A report by

Abatable

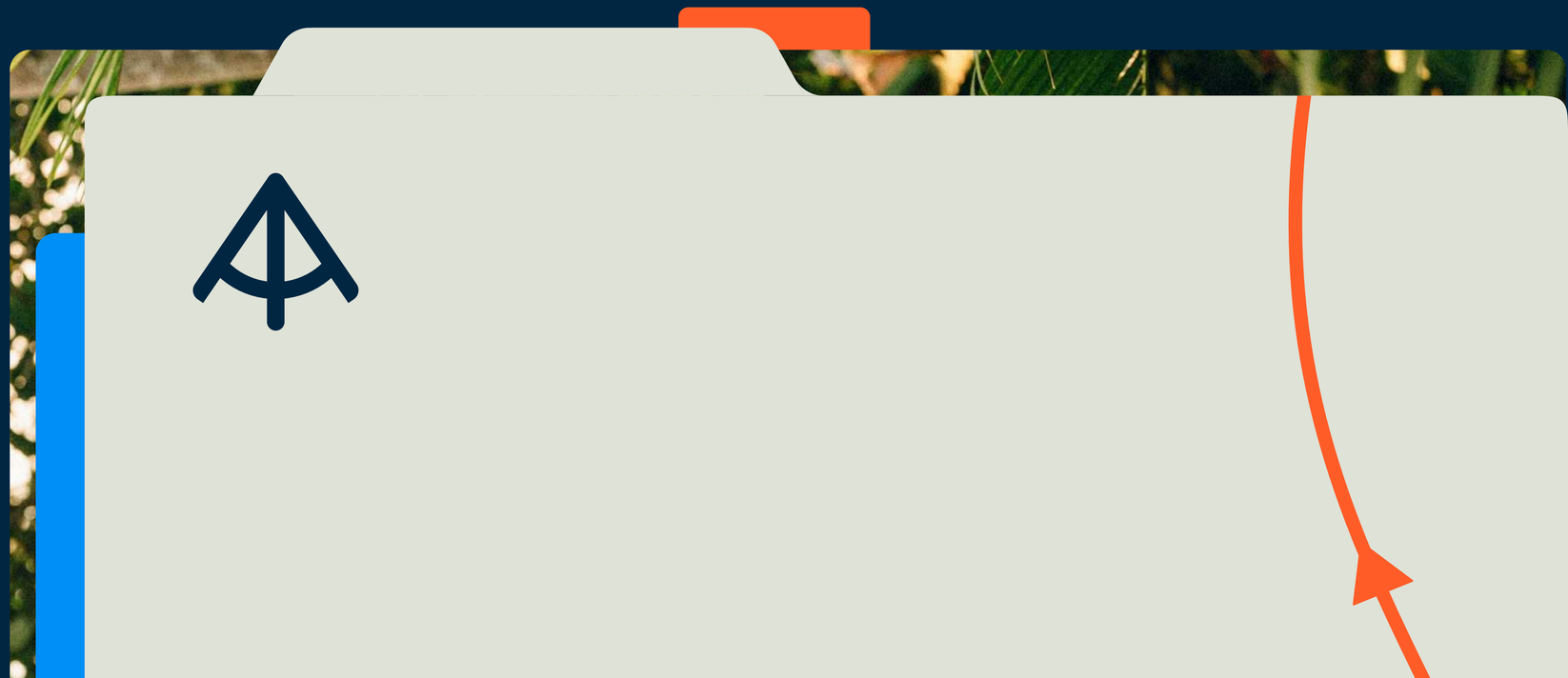
Decoding the VCM in 2024 and beyond

Critical insights for Voluntary Carbon Market participants

Contents

February 2025

Key themes



A VCM in transformation

Sustained funding is helping rebuild the market around integrity and new avenues for demand

2024 was yet another eventful year for the voluntary carbon market (VCM) and its place in a rapidly changing climate mitigation landscape.

Decoding the current state of the VCM beyond credit issuances and retirements reveals a market being reshaped around critical advancements in supply-side and carbon claim integrity, a sustained level of primary funding for high-quality carbon projects, evolving frameworks for corporate climate strategies and the formation of new international markets for carbon credits.

These developments have all acted to reinforce the market's vibrancy and capacity to adapt to changing global expectations on the use of carbon credits to address the climate crisis.

A supplier ecosystem regearing for integrity

The integrity of carbon credits took centre stage in 2024, with new approvals at methodology-level by the Integrity Council for the Voluntary Carbon Market (IC-VCM)'s Core Carbon Principles, and four new eligible programmes under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), all playing an important role in boosting supply-side carbon market integrity.

In addition to these schemes, breakthroughs for Article 6 of the Paris Agreement at COP29 have further bolstered market sentiment, setting a clearer pathway for robust carbon credit trading between nations and from nations to corporates.

These milestones highlight the growing recognition of carbon markets as critical levers for global climate action, and highlight the increasing alignment between voluntary efforts and rigorous compliance standards.

The carbon project developer ecosystem continues to evolve in response to these trends. While the VCM remains highly concentrated towards larger suppliers, with the top 100 suppliers by volume accounting for over 80% of total carbon credit issuances, the competitive landscape is shifting. The top 25 players saw a slight decline in market share in 2024, while developers ranked 26th to 100th in terms of issuances gained ground, leveraging corporate partnerships, public grants, and investor funding to scale their operations.

This redistribution signals a widening of the market's foundations, fostering resilience and diversity.

New compliance drivers are reshaping the market

Airline demand for carbon credits under the CORSIA scheme is taking off. Abatable analysis indicates that extra demand under the First Phase of the scheme will equate to over a quarter of the entire VCM's current retirement volume – reaching 45-61mn tonnes per year from 2024 to 2026.

This will help further rebalance the market, which is currently structurally oversupplied but which has seen the growth of its surplus of un-retired credits decline since 2021. Alongside CORSIA, compliance requirements under national carbon pricing regulations are playing a growing role in the retirement of credits, making up a larger proportion of retirements over the last three years.

There will also be additional pressure on suppliers to adapt quickly to new supply-side integrity stipulations under CORSIA, alongside the CCPs.

Company use of carbon credits is evolving

2024 also brought heightened attention to carbon credit claims and net-zero target guidance for companies. Organisations such as the Voluntary Carbon Markets Integrity initiative (VCMI), the Science-Based Targets initiative (SBTi) and the International Organization for Standardization (ISO) published or refreshed directional guidance for corporate buyers, with new claims tied to the ambitious use of high-integrity carbon credits, increasing trust among stakeholders.

The bulk of VCM retirements continue to be driven by voluntary corporate action, with credits increasingly being retired against Scope 3 emissions (those from company value chains) – particularly with energy companies – and also to differentiate companies' products in the market.

Companies' claims about carbon credit use are also evolving. Greenwashing scrutiny has resulted in a shift away from using 'carbon neutral' claims towards 'low-carbon' claims.

This trend reflects a more nuanced and credible approach to climate communications, rather than a reduced level of retirement activity in the market.

Primary market activity is 18 times larger than carbon credit retirement values

Remarkably, the scale of carbon market funding deals in 2024 – $16.3bn – was around 18 times larger than the value of the activity observed in the credit retirement market, highlighting the strategic significance of long-term engagements in carbon credit projects. This underscores the enduring commitment of corporate buyers and large investors to the VCM.

Funding patterns reveal a strong preference for carbon dioxide removal (CDR) projects – both engineered and nature-based – reflecting CDR's critical role in addressing current and legacy CO2 emissions in the atmosphere.

A VCM in transformation

The VCM faces a dual imperative if it is to play a larger role in addressing climate change and plugging the climate finance gap: to **deepen structural integrity while scaling and expanding access**.

Decoding the market in 2024 reveals synergies between evolving supply-side standards, increased demand from compliance drivers like CORSIA, sustained funding and a diversifying supplier base – revealing a market on the verge of change beyond a mere transition.

With the stronger foundations laid in 2024, the VCM is building a new path towards enduring transformation.

Authors

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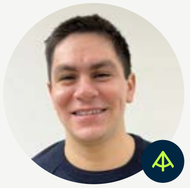

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Key market themes from 2024

Market and policy developments

Voluntary carbon market (VCM) sentiment became **increasingly positive**, supported by enabling decisions and market clarity on the Paris Agreement's Article 6 to allow countries to trade emissions reductions, new approvals for the CORSIA airline offsetting scheme, the roll out of the IC-VCM's Core Carbon Principles (CCPs), and the expansion of carbon policies around the world.

Despite continuing uncertainty around the role of carbon offsetting in corporate voluntary initiatives, on the demand side of the market 2024 has seen **greater alignment and commitment** – with a focus on carbon removals and using credits to address Scope 3 emissions.

CORSIA approvals for new supply options and CCP assessment results are **gaining traction and trust** as references for high integrity in the VCM.

Finally, **countries are increasingly enacting policies and procedures for engaging in global carbon markets**. The announced US exit from the Paris Agreement under the new administration was expected and has not driven negative carbon market backlash.

Supply and demand

The market experienced an **8.3% year-on-year reduction in carbon credit issuances in 2024** to 304mn tonnes of CO2 avoided or removed, while carbon credit retirement levels remained similar to 2023 at 163mn tonnes. This resulted in a slight reduction in the surplus of credits.

The market is experiencing a **gradual shift to carbon removals**, but due to growing demand and the length of time needed to bring projects to market, supply remains relatively low.

The **CORSIA airline offsetting scheme**, whose First Phase started in 2024, **is projected to bring 135–182mn tonnes of additional demand into the market over three years, equivalent to adding 28–37% more to the current annual credit retirement volume.** This could lead to notable market imbalances and potentially drive up prices for the limited supply of high-integrity CORSIA credits.

Finally, **integrity-focused supply-side investments are redefining procurement standards for corporates**. Many companies are engaging in bilateral deals, bypassing secondary markets to directly support the creation of new credit supply aligned with the highest quality standards, with a strong focus on carbon dioxide removal (CDR) credits.

Credit prices

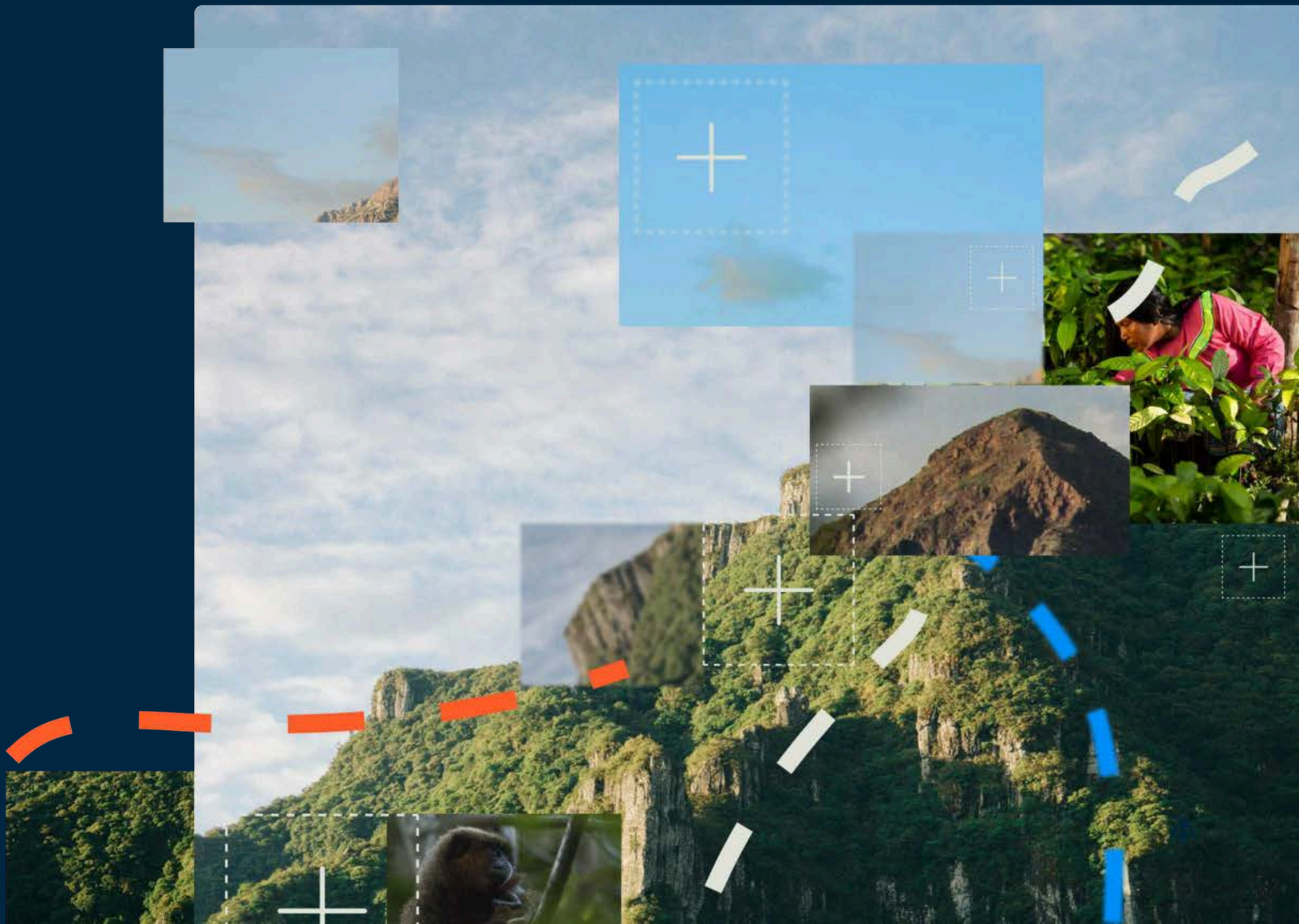
Both **carbon avoidance and removal credit prices softened in 2024** despite stable credit demand and a reduction in the oversupply of credits in the market. Removal credits continue to command the highest prices in the market while displaying a wide dispersion of prices due to their heterogeneous quality characteristics.

