



Race to the top

What sustainability leaders need to know about the voluntary carbon market for the next 6 months

September 2022

Executive Summary

The value of the VCM quadrupled in value between 2020 and 2021, reaching almost US\$2 billion according to Ecosystem Marketplace.¹ This was driven by higher prices of carbon credits and an explosion of nature-based solutions (NbS) projects.

While so far this year, we are seeing a delay in issuances and a temporary softening of prices due to global economic factors, generally, prices still sit well above historic levels. With demand remaining strong, market analysts forecast a healthy growth of the VCM, catalysing investment in high-impact climate action that goes beyond business-as-usual.²

¹ South Pole Pricing Index Forest Trends' Ecosystem Marketplace. 2022. The Art of Integrity: State of Voluntary Carbon Markets, Q3 Insights Briefing. Washington DC: Forest Trends Association.

² Trove Research, Ten-Fold Increase In Carbon Offset Cost Predicted, 2022 <<https://trove-research.com/wp-content/uploads/2021/06/Trove-UCL-Carbon-Credit-Press-Release-1-June.pdf>> [accessed 7 September 2022].

Four key trends to watch

1: NbS removals take root

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So far this year, we're seeing growing demand for nature-based solutions that remove carbon dioxide from the atmosphere, like tree planting. Also a new standard is being introduced to measure the benefits of NbS beyond carbon reductions. Meanwhile, Janka Jurisits, South Pole's Senior Carbon Portfolio Manager, reminds sustainability leaders that: "protecting existing forests still remains one of the most impactful activities for climate mitigation that a company can support outside their value chain."

3: Quality, governance and legitimacy: best-practice helps to create confidence

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For the VCM to realise its full potential in accelerating climate action and sustainable development worldwide, increasing transparency, integrity and trust in the VCM is a priority. Best practice guidance is under development to create a more standard approach to assess project quality, incorporate carbon credits into climate strategy and to communicate transparently about the use of carbon credits in the transition to net zero.

2: Involvement of new actors and technologies are driving maturity and innovation

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Technical carbon removals are in the spotlight, but the market remains nascent: Philip Moss, South Pole's Director of Technical Carbon Market explains different actors must play a role to accelerate maturity. On the other hand, digital advancements are poised to transform MRV of climate projects. "By saving time and improving accuracy, digital MRV increases impact, trust and transparency: it's a win-win development for buyers and the organisations carrying out the project" says Bamshad Houshyani Director of Project Development & Implementation at South Pole.

4: Growing interest in and attention to how the VCM best supports a country's climate goals

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Since the Article 6 rulebook was finally agreed on at COP26 last November, interactions between voluntary and compliance climate action have been evolving as countries implement the rules. Naomi Swickard, Head of Public Affairs at South Pole, stays abreast of developments globally: "The VCM is designed to raise climate ambition by staying ahead of and beyond regulation. As government action evolves, so must the market to ensure companies are supporting ambitious climate action that could not otherwise happen."

Introduction

With government efforts to limit warming to 1.5°C falling short, more companies around the world need to step up to prevent climate disaster by reducing their emissions to net zero before 2050. The urgency of the situation demands that companies must shrink their greenhouse gas (GHG) footprint and compensate any remaining emissions in order to transition to net zero in a credible and effective way. It also requires that communities are equipped to adapt to a changing climate, that ecosystems are protected starting today and that technologies that can remove carbon dioxide from the atmosphere are scaled up, rapidly. This need for urgency and scale is where the voluntary carbon market (VCM) comes in.

When used responsibly as part of an ambitious climate strategy, investment in carbon projects:

1. ...puts a price on a company's GHG footprint. This can be used to benchmark and incentivise investment in emission reductions measures.
2. ...ensures that urgent action is taken to compensate for unavoidable emissions during the transition to net zero.
3. ...provides financing for broader sustainability objectives through high-quality climate projects helping ensure that the transition to net zero is just, and that no one gets left behind.
4. ...is key to scaling emerging technologies, like technological carbon removals.

With more than 16 years of experience in developing projects and advising companies on their climate strategies, in this report, we apply our 360° view to unpack this year's developments within the VCM. In this mid-year market update, we bring in analysis from our project development, portfolio management and policy teams. We are also offering tailored workshops for clients who wish to dive deeper into any topics around carbon markets and climate action projects.



Carlos Garcia-Borreguero
Climate Action Credits Practice Lead,
South Pole

State of play

Thanks to the boom in climate pledges, the VCM reached new heights last year, but now we’re seeing the market stabilising.

Issuance delay causes the growth of the carbon credit supply to slow.

