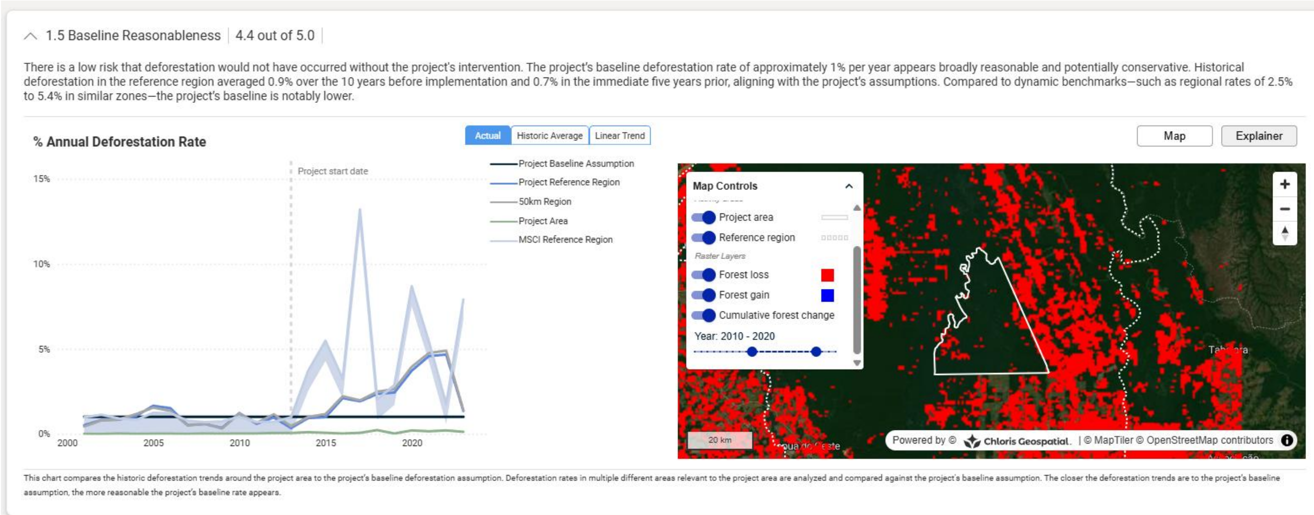
Illustrative MSCI One deep-dive dashboard



Source: MSCI ESG Research.

4 The state of integrity in 2025

The application of MSCI Carbon Project Ratings for over 4,400 projects combined with wider market data across MSCI Carbon Markets reveals important insights for the global carbon-credit market. Four of the most important trends are highlighted in the rest of this section.

4.1 High-integrity supply crunch deepens

Buyers are increasingly seeking out high-integrity credits ...

Retirement patterns in 2025 have continued to show a higher proportion of credits coming from projects rated BBB or above compared to preceding years. This reflects a more selective approach by buyers, many of whom now explicitly avoid lower-rated supply or set minimum integrity thresholds for purchases. In some cases, these standards are embedded in corporate procurement policies, driving a clear skew toward higher-rated retirements. As shown below, the proportion of retirements rated CCC was 11%, which is the lowest since 2019 and less than half the proportion observed in 2022. An increasing share of credits from the lowest-rated projects may ultimately become "stranded" — i.e., issued but unable to secure a final buyer willing to retire them.

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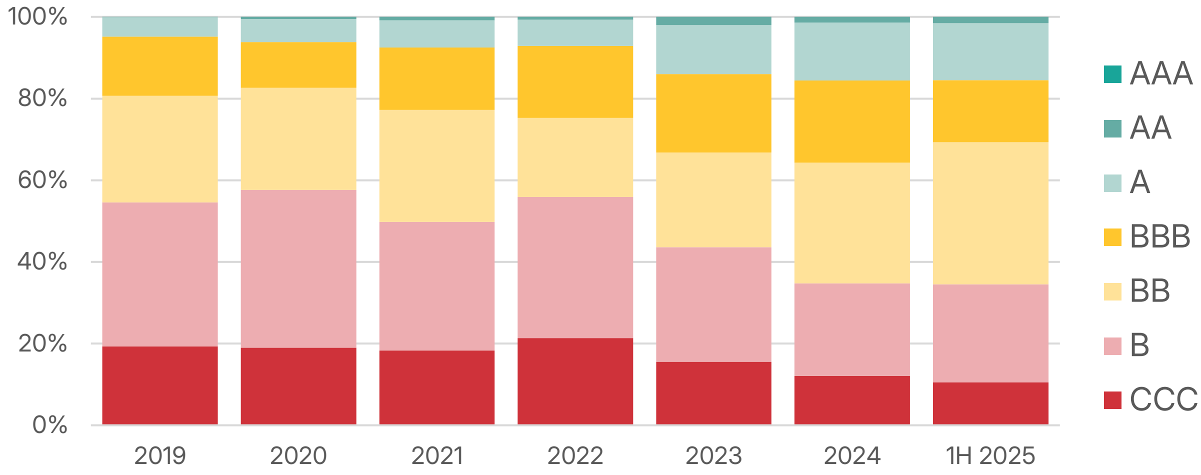
Credit retirements continue to trend towards higher-integrity projects



Annual carbon credit retirements by MSCI Carbon Projects Rating (%). Source: MSCI ESG Research.

...but demand is outpacing new supply

The availability of high-quality credits, however, remains small relative to the scale of corporate and compliance-linked demand. This scarcity is particularly acute in credit types that combine high integrity with strong co-benefits, such as biodiversity gains or community livelihood improvements, which attract competition from buyers with overlapping environmental and social objectives.