Prices may have softened in the spot market, however **forward pricing curves reflect a distinct trend upwards**. For example, prices are expected to move to the $11–15 price per tonne range for REDD+ (against only $3 per tonne for existing stock), due to a shift to newer and more conservative carbon accounting methodologies that better align to client preferences for higher-integrity credits.

Initial evidence in 2024 shows a **positive relationship between high-integrity labels in the market**, for example CCPs, **and credit prices**.

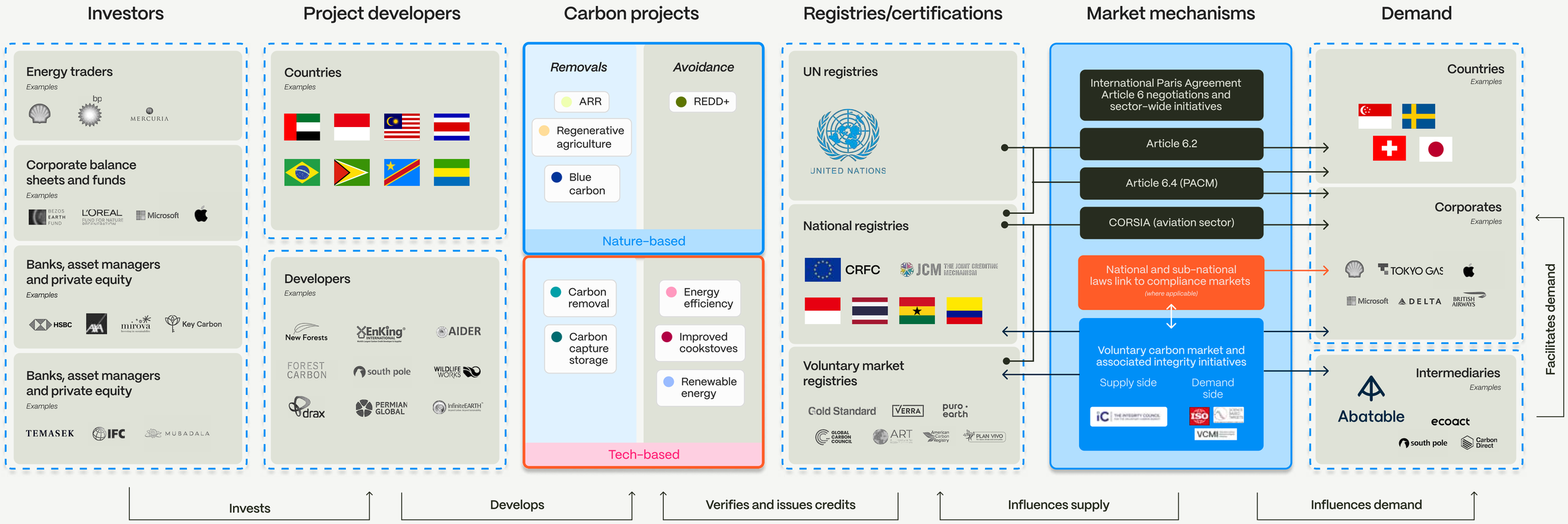
Setting the scene

The carbon market landscape is becoming more complex as voluntary, compliance and Paris Agreement market mechanisms converge. Understanding the direction of travel enables companies to better participate.



Mapping the market

VCM developments are strongly linked to national and sub-national compliance markets and to interactions with Article 6



Zooming in

Three main market mechanisms drive supply and demand dynamics in carbon markets

1 Corporate voluntary initiatives

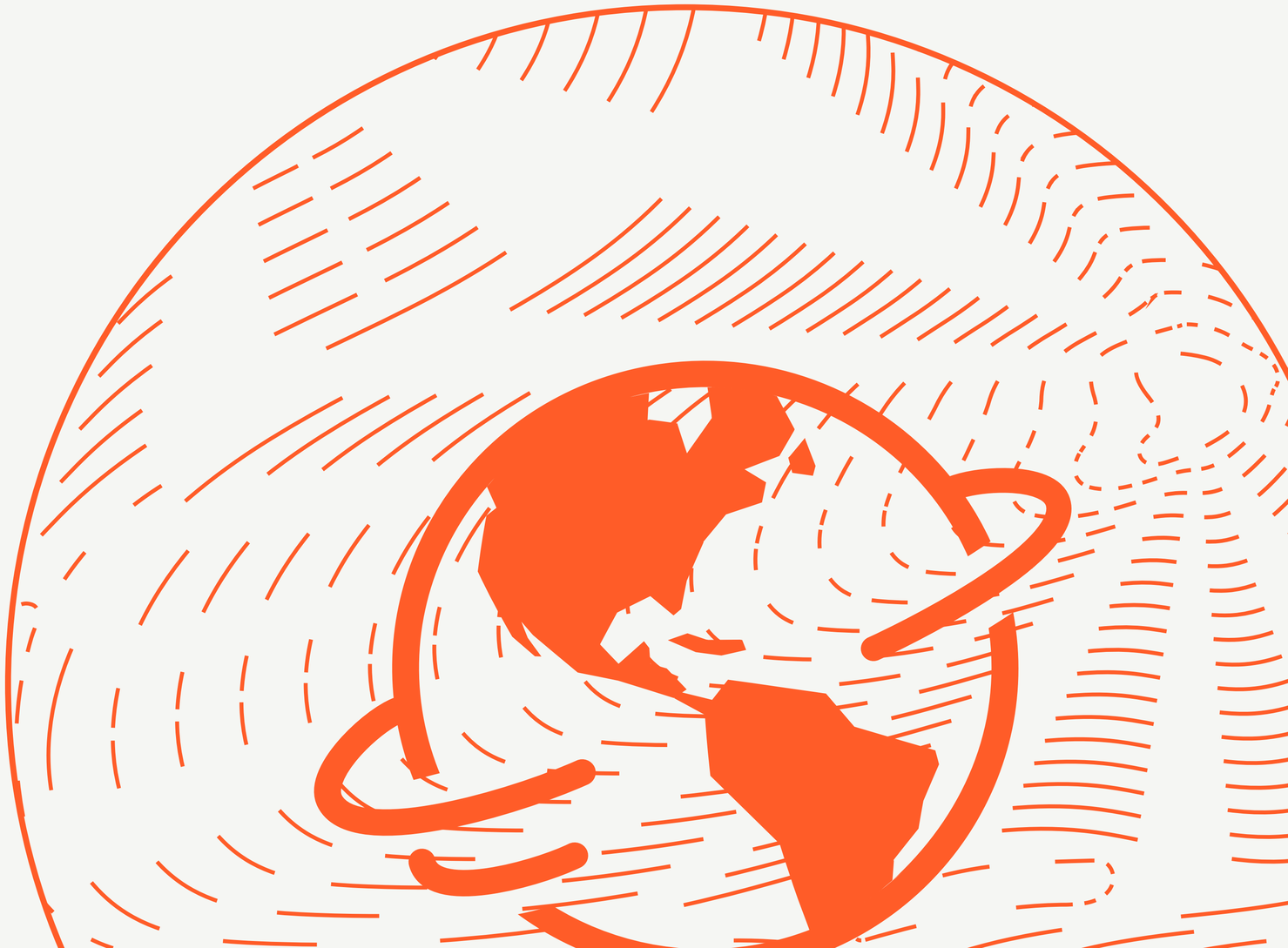
Carbon offsetting by corporates has remained as an important driver of global demand for carbon credits in 2024, mostly driven by corporate sustainability and net-zero ambitions. The choice of projects and credits is influenced by quality considerations, price and guidance on the origination and use of carbon credits in the corporate space. Initiatives include:

- Assessment of integrity of supply – the Integrity Council for the Voluntary Carbon Market
- Carbon credit claims and net-zero target guidance – VCMI, SBTi, ISO, the Oxford Offsetting Principles
- Climate and nature disclosure and reporting requirements – TCFD, TNFD, GFANZ

2 International carbon markets

Carbon credits from certified projects are used internationally to facilitate the meeting of global emissions reduction targets or to compensate emissions from international civil aviation. International decisions define requirements, the eligibility and the use of carbon credits. Negotiations at various forums influence their applicability and use, such as:

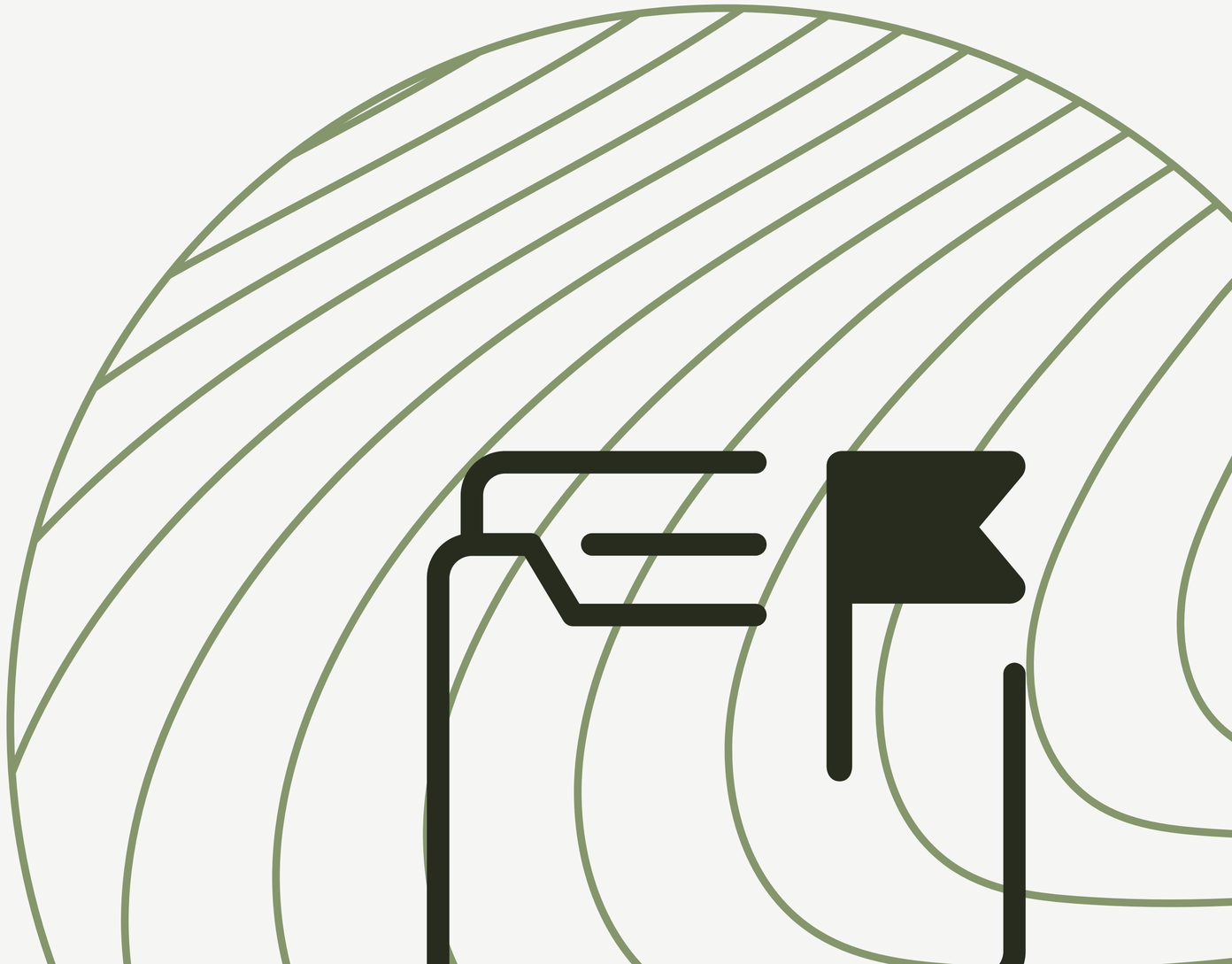
- Article 6 of the Paris Agreement (which facilitates countries meeting their climate pledges – or NDCs – through trading emissions reductions)
- CORSIA (the Carbon Offsetting and Reduction Scheme for International Aviation)
- International financial regulations



3 Country-level carbon pricing policies

Country-level policies and regulations influence the development and registration of carbon projects, the issuance of credits and their use for offsetting obligations in compliance carbon pricing schemes. In addition, policies and regulations influence domestic accounting of mitigation efforts using carbon credits, and the authorisation of carbon credit uses outside of the country where credits are generated. In 2023/24, governments around the world were actively setting policies on:

- The pursuit of country-to-country climate cooperation agreements using carbon credits
- The recording of carbon projects in national registries and the regulation of credit exports
- Procedures and fees for authorisations of international credit transfers and their use towards CORSIA and Paris Agreement climate pledges, and associated corresponding adjustments for country-level carbon inventories
- The eligibility of specific carbon credits to use against an organisation's compliance obligations
- Carbon credit disclosures from national businesses



An overlapping ecosystem

Developments in these three carbon market mechanisms typically influence how easily carbon credits flow from project developers and suppliers to end-buyers, how credits are valued by the market and what sources are competing for their use.