The chart below shows the quarterly change in surplus credits for the four main project integrity bands: BBB, A, AA and AAA. A positive number indicates that the supply (i.e., issuances) of credits exceeded demand in that quarter, and a negative number vice versa. The trend was toward a tightening of supply vs. demand, especially towards the end of 2024 and in the first three quarters of 2025, where demand has exceeded new supply.

While more high-rated projects are in the pipeline, long development lead times in categories such as ARR and engineered removals, which tend to be higher integrity on average, mean that this supply gap is unlikely to close in the short term. In the meantime, competition for premium credits is intensifying, and buyers are increasingly turning to forward contracts and multi-year offtake agreements to secure access.

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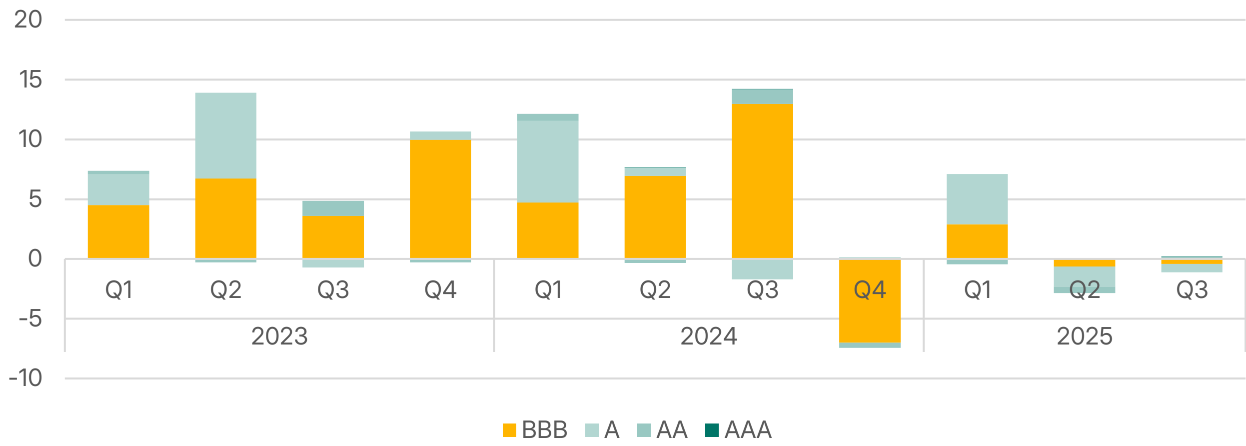
Quarterly change in surplus credits split by MSCI Carbon Project Rating ($MtCO_2e$)

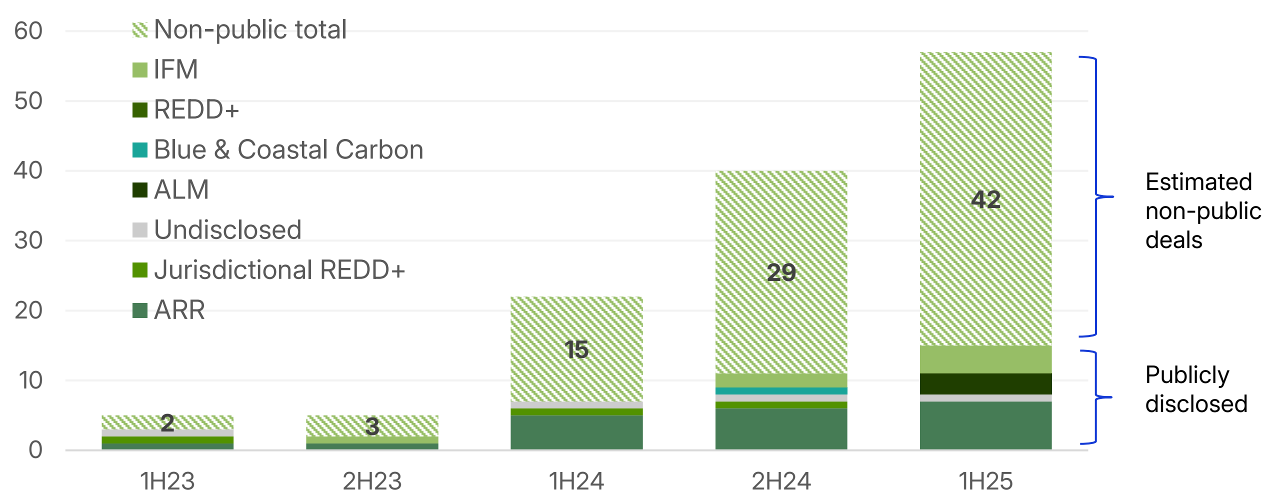


Source: MSCI ESG Research.

High demand is in part leading more companies to pursue early-stage offtakes

The limited supply of high-integrity credits in spot markets is one of the reasons behind companies focusing on earlier-stage transactions through offtake and forward purchase agreements. These agreements involve buyers contracting today to purchase future credits over several years, providing developers with the upfront finance needed to develop the projects. While such mechanisms are well established in the carbon dioxide removal (CDR) space, they are increasingly being applied to nature-based solutions (NBS). More than 50 such transactions for NBS focused offtakes have been recorded in the first half of 2025, which is more than double that observed in the first half of 2024. Beyond financing, offtakes also enable buyers to influence project design, aligning it with corporate priorities such as delivering stronger community benefits or focusing on geographies of strategic interest.

Number of NBS offtakes announced since 2023



Source: MSCI analysis of public announcements, interviews with project developers.