Certified carbon projects delivering eligible carbon credits may be suitable for any or all three of the three different mechanisms, for example: offsetting compliance obligations (e.g. within Singapore's carbon tax), offsetting aviation emissions through CORSIA, or becoming the preferred option for corporate offsetting.

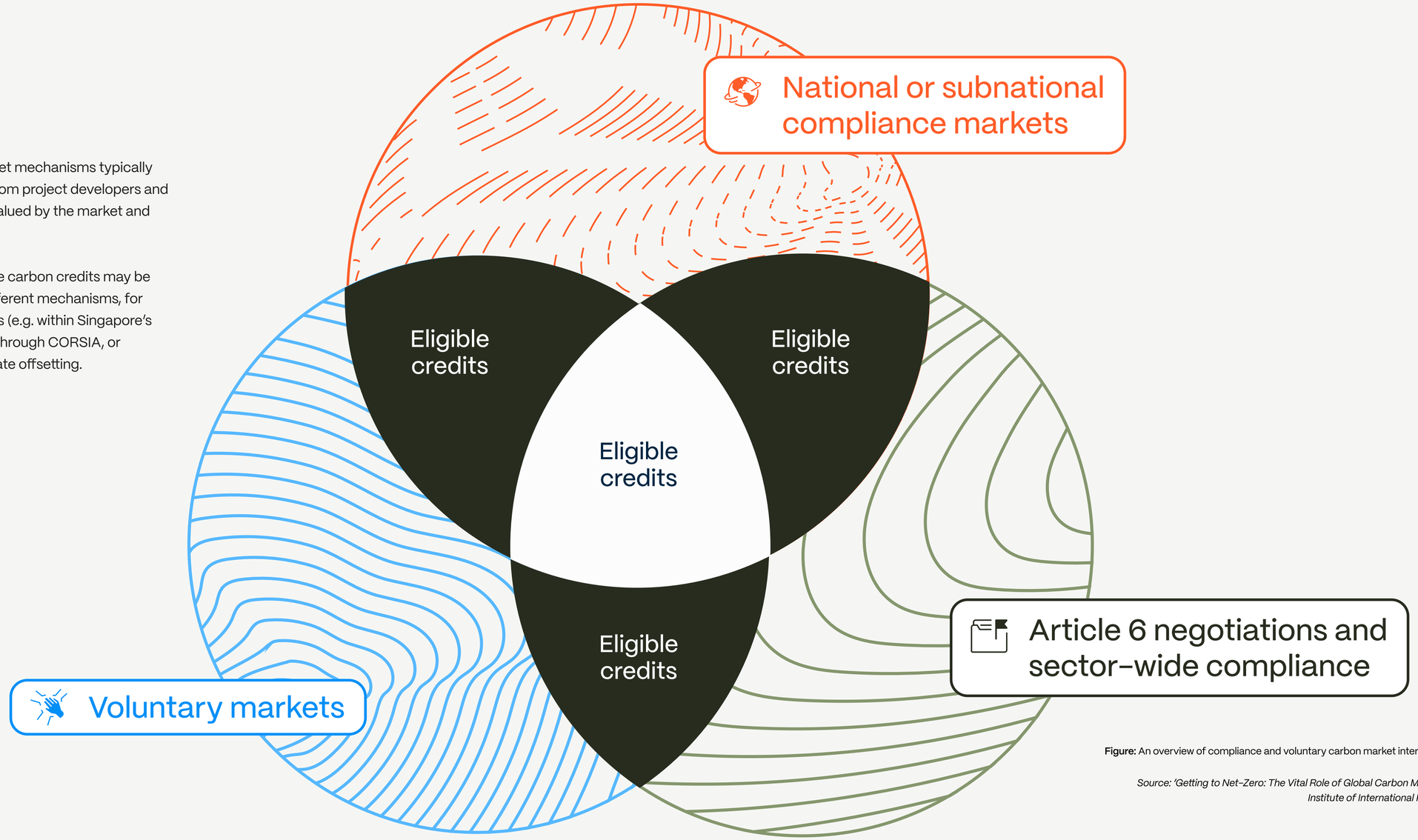
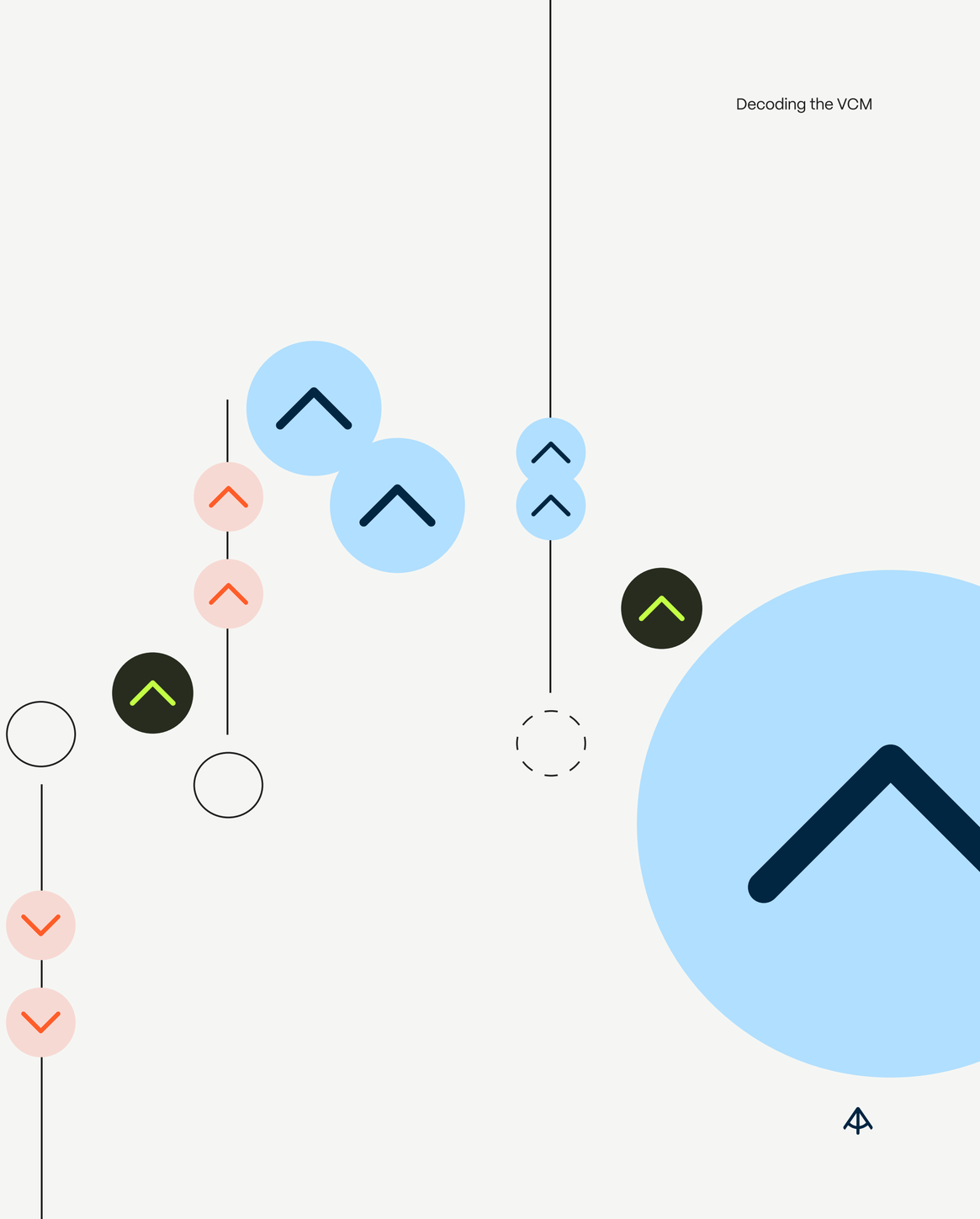


Figure: An overview of compliance and voluntary carbon market interactions

Source: 'Getting to Net-Zero: The Vital Role of Global Carbon Markets' Institute of International Finance

How did the market outlook change in 2024?

Market sentiment analysis



Corporate voluntary initiative sentiment

Driven by global initiatives and standards that influence corporate net-zero strategies and VCM integrity, including carbon credit quality and the claims companies can make around their use.

Key developments

- The **IC-VCM** approved six standards as CCP-eligible, indicating their adherence to its Core Carbon Principles. These are ACR, ART-TREES, CAR, Gold Standard, Isometric, and VCS. It also approved 16 carbon accounting methodologies which, in aggregate, represent 42.1mn credits in the market to-date.
- The **International Organization for Standardization (ISO)** launched the development of the first international standard on net-zero. The work marks an evolution from its net-zero guidance. Expected in late 2025, the new standard will provide orientation on the use of carbon offsetting in a pathway to reaching net-zero emissions. When launched, corporates will have new guidance which may inform voluntary action.
- The **Taskforce for Nature-related Financial Disclosures (TNFD)** saw a significant increase in the number of organisations adopting its recommendations in 2024 – over 500 companies have now committed to report nature-related impacts from 2025 onwards.
- The **Science Based Target initiative (SBTi)** delayed issuing conclusive corporate net-zero guidance on the use of avoidance carbon credits, but continues to endorse removal credits to address residual emissions.

Impact on sentiment

POSITIVE

Impact on projected demand for credits

NEUTRAL

International carbon market sentiment

Driven by international mechanisms and decisions that influence country-to-country and country-to-corporate carbon credit markets.

Key developments

- The First Phase of the **CORSIA** international offsetting scheme for the airline industry, covering 2024 to 2026, officially began. The International Civil Aviation Organization (ICAO), which is running the scheme, also published its new high-integrity standard guidance for eligible supply. Abatable analysis indicates CORSIA demand is projected to reach 135-182mn tonnes in the First Phase of the scheme.

- COP29 saw positive outcomes for **Article 6.2** of the Paris Agreement, which provides a framework for countries to directly trade carbon credits between themselves. Negotiators agreed on resolutions to outstanding issues for Article 6.2, while over 20 bilateral Article 6.2 agreements were made between countries in 2024.

- Similar positive outcomes were realised for **Article 6.4**, under which a central registry is being created for Article 6 credits, following three years of stagnant negotiations. COP29 saw key Article 6.4 documents covering carbon removals and methodologies approved, allowing for the operationalisation of the Paris Agreement Crediting Mechanism (PACM) – the high-integrity international registry under Article 6.4. This was very positive for market sentiment as many feared negotiations would not progress at COP29.

Impact on sentiment

POSITIVE

Impact on projected demand for credits

POSITIVE

Country-level carbon pricing policy sentiment

Driven by policy decisions and regulations that cover the development of carbon projects within countries or which define the applicable use of carbon credits in carbon pricing compliance systems – such as carbon taxes or emissions trading systems. Sentiment is also driven by policy decisions that cover country-level guidance or requirements for carbon credit use and claims from businesses.

Key developments

- The **EU** passed its Carbon Removals and Carbon Farming (CRCF) legislation, which will set up an EU registry for nature and tech-based carbon removals and carbon farming projects. Methodology development for CRCF starts in 2025, and there is longer-term potential for CRCF credits to be integrated into the EU Emissions Trading System (ETS).
- The **US** left the Paris Agreement following the re-inauguration of President Donald Trump. The US Inflation Reduction Act (IRA), a key mechanism funding the development of Carbon Dioxide Removal (CDR) technologies, was frozen. Private CDR funding and VCM participation has largely been driven by coalition of US tech companies, including Microsoft, and is unlikely to cease in 2025.
- **Singapore** passed legislation to allow companies to use international carbon credits to cover 5% of their emissions under the country's carbon tax regime. Estimates suggest this could add additional demand for 2-4mn carbon credits from Singapore entities. Singapore completed bilateral negotiations to source credits from approved methodologies (eligible under the carbon tax) with over 20 countries, including Ghana and Papua New Guinea.

Impact on sentiment

NEUTRAL

Impact on projected demand for credits

NEUTRAL

Which countries are developing international carbon market–friendly policies?

There is a strong link between countries ready to attract investment into carbon markets and those planning to engage in international carbon markets by developing Article 6 regulatory frameworks, demonstrating the ties between proactive policy development, investment attractiveness and future sources of credit supply.

The countries most engaged with Article 6 correlate with the most attractive countries for carbon market investment according to Abatable's VCM Investment Attractiveness Index

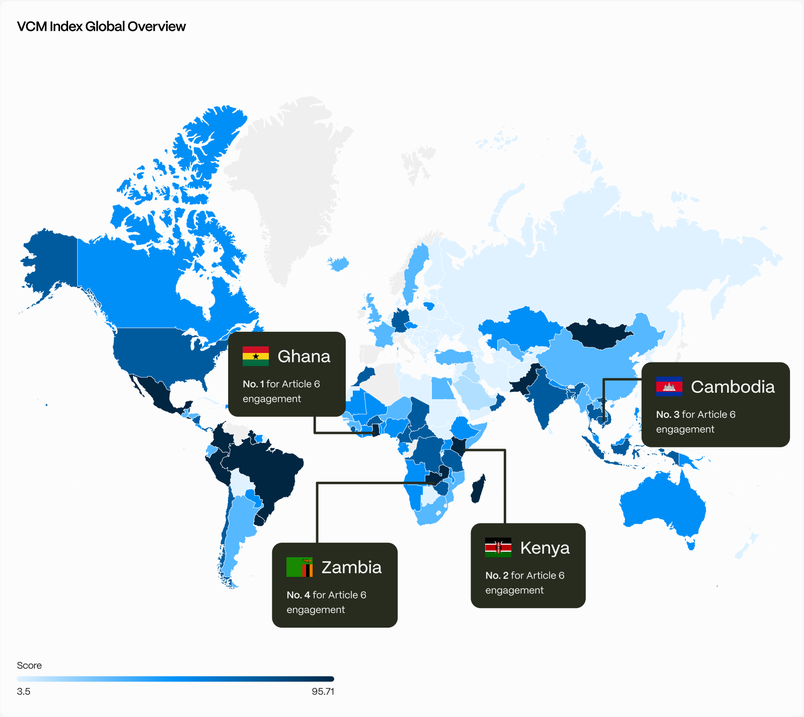
Abatable's VCM Investment Attractiveness Index ranks the assessment of the factors driving host country attractiveness when it comes to developing carbon projects for the VCM.

From the top 10 countries scoring highest in the Global carbon market readiness pillar of our Index, four are leading the development of policies to better engage with international carbon markets through Article 6, highlighting the interdependence of domestic policy frameworks and voluntary carbon market participation in shaping a country's appeal for carbon project investment.

Abatable VCM Investment Attractiveness Index – Top 10 for Global carbon market readiness

1. Kenya
2. Cambodia
3. Peru
4. Colombia
5. Ghana
6. Madagascar
7. Zambia
8. Mexico
9. Malawi
10. Bangladesh

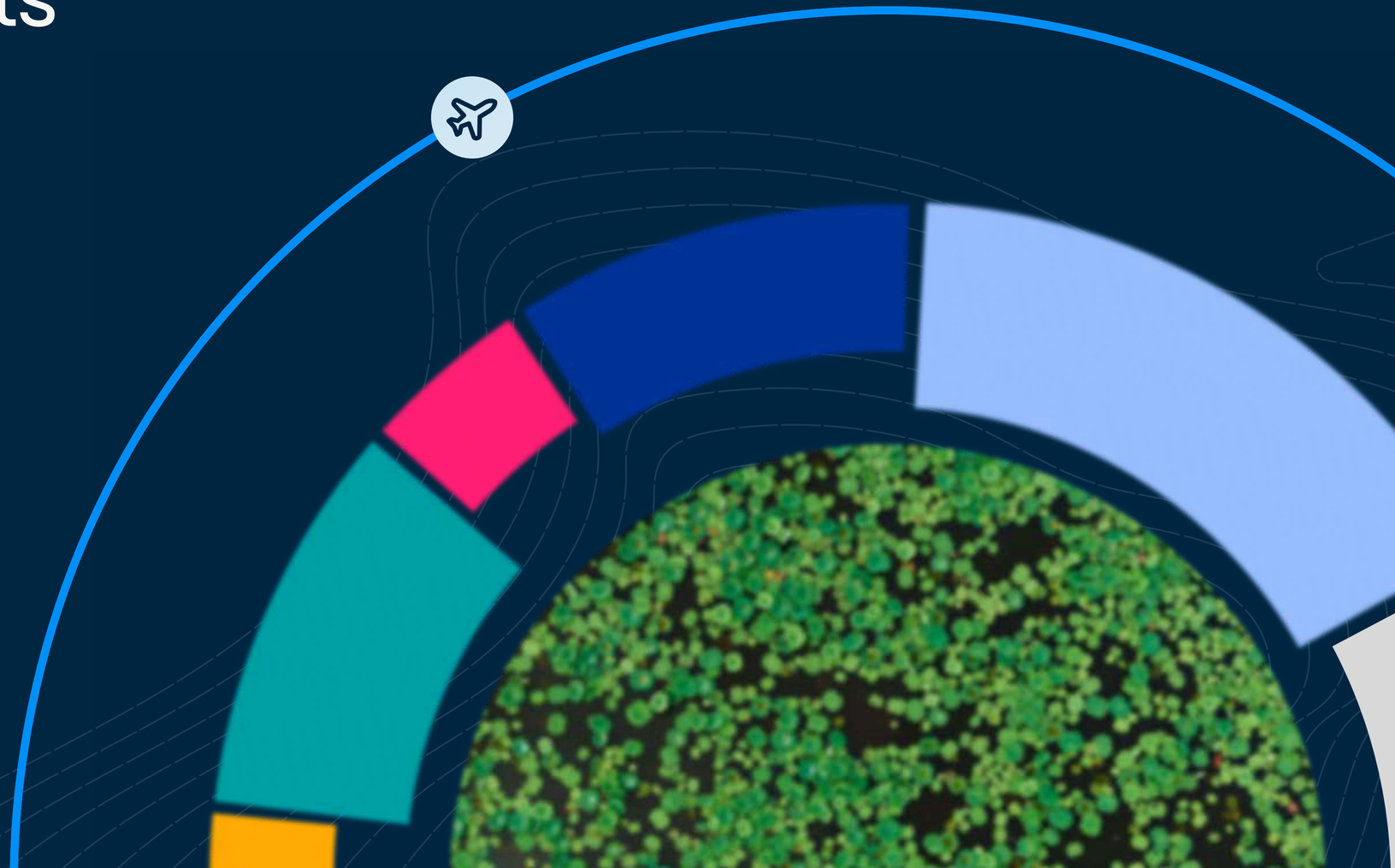
Abatable VCM Investment Attractiveness Index score and the top four countries for Article 6 engagement



Explore how we rank countries' investment landscapes, readiness for international carbon markets and carbon market opportunities by visiting Abatable's VCM Investment Attractiveness Index.

Carbon credit supply and demand insights

Carbon credit buyers are preferring high-integrity credits, and carbon project developers are re-aligning to provide them. An evolving supply ecosystem means buyers now need to cast a wider net to find the credits suited to their needs.



The growth in the net surplus of carbon credits in the market is decelerating

There has been a slowdown in the growth of the market oversupply of carbon credits following falls in annual credit issuances since 2022, while credit retirement levels have remained consistently healthy.

Key takeaways

1

Carbon credit oversupply growth is decelerating

VCM credit retirements increased from 2019 to 2021 after which they have remained steady. Strong demand signals in 2021 and 2022, driven in part by the SBTi initial guidance for heavy emitters, resulted in new supply creation and in a surge of issuances entering the market. This left the market in a state of structural oversupply, although it is now showing signs of surplus deceleration as supply levels have fallen.

2

Removals are being snapped up

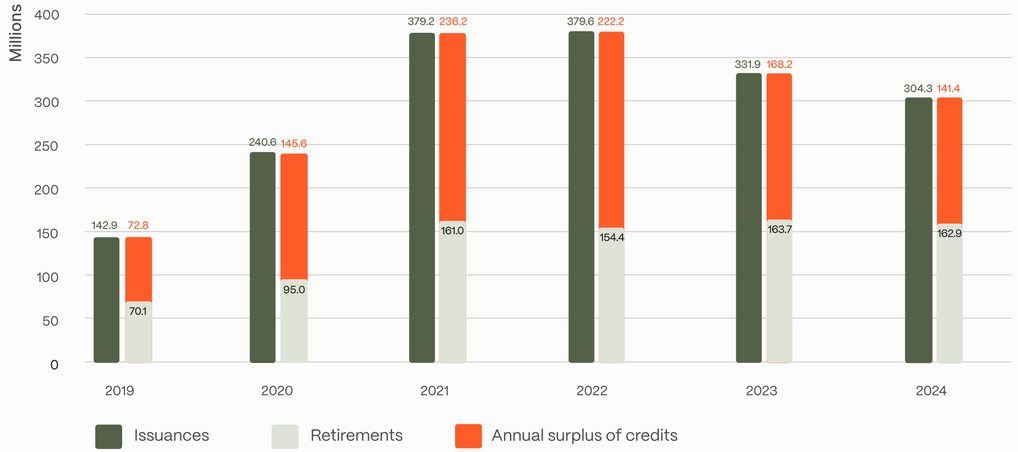
The percentage of carbon removal credits available in the market's credit surplus has come down. Fewer removal credits are now left unsold or unretired, and companies are competing over a limited supply of these high-demand credits.

3

The strong demand trend is set to continue

We expect the current level of demand to continue in the next two years, with companies continuing to favour carbon removal credits to align with SBTI's guidance while they move closer to interim 2030 emissions reduction targets. We further expect strong additional retirements from airlines entering the market due to the CORSIA international aviation offsetting scheme. Abatable estimates airlines will need to retire 135–182mn units during the First Phase of the scheme alone (from 2024 to 2026).

Credit net surplus growth is decelerating on the back of a slowdown in issuances and constant healthy levels of retirements



Removals credits % of total surplus

1.2Gt
Cumulative net surplus
(by the end of 2024)

909Mt
Avoidance
(from cumulative surplus)

283Mt
Removals and avoidance
(from cumulative surplus)

72Mt (5.7%)
Removals
(from cumulative surplus)

Source. Abatable, as of 31 December 2024. Issuance and retirement data is aggregated from carbon registries (ACR, ART TREES, Cercarbono, CAR, COLCX, Gold Standard, VCS). Removal credits include credits from project types such as afforestation, reforestation and revegetation (ARR), soil carbon, CCS amongst other project types.

Scope 3 emissions and carbon credit claim evolution are driving a shift in carbon credit retirement motivations

The majority of carbon credits retired in 2024 by the largest buyers in the market were used against Scope 3 emissions (34%), a rising trend since 2019.

Key takeaways

1

VCM retirements are driven by a small number of large buyers

The top 200 buyers in the market retired 74.6mn credits in 2024, around 50% of the entire retired volume. 2024 retirements from this group were driven by action towards Scope 3 emissions, which made up 34% of top 200 retirements, and compliance obligations, which made up 23%, signalling the increasing interaction between voluntary and compliance markets. Notably, global chemicals and energy company Sasol used credits against South African carbon tax liabilities in 2024.

2

Companies are now re-entering the market after a period of negative media coverage

2024 saw a relatively small uptick in company VCM participation following retrenchments in 2023 on the back of negative VCM media coverage. The number of companies participating in the VCM reached its highest level in 2021 when a large amount of small individual retirees entered the market.