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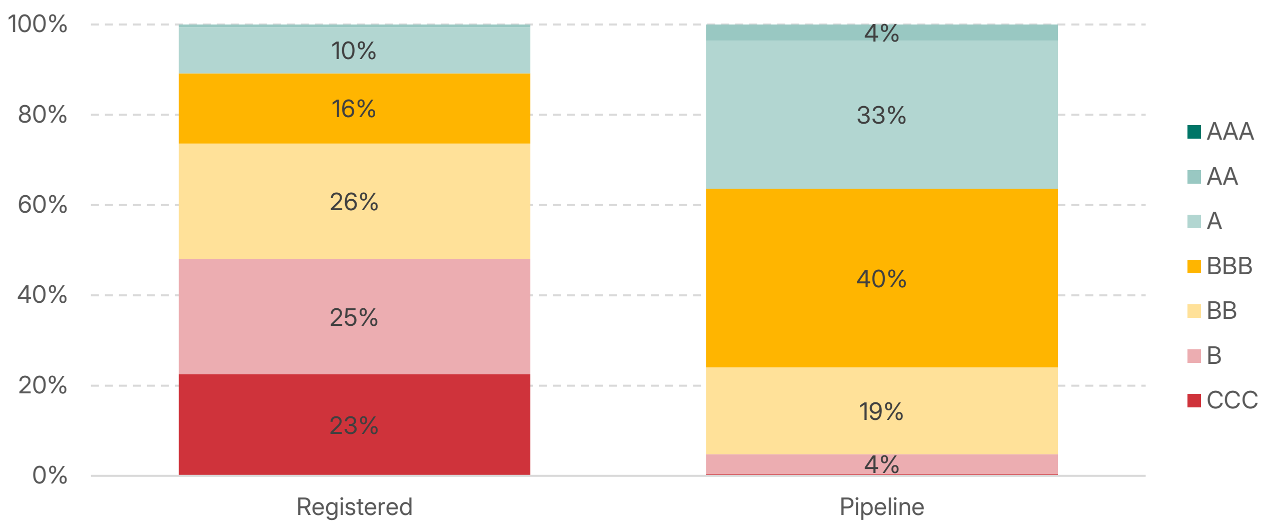
4.2 Quality of new supply continues to rise

Projects coming into the market are higher integrity, on average

On the supply side, pipeline projects are showing higher average integrity ratings than the currently registered projects. The share of projects A-rated and above is significantly higher in the pipeline, while the proportion of projects in the B to CCC categories has fallen sharply. Over time, these shifts suggest that the flow of new credits will progressively raise the overall integrity profile of the market.

Distribution of carbon-project ratings by project stage, % of Projects, as of Aug. 2025.



Source: MSCI ESG Research. Data as of Aug. 22, 2025. Includes 249 pipeline projects and 4,410 registered projects with a full MSCI Carbon Project Rating.

Higher-integrity project design choices

While the shift in the overall rating distribution can be driven by a variety of factors, including a change in project type mix, project design choices are also key to driving this higher integrity.

In the nature-based sector, for example, more than 50% of pipeline projects for ARR now plan to use native or partially native tree species. The choice to plant native species strengthens integrity outcomes by improving permanence through greater resilience to natural risks and enhancing co-benefits such as increasing biodiversity. The emphasis on native species at the planning stage also highlights a growing caution among developers to align with integrity standards and embed quality considerations into project design from the outset.

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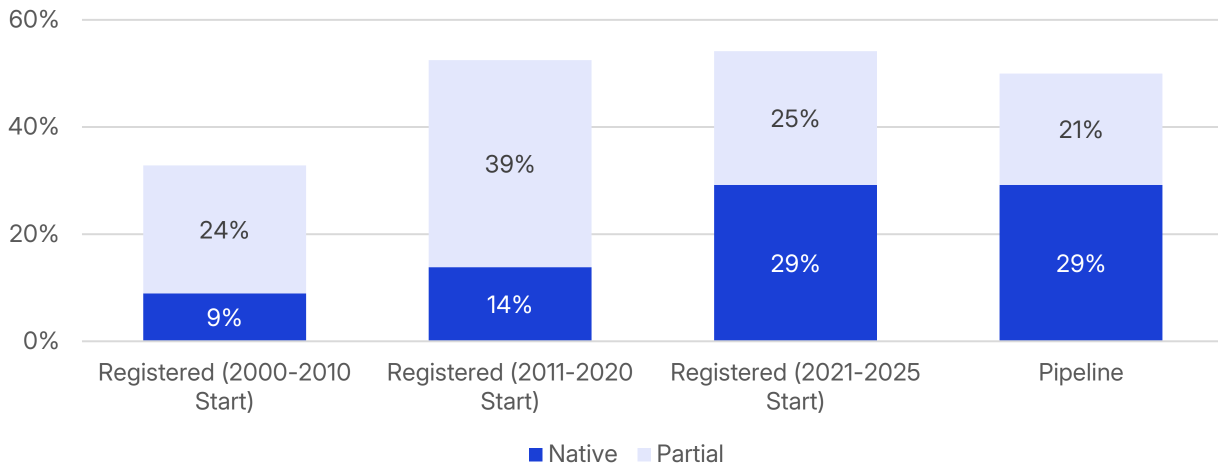
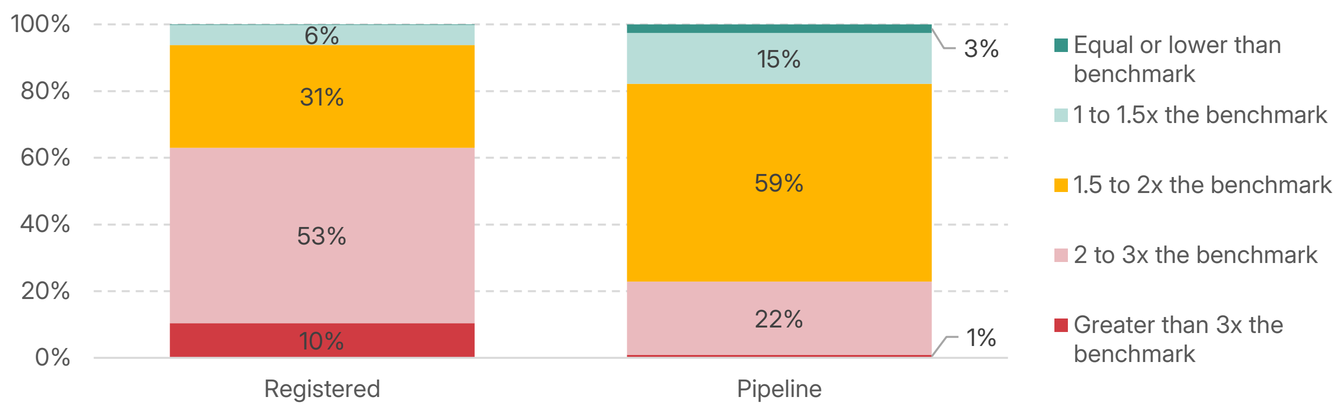
Proportion of ARR projects planting native or partially native species



Source: MSCI ESG Research.

In the clean-cooking sector, projects are now tending to use more conservative assumptions to calculate carbon savings. The fraction of non-renewable biomass (fNRB) is a key parameter in clean-cooking projects because it determines how much of the displaced fuelwood is considered to contribute to net emission reductions. If fNRB is over-estimated, the project risks over-issuing credits relative to its emissions reduction impact. Registered projects have historically overstated the fNRB compared to independent benchmark values, with over 60% applying values at least twice the MoFuSS benchmark. In contrast, nearly 20% of pipeline projects now adopt values close to the benchmark, while fewer than 25% continue to use inflated estimates. This demonstrates a clear move toward high integrity, with newer projects aligning assumptions more closely to recognized benchmarks such as MoFuSS and integrity standards set by bodies such as the ICVCM.

Pipeline cookstove projects demonstrate more conservative fNRB assumptions than registered ones



Distribution of clean cooking projects by ratio of fNRB to MoFuSS benchmark, % of projects. Source: MSCI ESG Research. Based on 819 registered projects and 118 pipeline projects (2020 onwards). Benchmark is based on a 70:30 weighting of the MoFuSS mean and upper bound value for the project location; country value used where regional value is not available.

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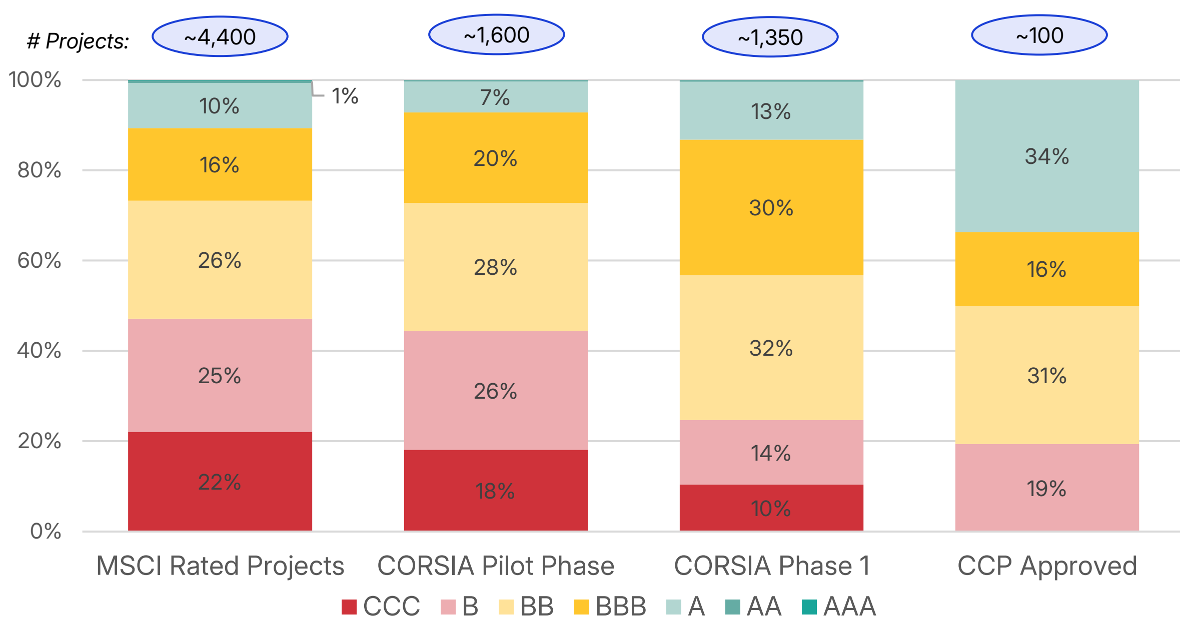
Wider industry initiatives support this trend

Market-wide initiatives continue to play a central role in lifting integrity standards, in particular CORSIA for the international aviation sector, and the ICVCM with its CCPs.