3

Carbon credit retirement motivations have evolved since 2019

There has been a broad move away from companies using 'Carbon neutral' and 'Net zero' claims on the back of increased regulatory scrutiny around greenwashing, particularly in Europe. Businesses are instead shifting claims towards 'Low carbon' products and services instead. Asia is an exception where we see companies continuing to market 'carbon neutral' LNG cargoes.

Credit retirement motivation and themes	Number of credits retired by top 200 retirees (mn)					
	2019	2020	2021	2022	2023	2024
Scope 3	**5.8**	**13.0**	**30.1**	**30.2**	**42.8**	**25.3**
Energy company	0.9	5.7	10.1	7.8	21.5	18.6
Ground transport	1.9	3.4	8.7	8.9	13.5	2.8
Airline	3.1	3.6	10.6	12.0	5.4	3.3
Maritime transport	0.0	0.3	0.7	1.6	2.4	0.5
Retail green electricity / Green LNG cargoes	3.1	4.8	5.3	4.3	3.7	10.5
'Low-carbon' products and services	2.2	2.9	2.5	3.2	4.3	5.2
'Carbon neutral' products and services	3.6	11.6	7.1	9.0	6.8	6.2
'Net zero'	0.7	0.7	3.5	2.8	5.3	2.2
Compliance (including South Africa and Colombia carbon tax)	7.9	9.8	14.5	8.9	11.8	17.3
Intermediation	4.9	7.9	7.3	9.6	10.4	7.9
Total (Top 200)	**28.2**	**50.7**	**70.3**	**68.1**	**85.1**	**74.6**
Total retirements	**70.1**	**95.0**	**161.0**	**155.4**	**163.7**	**162.7**
% of top 200 buyer concentration	40.2	53.3	43.6	43.8	52.0	45.8
% of volume retired against compliance obligations	28.1	19.4	20.6	13.0	13.9	23.2
Total number of individual retiree entity names	**2,629**	**2,942**	**13,083**	**8,565**	**7,217**	**7,520**

Source. Abatable, as of 31 December 2024. Retirement data is aggregated from the carbon registries ACR, ART TREES, Cercarbono, CAR, COLCX, Gold Standard and VCS.

Note: The top 200 retirement entity names have been cleaned and harmonised by Abatable. Themes have been determined based on the retirement note, when disclosed, from the data available in the carbon registries. Intermediation includes all retirements arranged from an intermediary entity that is working with underlying clients (often not disclosed in registry data). The data excludes retirements from crypto-carbon initiatives (e.g. Toucan protocol), which lead to over 20mn one-off retirements in 2021.

New supply-side quality initiatives are reshaping buyers' carbon credit preferences

Corporate carbon credit retirements are increasingly favouring CORSIA-eligible credits or credits from CCP-approved methodologies, with the volume retired aligned to these high-integrity initiatives increasing from 29% in 2021 to close to 50% in 2024.

Key takeaways

1

New supply-side initiatives are influencing buyers to align purchases to high-integrity credits

Initiatives include:

- **IC-VCM:** The Core Carbon Principle standards from the Integrity Council for the Voluntary Carbon Market aim to improve trust and transparency on carbon credit quality.
- **CORSIA:** The aviation sector's carbon offsetting scheme is spurring demand for compliant carbon credits, which have a high-integrity component.
- **Additional certification:** Buyers are increasingly also favouring carbon credits that deliver strong co-benefits aligned with the UN Sustainable Development Goals and third-party certifications such as SD-Vista, ABACUS and Climate, Community and Biodiversity Standards.

2

Integrity is increasingly emerging as a must-have procurement criteria for companies

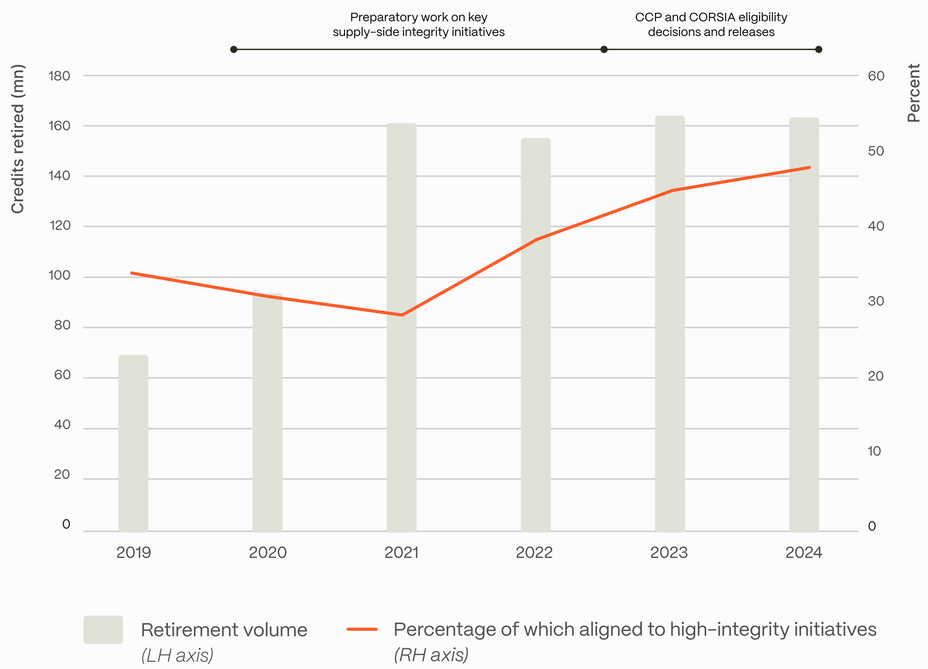
Nearly 50% of retirements aligned to high-integrity initiative criteria in 2024.

3

High-integrity bilateral deals are also increasing

Corporates and investors are also moving beyond spot market retirements to new supply formation through bilateral deals to meet new high-quality requirements (see more on page 24).

Carbon credit retirement volumes and percentage of retirements aligned to high-integrity initiatives – 2019-2024



Source. Abatable, as of 31 December 2024. Retirement data is aggregated from the carbon registries ACR, ART TREES, Cercarbono, CAR, COLCX, Gold Standard and VCS.

High-integrity Initiatives include for the purposes of graphical representation retirements from projects that are determined to be aligned, approved, or have high likelihood of being aligned with CORSIA and/or IC-VCM's Core Carbon Principles methodologies and guidelines.

Companies and investors are taking an active role in new high-integrity carbon credit supply formation

Funding activity in the primary carbon credit market signals continued interest from corporates and investors in arranging bilateral deals with suppliers, despite total funding softening in 2024.

Key takeaways

1

Primary market activity is significantly larger than value of spot deals

Abatable estimates that the primary market saw 18 times more activity than the secondary market in 2024.

2

The primary market is predominantly driven by large direct corporate and investor participation in the creation of new credits to retire

This indicates healthy continued corporate interest in strategic investments into carbon projects aligned to higher-integrity standards.

Explore deals

Access Abatable's carbon market funding dataset in our platform.

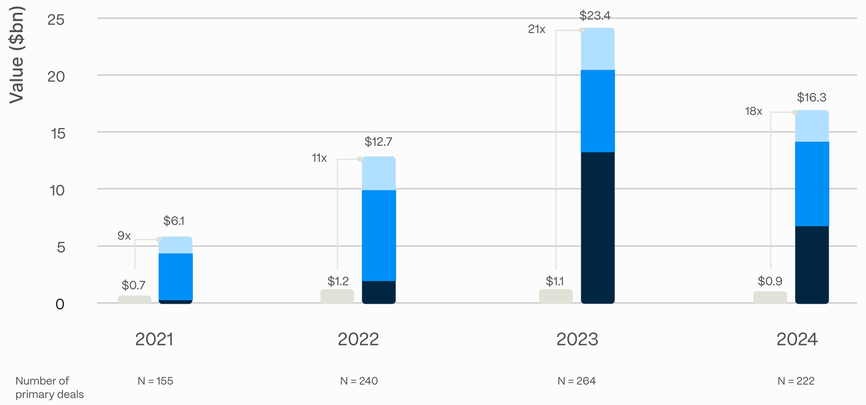
3

Engineered CDR funding saw a decrease in 2024

The number of funding deals remained stable in 2024, however total funding committed came down to $16bn in 2024 compared to $23bn in 2023. This was driven predominantly by a slowdown in equity investments and a softening of capital going into project finance and corporate Voluntary Emission Reduction Purchase Agreements (VERPAs). Funding continues to favour engineered removals and nature-based solutions, despite a slowdown in the former, with limited investment going into other project types.

The primary carbon credit market offers a proxy for how much funding goes into new carbon project development from both corporates and investors, while the secondary market is proxied by carbon credit retirement value (with retirements often completed on the spot market for already-issued credits).

Primary carbon market value, carbon credit retirement volume value and number of deals – 2021–2024



Source. Abatable, as of 31 December 2024. Abatable tracks yearly funding announcements of corporate multi-year deals (VERPAs), new investments in project operators (equity, debt, project finance) and new investment fund formation.

'Other' includes the following project types: Household devices and cookstoves, Industrial efficiency and Renewable energy

CORSIA will add an additional 28%–37% retirement volume to the market

Key takeaways

1

CORSIA's First Phase is expected to add an average 45–61mn tonnes of annual carbon credit demand on top of existing retirement volumes (an additional 28–37%)

Abatable's modelling indicates carbon credit demand from airlines under CORSIA will range between 135–182mn units during the First Phase and 825 mn–1.6bn units during the Second Phase of the scheme.

2

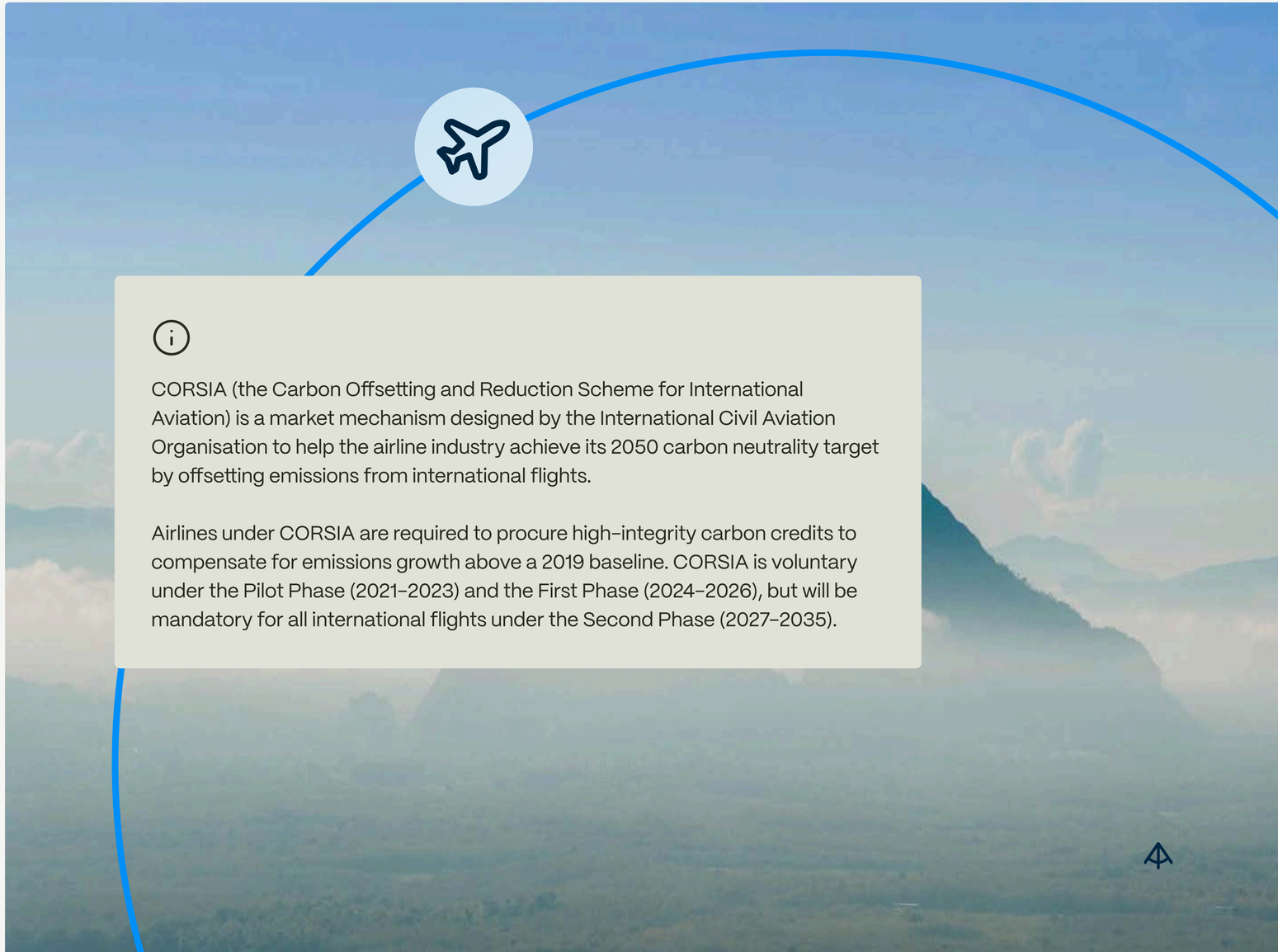
CORSIA demand is likely to be 2–3 times larger than eligible supply during the First Phase and 9–10 times larger in the Second Phase under current market conditions

We expect limited carbon credit supply to be available to meet CORSIA guidelines for high-quality credits under Abatable's CORSIA 'Realistic scenario', which assumes projects issue credits over the average duration of their crediting period. This and the large demand for credits could leading to significant market imbalances and premium prices for eligible supply.