Both CORSIA Phase 1 eligible projects and CCP-approved projects demonstrate a higher integrity profile than the market overall. As shown below, there were no CCP-approved projects with a rating of CCC, as of Aug. 4, 2025, compared to around 20% for the overall market. Similarly, A-rated projects made up 33% of CCP approved projects compared to around 8% for the whole market. The ICVCM's requirement that clean-cooking projects calculate fNRB through a MoFuSS-based approach will likely accelerate this trend towards higher integrity projects in the cookstove sector.

Projects eligible for CORSIA Phase 1 also had higher integrity ratings than the overall market, with some 10% rated CCC (compared to 20% for all projects), and 30% rated BBB (compared to 15% for all projects). The higher integrity mix of CORSIA Phase 1 credits illustrates the impact of new CORSIA restrictions on eligibility, such as the exclusion of large-scale renewable energy projects.

Eligibility schemes are successfully demonstrating higher integrity profiles, though to varying degrees



Distribution of projects by rating for different eligibilities, % of projects. Source: MSCI ESG Research, as of Aug. 4, 2025.

4.3 Price-integrity premium widens

Higher integrity projects command clear and growing price premium

The link between integrity and price has strengthened in 2025, with the gap between high- and low-rated credits widening further. New MSCI Carbon Credit Price Indexes, which separately track high-integrity (BBB and above) and lower-integrity (BB and below) credits, show a steadily increasing spread. The high-integrity index has remained more resilient during periods of overall market softness, while the

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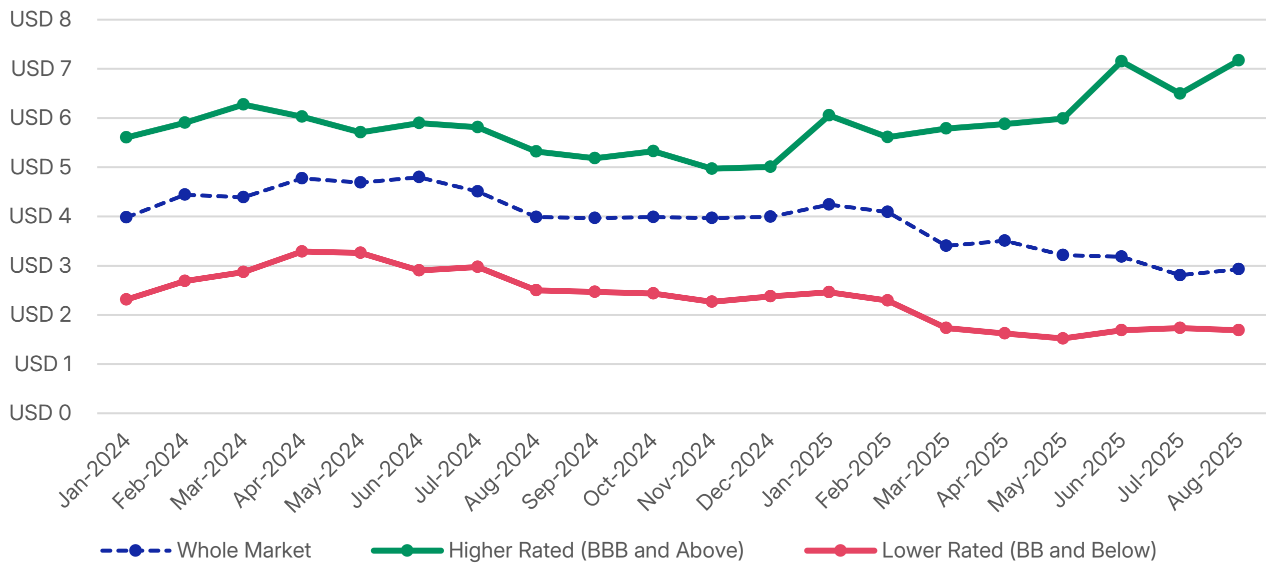
low-integrity index has seen sharper declines, underscoring how buyers have been assigning clear value to quality. In 2025, the high-integrity index has been over four times higher than the low-integrity index in recent months (up from two times in 2024).

The price spread between higher-rated and lower-rated projects has been steadily widening



MSCI Carbon Credit Price Index (USD/tCO_2e). Source: MSCI Carbon Markets. Indexes are constructed using ask and transaction prices and represent the transaction price of credits with a 3-year-old vintage. Index composition is informed by 12-month rolling average retirement data. Prices are gathered through MSCI's confidential network of pricing partnership agreements with traders, exchanges, brokers and project developers.

This relationship is even more pronounced when analyzed at the project-type level. For example, in unplanned deforestation (AUD) REDD+ projects, the average price premium between rating bands in 2025 is around USD 6 per tonne (up from USD 3 per tonne in 2024), with AAA–A credits commanding the highest prices.

While this relationship is strengthening, project-type and project-specific factors remain important. For example, for clean-cooking projects, the average price premium between rating bands was USD 2, as of Aug. 25, 2025, significantly less than for REDD+. Furthermore, within project-types, the average price premium hides significant variation that persists. For example, while the average prices of higher rated projects are significantly higher than lower rated projects, there is wide variation within each band.

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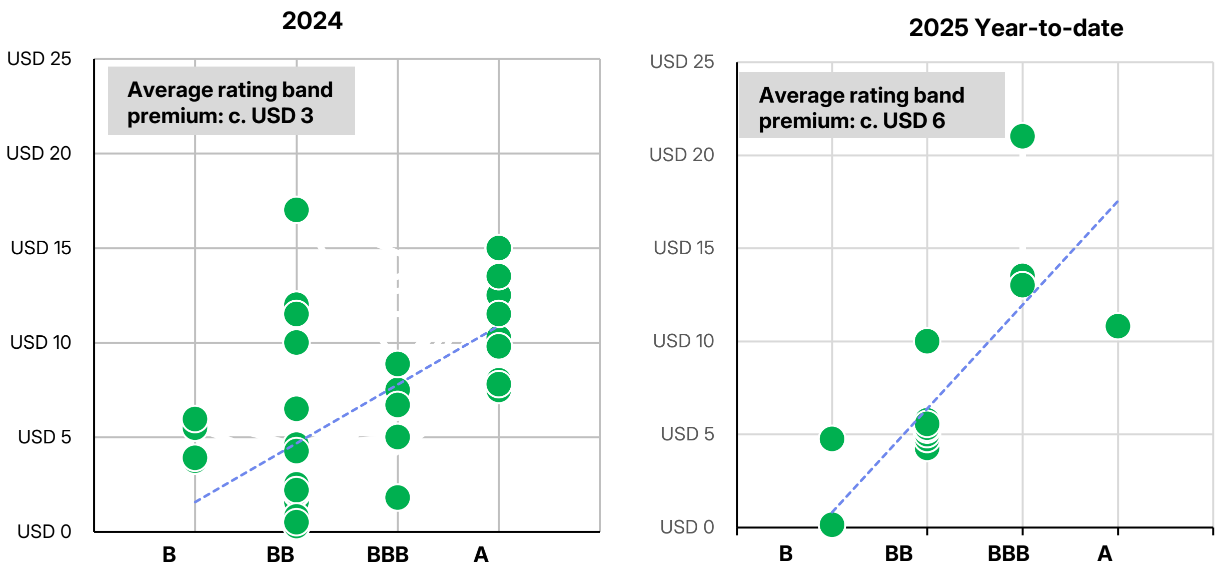
Growing price premium for higher-integrity REDD+ credits in 2025



Average Price for Unplanned Deforestation Projects by MSCI Carbon Project Rating (USD/tCO_2e). Source: MSCI ESG Research; as Aug. 25, 2025.

Developers are anticipating integrity changes to achieve these higher price brackets

Our clients report that for many active projects, developers are considering whether to transition to updated methodologies that align more closely with integrity benchmarks such as the CCP, even if this results in lower issuance volumes. This could mean adopting methodologies with dynamic baselines, more conservative leakage deductions, or tighter permanence requirements. Others are exploring re-registration with niche or specialized registries — for example, those focused on ecosystem restoration or engineered removals — to gain access to buyers with specific procurement criteria. These transitions can be complex, requiring re-validation and potentially significant adjustments to project operations, but they can materially improve market positioning and potential eligibility for premium pricing.

A growing number of developers are choosing to adjust key project assumptions or baselines proactively, ahead of any mandatory registry or methodology revisions. This approach reflects a shift in strategy among operators of existing projects, where the goal is to strengthen integrity signals, improve ratings and secure long-term market access — even if it means issuing fewer credits in the short term.

One example in 2025 involved a REDD+ project that undertook a substantial reassessment of its baseline deforestation rate in response to earlier integrity concerns. The revision cut the baseline annual deforestation rate by around half, from 2.5% to 1.26%, bringing it in line with independently observed deforestation rates in comparable reference regions. This more conservative assumption lowered the risk of over-crediting and raised its MSCI Carbon Project Rating from B to A.

Examples like this demonstrate how proactive recalibration using more conservative assumptions can improve the quality of the credits produced from a project. This could potentially enhance credibility with

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buyers, position the credits for improved pricing and reduce the risk of being excluded from emerging quality thresholds such as CCP labelling or minimum-rating procurement policies.

4.4 New risk dimensions move to the forefront

Integrity assessments have traditionally focused on project-level characteristics such as additionality, permanence and quantification. In 2025, however, a wider set of systemic risks are becoming more important for buyers and investors to evaluate. This shift is being driven by broader trends across the carbon market.

The growing use of ex-ante transactions and long-term offtake agreements mean buyers are committing to credits before delivery, amplifying the importance of delivery risk. At the same time, the closer alignment between voluntary and compliance markets — including the operationalization of CORSIA and the roll-out of the ICVCM's Core Carbon Principles — has heightened the scrutiny on credit usability and credibility. Most significantly, the increasing involvement of governments through Article 6 of the Paris Agreement has introduced new dimensions of policy and authorization risk that go beyond project boundaries.

Together, these trends mean that new categories of risk, notably Article 6 integrity risk and delivery risk, are becoming more important.

Article 6 risks

Article 6 of the Paris Agreement defines how countries can cooperate through international carbon markets to meet their climate targets, known as nationally determined contributions (NDCs). It allows one country (the purchaser) to fund emissions reductions or removals in another (the host) and count these outcomes towards its own NDC. These outcomes — internationally transferred mitigation outcomes (ITMOs) — must be measured, reported and tracked. For buyers, Article 6 offers a pathway to align voluntary credit purchases with national climate policy, creating a bridge between voluntary and compliance markets. However, while the framework enables cooperation, it does not guarantee integrity by itself.

Article 6 operates under two main mechanisms: Article 6.2 and 6.4. Credits issued under Article 6.4 can be used by countries or companies and, if retired for voluntary purposes, do not require a CA. While Article 6.4 has made progress, it is not yet fully operational.

The integrity of Article 6 credits is shaped not only by project quality, but also by the host country's climate ambition, governance capacity and commitment to consistent and transparent application of CAs. NDCs differ widely in coverage and rigor — some are sector-specific, others intensity-based and many depend on external finance to achieve. This variability, combined with the risk of LoA revocation due to political or policy shifts, creates uncertainty over the long-term value and usability of Article 6 credits.