3

Only 7.6mn credits currently meet all CORSIA-eligibility criteria (including having an LoA)

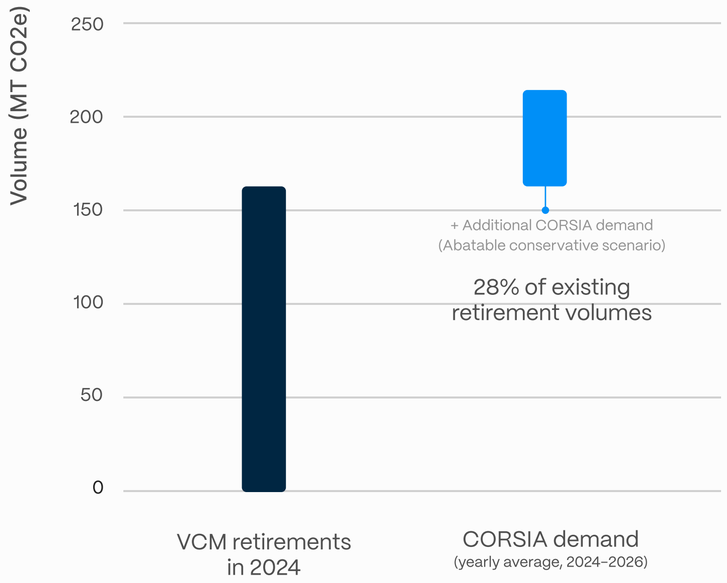
One key limiting factor of CORSIA supply is the fact that to be eligible, government Letters of Authorisation (LoA) are needed for airlines to use the credits. So far as of January 2025 only a handful of credits – 7.6mn –have received these. Suppliers are likely to start actively seeking LoAs through government engagements to satisfy high demand.



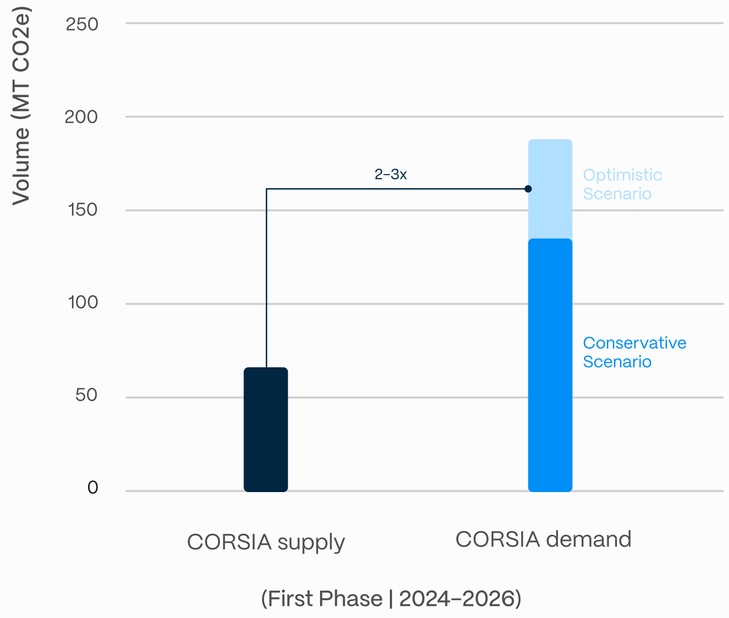
CORSIA (the Carbon Offsetting and Reduction Scheme for International Aviation) is a market mechanism designed by the International Civil Aviation Organisation to help the airline industry achieve its 2050 carbon neutrality target by offsetting emissions from international flights.

Airlines under CORSIA are required to procure high-integrity carbon credits to compensate for emissions growth above a 2019 baseline. CORSIA is voluntary under the Pilot Phase (2021–2023) and the First Phase (2024–2026), but will be mandatory for all international flights under the Second Phase (2027–2035).

Existing VCM retirement volumes and projected CORSIA demand



Projected total CORSIA First Phase supply and demand under Abatable's modelling



Coming soon

Abatable's full interactive CORSIA supply and demand forecast.

Source. Abatable and ICAO CORSIA Central Registry as of 31 December 2024. Issuance and retirement data is aggregated from the carbon registries ACR, ART TREES, Cercarbono, CAR, COLCX, Gold Standard and VCS.

Demand for the First Phase is modelled based on growth from international aviation over 2019 baseline levels. Abatable's scenarios take into account the rate of growth of emissions on a regional level.

Supply is conservatively modelled based on ICAO's eligibility criteria, and only accounts for credits issued in the market to-date under those eligibility criteria (excluding LoAs). It does not take into account additional supply expected to come into the market.

Airlines need to purchase credits that meet ICAO's eligibility requirements. As part of these requirements, credits need to receive a Letter of Authorisation (LoA) from governments. CORSIA has high-integrity requirements similar to IC-VCM's Core Carbon Principles but with different eligibility and guidelines.

The carbon credit supply ecosystem remains concentrated, with fewer project developers entering the market in 2024

Key takeaways

1

A slowdown in new developers

While the market has seen sustained level of market entrants in the last five years the number of new developers is experiencing a slowdown on the back of a slowdown in investment activity.

2

The top 100 developers command credit supply

The carbon credit supplier ecosystem remains heavily concentrated, with the top 100 developers sustaining over 80% of total issuances. The top 25 players in the market lost some ground to smaller developers in 2024, however.

3

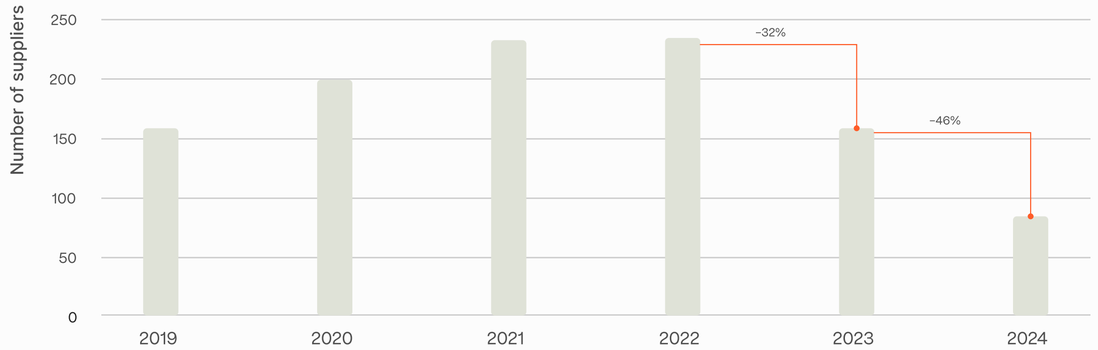
Investor interest in scaling developers remains high

Scaling developers (in the 26–100 range by total historic issuances) have been able to secure funding from corporates, investors and public grants. Examples include Burn Manufacturing, which is expanding its portfolio of improved cookstoves projects across Africa and in 2024 is estimated to have secured $33.8mn from carbon investors such as Marex, Cartesian, Key Carbon and the European Investment Bank.

New suppliers entering the market

Based on earliest crediting period

Total tracked by Abatable: 3,672



Market concentration (percentage of total issuance)

Group of suppliers by issuance size	2022 (Top 100 = 81.3% of issuances)	2023 (Top 100 = 80.5% of issuances)	2024 (Top 100 = 80.6% of issuances)
Top 25 by issuances	52.2%	47.9%	44.9%
26 - 100 by issuances	29.1%	32.7%	35.7%
Rest	18.8%	19.5%	19.4%

Explore suppliers

Head to the supply and demand section of our platform to explore one of the largest databases of supply in the voluntary carbon market, which actively tracks the number and nature of suppliers.

Carbon project developers are adjusting to high-integrity initiatives at different speeds

Large REDD+ suppliers are slower to align with high-integrity initiatives due to delays and new methodology complexity.

Key takeaways

1

CORSIA quality criteria are driving integrity in the market

Carbon project developers are more aligned with CORSIA-eligibility integrity criteria than the more stringent CCP standards, which are focused on pushing suppliers to newer methodologies in line with CCP assessments.

The top 25 developers in the market by issuance are aligned more with CORSIA rather than CCP, with 99% of their high-integrity aligned credits from the past three years in line with CORSIA. For the developers ranked 26–100 in terms of issuances, 95% of high-integrity credits from the last three years are in line with CORSIA, with the remaining 5% having both CCP and CORSIA alignment. For the remaining developers, the share of high-integrity credits aligned with CORSIA sits at 93%, compared to 1% for CCP and 6% aligned with both CCP and CORSIA.

This indicates that buyers in the market can look towards smaller developers for a greater variety of high-integrity options.

2

Some project types are aligning with high integrity faster than others

REDD+ projects, excluding jurisdictional REDD+ projects which use national or subnational baselines for deforestation, have been slower to align with high-integrity initiatives. Improved forest management, cookstoves and industrial efficiency projects have been the most capable of aligning, particularly in the US.

3

Alignment with high integrity has increased over the last three years

The percentage of carbon project developer credit portfolios issued over the last three years aligned with high integrity has increased from 46% in 2022 to 56% in 2024 for the top 25 issuers in the market, from 58% in 2022 to 63% in 2024 from issuers ranked 26–100 and from 45% in 2022 to 65% in 2024 for issuers ranking below 100 in terms of retirements.

Find high-integrity supply in the market

Search our interactive table of the top 100 suppliers in the market in our platform or contact us to find out how we can help.

Source. Abatable, as of 31 December 2024. High integrity is defined by a project meeting either CORSIA, and/or CCP-eligibility criteria, including their registration with eligible or approved standards. Alignment with CORSIA-eligibility excludes the availability of government Letters of Authorisation for the credits to be used in the scheme. CCP-eligibility focuses on existing CCP approved credits. The trendlines reflect the relative share of cumulative credit issuances from 2022-2024 aligned to high-integrity initiatives – not the absolute values.

Suppliers' historical issuances, issuances over the last three years and high-integrity split – summary table

Group of suppliers by issuance size	Total historic issuances	% of historical issuances aligned to high integrity	Split of historical high-integrity issuances			Annual issuances (Number of credits (mn), (cumulative % of alignment to high integrity from 2022 to 2024)			High-integrity issuance trendline 2022–2024
			CORSIA	CCP	CORSIA and CCP	2022	2023	2024	
Top 25	853.8	34%	99%	0%	1%	166.7 **(46%)**	132.7 **(37%)**	88.6 **(56%)**	
Top 26 – 100	660.6	39%	95%	0%	5%	90.5 **(58%)**	79.7 **(56%)**	105.9 **(63%)**	
Rest	836.6	46%	93%	1%	6%	122.4 **(45%)**	119.5 **(57%)**	109.8 **(65%)**	

Carbon project developers are adjusting to high-integrity initiatives at different speeds

Find high-integrity supply in the market

Search our interactive table of the top 100 suppliers in the market in our platform or contact us to find out how we can help.