To address these challenges, MSCI has developed the Article 6 Integrity Framework and associated risk scores, designed to complement MSCI Carbon Project Ratings. This framework assesses both country- and project-level risks using three main factors and seven sub-factors, underpinned by 40 metrics across 70 countries:

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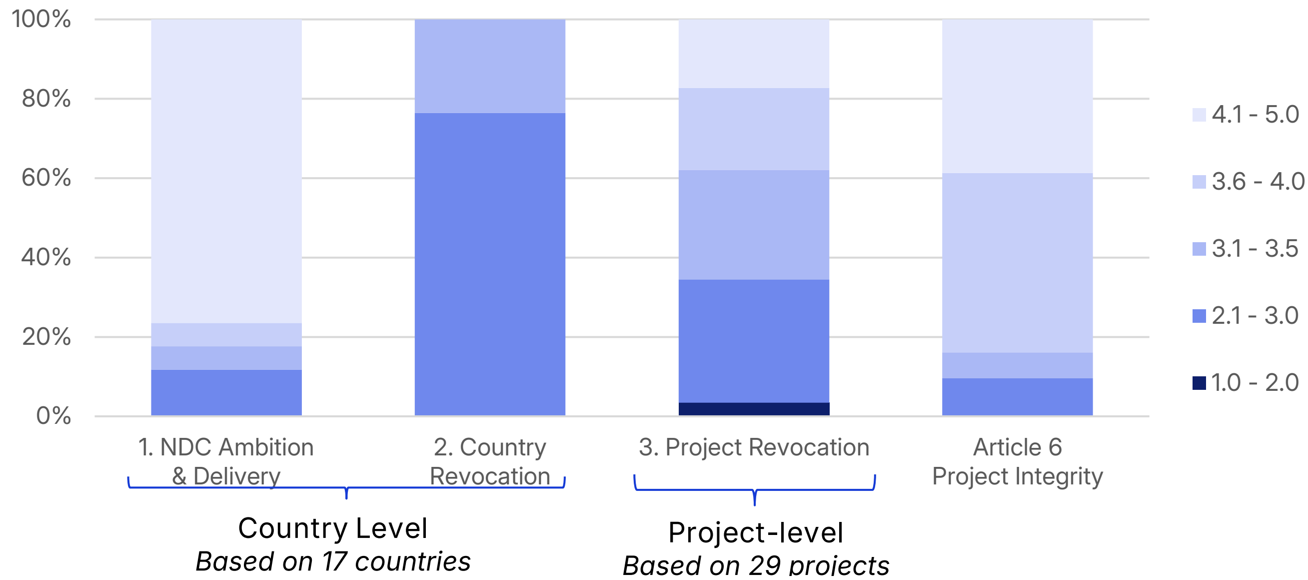
1. **NDC delivery and ambition** — Evaluates the ambition of a host country's NDC relative to its economic capacity and the likelihood the NCD will be achieved.
2. **Country revocation risk** — Measures the stability and transparency of the CA process, along with political and governance factors that could affect Article 6 participation.
3. **Project revocation risk** — Assesses the likelihood an LoA could be issued with unclear terms or later withdrawn, including the transparency and comprehensiveness of the authorization process.

These risk scores aim to provide buyers and investors with a holistic view of Article 6 credit integrity, integrating policy stability, governance quality and project-level execution certainty. In a market where Article 6 has the potential to become a major source of supply, this combined project–country risk lens is becoming an essential tool for safeguarding credit credibility and value.

The Article 6 integrity scores for the 29 projects assessed as of July 2025 illustrate that there is wide variability in risk across the three main factors assessed, but the transparency and comprehensiveness of each project's LoAs) represent the largest source of variation.

Distribution of Article 6 Integrity Risk Scores (1-5 scale) by Sub-criteria, %



Source: MSCI ESG Research, as of Aug. 4, 2025.

Delivery risk

The growing share of ex-ante credits in the voluntary carbon market is making delivery risk a central integrity consideration. Ex-ante transactions — where credits are purchased before the underlying emissions reductions or removals have been delivered and verified — have expanded rapidly in recent years, particularly in high-value categories such as ARR, biochar, and engineered removals like direct air capture (DAC). These transactions enable developers to secure early-stage financing but also expose buyers to the risk that credits will not be issued on schedule or in full. As more buyers commit to multi-