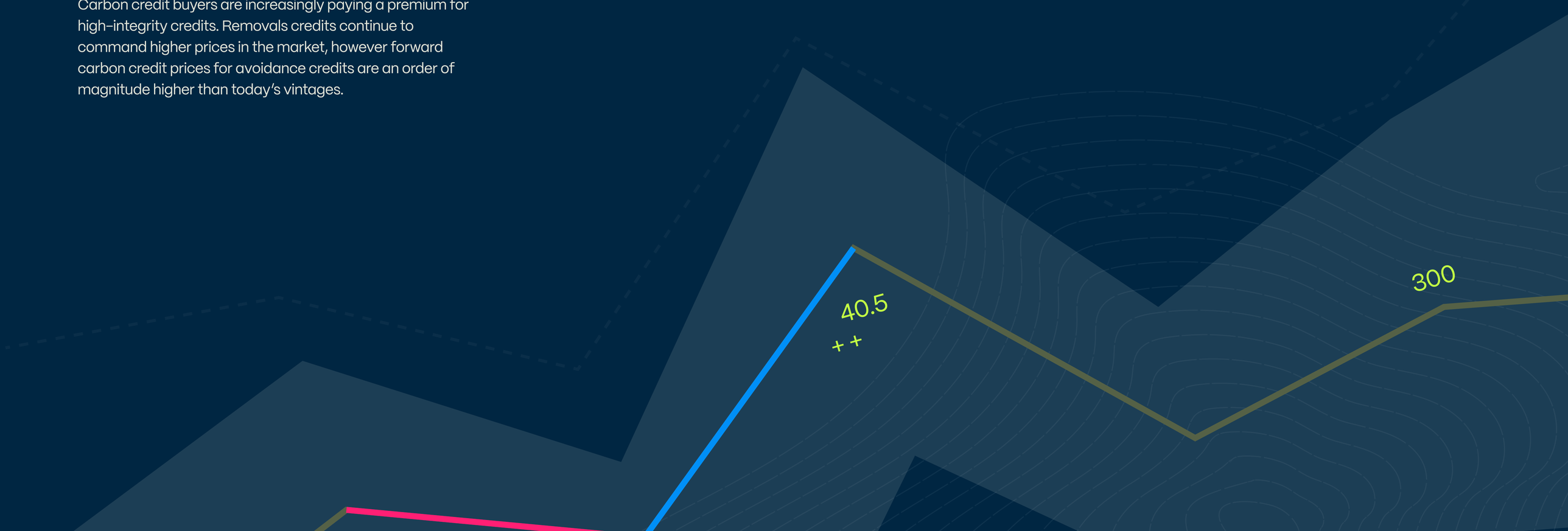
Rank	Supplier	Project type	Regional focus	Total historic issuances	% of historical issuances aligned to high integrity	Issuances portfolio: Number of credits (mn), (cumulative % of alignment to high integrity from 2022 to 2024) 2022	2023	2024
1	Finite Carbon	Improved Forest Management	Country-specific	100.4	52%	3.4 (68%)	3.8 (74%)	2.1 (78%)
2	EKI Energy Services Ltd (EnKing International)	Renewable Energy	Global	89	57%	16.8 (63%)	9.6 (63%)	17.1 (60%)
3	Anew Climate (formerly Blue Source and Element Markets)	Improved Forest Management	Regional	71.3	45%	4.4 (78%)	9.9 (87%)	7.8 (86%)
4	Wildlife Works Carbon LLC	REDD+	Global	63.4	0%	12.3 (0%)	7.6 (0%)	5.0 (0%)
5	South Pole Holding Ag	REDD+	Global	49.4	20%	23.6 (5%)	1.7 (10%)	3.2 (17%)
6	Guyana - Guyana Forestry Commission	REDD+	Country-specific	43.1	100%	35.5 (100%)	0.0 (100%)	7.6 (100%)
7	Permian Global	REDD+	Regional	42.8	0%	16.7 (0%)	0.0 (0%)	4.3 (0%)
8	CIMA, Cordillera Azul	REDD+	Country-specific	36.6	0%	16.7 (0%)	0.0 (0%)	4.3 (0%)
9	InfiniteEARTH	REDD+	Country-specific	33.6	0%	0.0 (0%)	0.0 (0%)	0.0 (0%)
10	Jaiprakash Power Ventures Limited	Renewable Energy	Country-specific	27.9	0%	4.2 (0%)	1.3 (0%)	0.0 (0%)
11	Wildlife Alliance	REDD+	Country-specific	27.6	0%	0.0 (0%)	3.8 (0%)	0.0 (0%)
12	ACATISEMA	REDD+	Country-specific	27.1	0%	3.2 (0%)	6.8 (0%)	0.0 (0%)
13	Terra Global Capital	REDD+	Regional	23.9	0%	3.2 (0%)	4.3 (0%)	0.0 (0%)
14	New Forests	Improved Forest Management	Country-specific	23.1	59%	0.1 (48%)	0.6 (90%)	0.3 (91%)
15	Hyundai Steel	Renewable Energy	Country-specific	21	66%	2.9 (43%)	5.0 (54%)	0.0 (54%)
16	C-Quest Capital	Cookstoves	Global	20.1	12%	2.7 (10%)	14.4 (14%)	1.7 (12%)
17	Impact Carbon	Cookstoves	Regional	19.7	91%	4.1 (100%)	3.3 (100%)	3.9 (100%)
18	Bosques Amazónicos	REDD+	Country-specific	19.1	0%	3.2 (0%)	0.0 (0%)	11.0 (0%)
19	Indigenous Carbon LLC	REDD+	Country-specific	18.7	0%	0.0 (0%)	13.6 (0%)	5.0 (0%)
20	Biofix Consultoria Sas	REDD+	Regional	18.1	0%	0.2 (0%)	13.3 (0%)	2.0 (0%)
21	NE Climate A/S	Industrial Efficiency	Country-specific	15.9	100%	4.1 (100%)	3.2 (100%)	8.6 (100%)
22	A-Gas	Industrial Efficiency	Country-specific	15.8	87%	3.6 (96%)	5.6 (98%)	3.2 (99%)
23	CarbonCo	REDD+	Country-specific	15.6	0%	12.8 (0%)	1.5 (0%)	0.2 (0%)
24	Profit Carbon	Industrial Efficiency	Regional	15.5	100%	5.5 (100%)	7.2 (100%)	2.6 (100%)
25	Foam Supplies, Inc	Industrial Efficiency	Country-specific	15	97%	4.0 (100%)	4.7 (100%)	3.0 (100%)

Suppliers' historical issuances, issuances over the last three years and high-integrity split – top 25 suppliers by historic issuances

Source. Abatable, as of 31 December 2024. High integrity is defined by a project meeting either CORSIA, and/or CCP-eligibility criteria. Alignment with CORSIA-eligibility excludes the availability of government Letters of Authorisation for the credits to be used in the scheme. CCP-eligibility is based on credits issued under the methodologies that have been CCP approved by the IC-VCM.

Carbon credit pricing insights

Carbon credit buyers are increasingly paying a premium for high-integrity credits. Removals credits continue to command higher prices in the market, however forward carbon credit prices for avoidance credits are an order of magnitude higher than today's vintages.



Carbon credit prices saw a softening in 2024

The surplus of credits in the market softened prices across all carbon project types in 2024. Credits from removal-based activities continued to command a higher price than avoidance-related activities, which are in the process of transitioning to more robust and conservative crediting methodologies.

Key takeaways

1

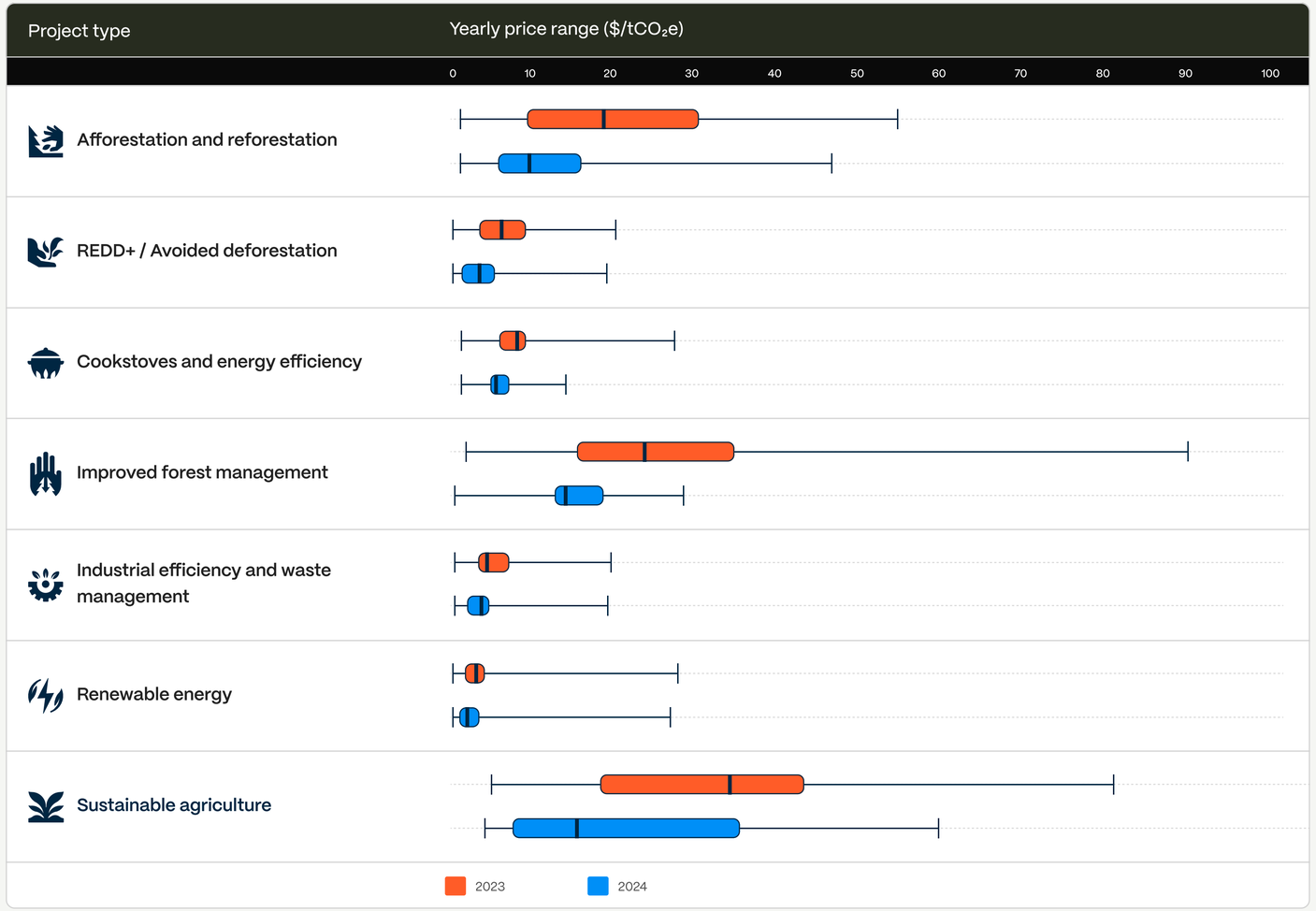
Prices fell in 2024

Median credit prices for all project types softened in 2024 as the surplus of credits continued to increase (albeit at a slower rate) on the back of stable credit demand. The dispersion of prices also tightened since 2023 levels as the market seems to have found some consensus on a downward pricing trend in 2024.

2

Carbon removals continue to come at a premium

Carbon removal credits consistently command the highest prices in the market. They also demonstrate the highest price dispersion – this is particularly evident within nature-based removals project categories as these have the most heterogeneous quality characteristics due to co-benefits and regional and implementation cost structures.



Carbon credit prices saw a softening in 2024

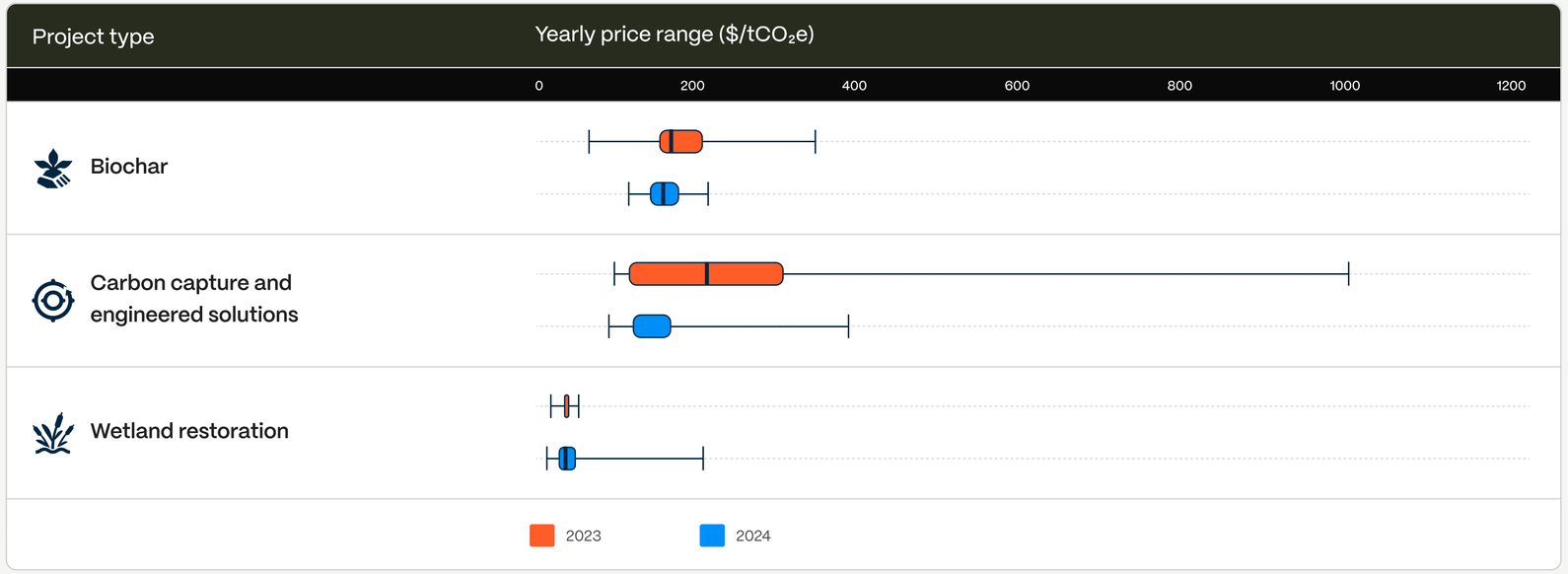
3

Avoidance credits are available in larger volumes and at structurally lower prices

Cookstoves credits saw an overall decrease in median prices from $8 to $5.5 on the back of the suspension of the Verra methodology VMR0006, which meant projects under Verra traded at a lower price.

Median prices for **REDD+** credits dropped from $6.1 to $3.5 following a loss of confidence that older REDD+ methodologies align with CCP's high-quality guidance. However, some projects have received higher quality ratings and have continued to fetch more stable prices aligned with 2023.

Median prices for **renewable energy** credits dropped from $3 to $2 on the back of renewable energy project methodologies failing to gain the Core Carbon Principle stamp of approval from the IC-VCM.



Explore price trends

Further explore Abatable's carbon credit pricing data and forward price curves in our platform.

Forward carbon credit prices are at a premium compared to the spot market

Forward price curves are higher than today's spot market prices. They show a low level of volatility and indicate prices remaining relatively flat, with suppliers occasionally pushing for price to reflect incremental adjustments and increases in implementation costs over time.

Key takeaways

1

REDD+ and cookstoves credits are offered at higher prices

REDD+ and cookstoves projects to be issued under new, improved methodologies are being offered at higher prices on the back of an expected reduction in issuances alongside higher development costs. REDD+ and cookstoves forward curves show price levels in the $11–$15 range (against $3–$6 per tonne in the spot market).

2

Other credit-type future vintages are being offered at a premium

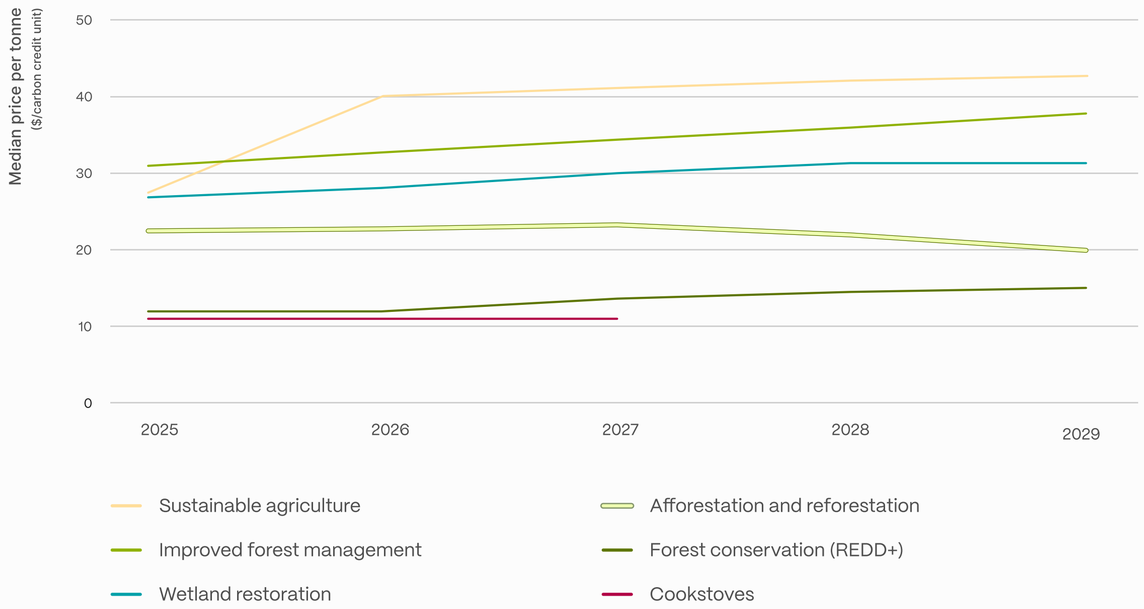
Forward median prices indicate wetland, improved forest management and afforestation and reforestation projects are above $20 per tonne for 2025 to 2029 vintages – generally at a premium to median prices in the spot market.

3

Forward prices remain stable

Forward price curves generally indicate modest prices changes over the life of a deal, with some small year-on-year percentage increases.

Abatable median forward price curves for 2025–2029 credit vintages



Forward prices are vintage-specific prices quoted or transacted today for future delivery, and are an important signal of the market's expectation and confidence around future carbon price development. They are derived from bilateral deals negotiated directly between buyers and sellers and are often not indexed to market benchmarks. Abatable's median forward pricing curves reflect distinct project development costs and the return expectations for each of the project categories shown.

Source. Abatable, as of 31 December 2024. Abatable has access to over 48,000 pricing data points in the market, accessible through our intelligence platform. Updated monthly with an average of over 1,200 data points per month across 63 different data sources. Data is aggregated across brokers' quotes and transactions. Read more about our data sources.

New carbon credit quality initiatives are beginning to be reflected in prices

Higher quality projects trade at a premium, and a trend is starting to emerge for credits with quality certifications including the Core Carbon Principles commanding premiums between $0.6 and $10 per unit.

Key takeaways

1

Credit quality and price is strongly correlated

Our analysis reveals a strong positive correlation between Abatable's Risk Quality Score and carbon credit price. Lower-quality projects are associated with lower prices, while higher-quality projects with higher prices (and higher price dispersion).

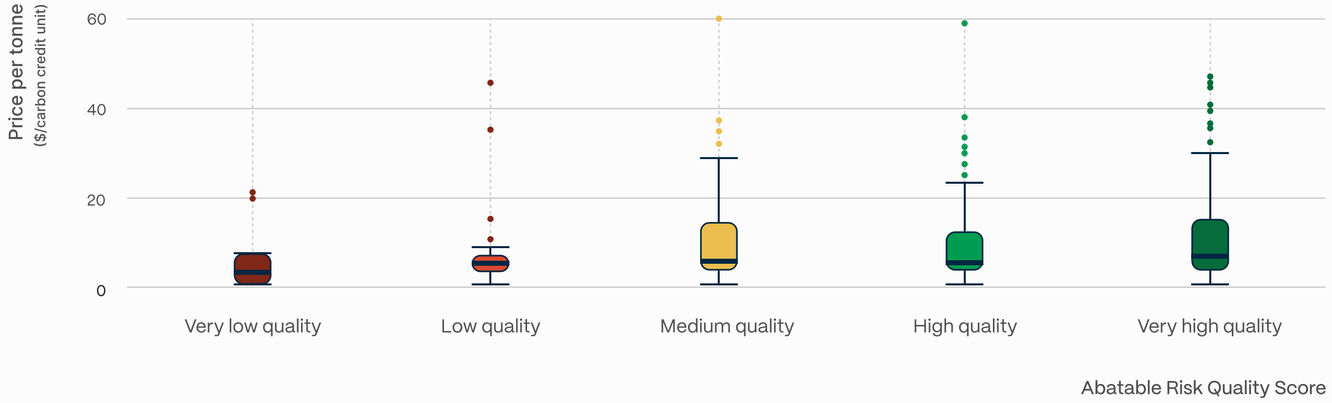
2

CCP-labelled credits are starting to go for higher prices

CCP-labelled credits and credits Abatable has assessed as having a high likelihood of receiving a CCP label are starting to be offered or traded at a premium to non-CCP credits. We see premiums between $0.6 and $10 per tonne for CCP credits, with a median value of $2.3.

Abatable has developed a Risk Quality Score for over 12,500 projects in its database which evaluates quality and risk elements for each carbon project, including counterparty experience and risk, country policy risk and methodology risk.

The relationship between credit prices and Abatable's Risk Quality Score in 2024



Source. Abatable, as of 31 December 2024. Additional dots indicate outlier prices. Abatable has access to over 48,000 pricing data points in the market, accessible through our intelligence platform. Updated monthly with an average of over 1,200 data points per month across 63 different data sources. Data is aggregated across brokers' quotes and transactions. Read more about our data sources.

What to expect in 2025

The shift towards increased quality in the market will continue. Carbon credit buyers can expect new carbon credit reference prices reflecting bolstered integrity – particularly for nature-based carbon removal credits.

Key market themes for 2025

Market and policy developments

Market participants can expect **greater alignment between SBTi and ISO guidance** on the use of carbon credits within and beyond company value chains, with clearer guidance on boundaries. Greater clarity for companies looking to use insetting to address value chain emissions can also be expected from SBTi and the GHG Protocol.

Further Article 6.2 bilateral deals can be expected, with acceleration around COP30 in Brazil. There is also likely to be greater movements from countries to grant LoAs to participate in CORSIA markets.

For Article 6.4, the **first few methodologies will be developed under the new Paris Agreement Crediting Mechanism**, with greater clarity on how the mechanism will be implemented and which suppliers are likely to participate.

Finally, **the Green Claims Directive is expected to be passed by the European Parliament and the European Council**, which will define which claims European companies can make when using carbon credits.

Supply and demand

Credit retirements are likely to remain stable with an accompanying **continued deceleration of the growth of surplus credits in the market.** There will be continued interest and depletion of the surplus in carbon removals credits and credits aligned to high-integrity Initiatives

More small-scale CORSIA transactions are expected from airlines' new entrants to the market in 2025, however **more substantive CORSIA activity is expected closer to the end of the compliance obligation period under the First Phase (2027–2028)**.

There will be a **continued retrenchment on the use of carbon credits for 'Carbon neutral' and 'net zero' claims**, while market preferences shift quasi-exclusively towards credits aligned to high-integrity initiatives. There is also likely to be a continued sustained level of funding activity into new project developments.

Finally, there is likely to be a **greater degree of proactive approaches from buyers and sellers to transition high-potential projects to new, more rigorous crediting methodologies.**

Credit prices

The price premium for projects that have eligibility under high-integrity initiatives is likely to continue to increase, with a corresponding continued downward trend in prices for projects that don't align with these initiatives.

A **continued interest in carbon removal credits is likely to push removal price dispersion higher**, with higher-quality removal options likely to trade at a substantial premium in the spot market.

A market preference for additional co-benefit labels, for example ABACUS, is likely to result in increased development costs to be absorbed by some large buyers – resulting in **a new reference price for high-quality nature-based carbon removal credits.**

Abatable

Navigate the voluntary carbon market and scale your carbon sourcing strategy

We develop next-generation tools to allow organisations to efficiently source and utilise high-quality carbon credits as part of their sustainability strategies.

Our solutions are built on a foundation of cutting-edge technology and deep carbon project developer relationships, enhanced by our extensive carbon market expertise.

We are a trusted partner for organisations looking to go beyond transactional relationships to create long-term impact through carbon markets.

Get in touch with our team here.

Abatable is a leading provider of carbon credit sourcing and intelligence solutions

Our enterprise-scale carbon procurement programmes outperform the market by collecting on average **20–30x more tonnes** offered than requested in less than two weeks, with prices on average **18–30% cheaper** than those offered by other intermediaries.

$200mn *Channeled through Abatable*

Our transaction infrastructure platform has supported significant transactions and investment mandates

Policy experts | Product developers | Data scientists | Engineers | Carbon sourcing and origination specialists

We have a 40+ strong team building the world's largest carbon-first procurement platform

We worked with the Paris 2024 Olympic and Paralympic Games to plan and deliver its global climate contribution portfolio and create a global climate legacy on behalf of the Games

39,000+

Unique pricing data points in our database

We allow access to vast amounts of transaction and pricing data in the market

12,500+

Projects tracked

We have access to the full primary market of carbon credits, including more than 3,500 developers

200+

Corporate clients supported

We work with some of the largest corporate buyers in the market, including **Salesforce**, **SAP**, **Chanel**, **AXA**, and **AP Moller Capital**

Some of our clients and partners:

Disclaimers

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