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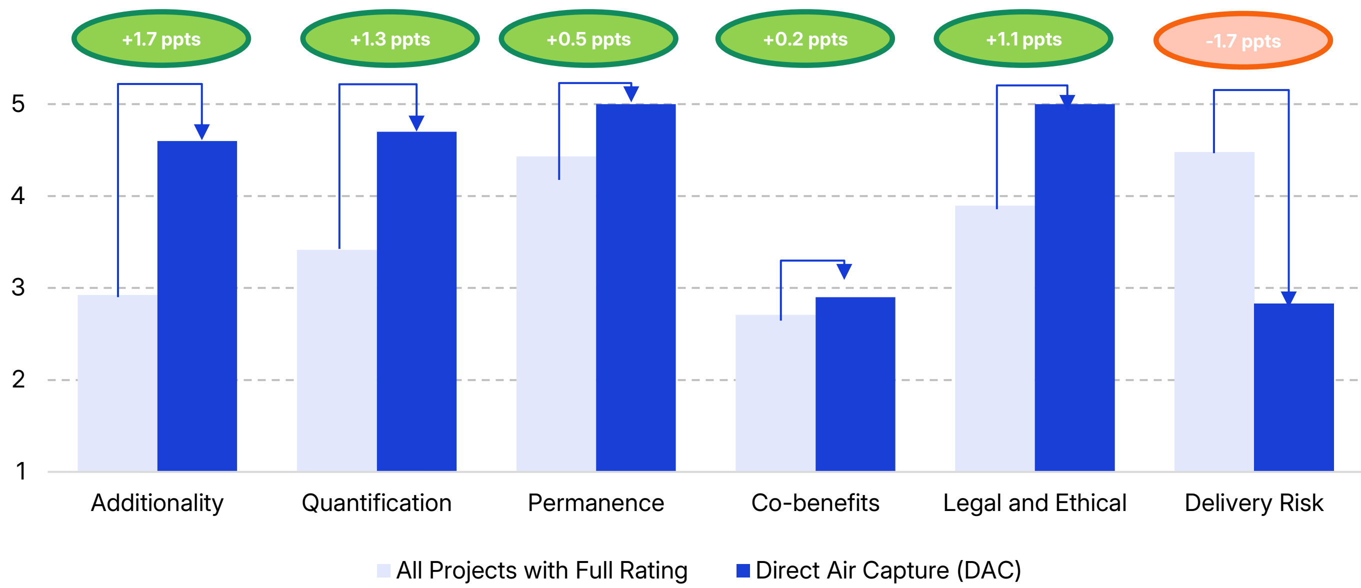
year offtakes for pipeline projects, the ability to accurately assess and price delivery risk has become essential to ensuring that expected climate outcomes are realized.

Recent events in the DAC sector have brought this issue into sharp focus. In 2025, Climeworks disclosed that it had fallen short of its issuance targets for certain DAC projects, prompting discussion across the market about the implications for buyers holding forward contracts[6]. Importantly, this was not a case of over-crediting or misrepresentation of emissions impacts — rather, it reflected the delivery risk of scaling a complex, capital-intensive technology from pilot to commercial scale.

As new and technologically advanced project types expand in the market, these risks will remain significant. For buyers, this underlines the importance of incorporating delivery risk assessments into procurement decisions, considering factors such as developer track record, financial robustness and the maturity of the underlying technology. As shown below, an evaluation of a DAC project without delivery risks would miss the highest risk factor for this project type.

Delivery risk is particularly prominent for DAC projects



Average Criteria Scores (1-5 scale) for DAC vs other Project Types. Source: MSCI ESG Research, as of Aug. 4, 2025.

5 Conclusion

The *2025 State of Integrity in the Global Carbon-Credit Market* shows that integrity has become a unifying concern across both voluntary and compliance-linked markets. Analysis of MSCI Carbon Project Ratings, covering more than 4,400 registered projects and nearly 250 pipeline projects, highlights that the market is making progress toward higher quality, specifically on four dimensions.

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High-integrity supply crunch deepens

The shortage of high-integrity credits has become more pronounced. By mid-2025, over a third of all retirements came from BBB-rated or higher projects, up from about a quarter only three years earlier. For the first time, retirements outstripped new issuances in the upper rating bands, leaving a deficit rather than a surplus of high-integrity credits.

This imbalance reflects two dynamics. On the demand side, companies are increasingly embedding integrity thresholds into procurement policies, driving up competition for higher-integrity credits. On the supply side, long development timelines for new projects — especially in categories such as afforestation/reforestation and engineered removals — limit the speed at which high-integrity volumes can expand. The result is an intensifying supply crunch.

Quality of new supply continues to rise

While the stock of legacy credits remains mixed, the flow of new supply is improving. Pipeline projects appear to present a stronger integrity profile than registered projects, with over two in five expected to achieve BBB or above. Much of the improvement comes down to project design: tree-planting initiatives are leaning toward native species mixes, and cookstove programs are shifting toward fNRB values grounded in MoFuSS benchmarks rather than inflated estimates.

Initiatives are reinforcing this improvement. The Core Carbon Principles (CCPs) appear to be successfully raising minimum standards. CORSIA Phase 1 has also delivered a step up in integrity, though the scheme still appears to allow a wide variation in quality.

Price–integrity premium widens

The demand for higher-rated credits and the strengthening of new supply have contributed to a widening gap in pricing between high- and low-integrity credits. MSCI's Carbon Credit Price Indexes show that in recent months, the high-integrity index has traded at more than four times the level of the low-integrity index, compared with just two times in 2024.

This pattern is reinforced at the project-type level, though to varying magnitudes. In unplanned deforestation REDD+, premiums between high- and low-rated credits have doubled year-on-year to about USD 6 per tonne, whereas in clean-cooking projects the gap has grown to only around USD 2.

New risk dimensions move to the forefront

2025 has seen the rise of new systemic risks as central to integrity. Delivery risk has emerged as a central concern as forward sales and multi-year offtakes expand. For engineered removals in particular, delays in credit issuance have illustrated how challenging it is to scale new technologies from pilot to commercial levels.

Article 6 is also expanding rapidly. Article 6 activity has accelerated, with 176 bilateral deals in place by mid-2025, spanning 53 seller and 11 buyer countries and covering close to 30 $MtCO_2e$ of transfers. To help navigate these developments, MSCI has launched Article 6 Integrity Scores alongside a readiness index covering 70 countries. The share of nations achieving at least a medium readiness level has nearly doubled year-on-year, underscoring gains in transparency and institutional capacity, though material

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gaps remain. These tools highlight that integrity is no longer just about project design — governance, national ambition, and policy stability are now equally important in assessing credit credibility.

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