During the first six months of 2022, more carbon credits were issued than in the full years up to 2018. Cumulatively, the supply of carbon credits issued this year falls in the middle of the levels seen in 2020 and 2021.³

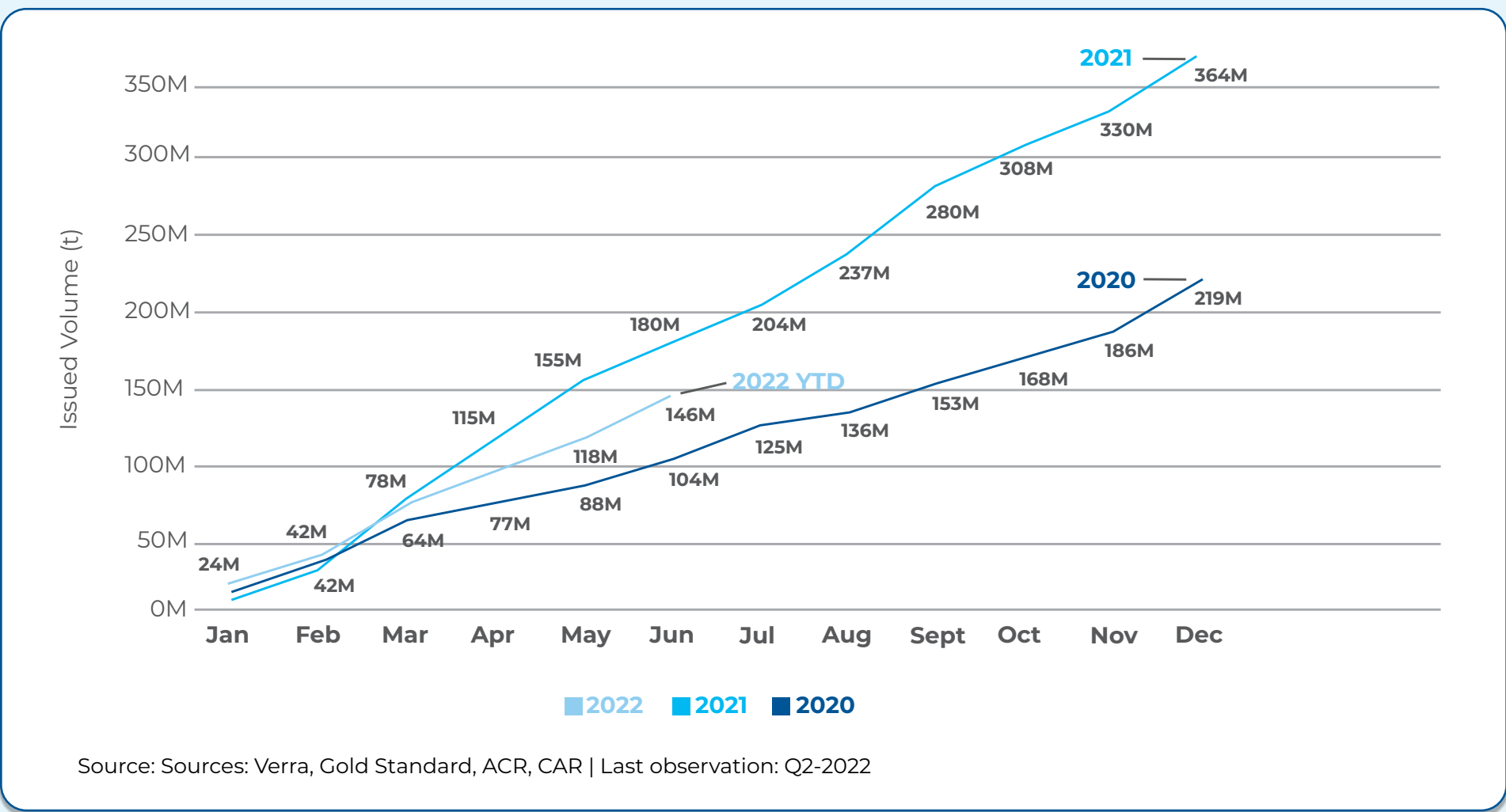
This healthy growth in supply has been driven by a variety of factors: demand, prices, new technology types and methodologies. Yet, last year's boom also hit the standards by surprise and delays in the certification process started to accumulate. These standards, key in upholding project integrity, are on one hand under-resourced to deal with the rise in projects requiring certification and monitoring, and on the other hand, becoming more rigorous in their checks of projects due to increased scrutiny from both buyers and the media. This backlog has weighed on 2022's issuances and we expect the trend to continue throughout the year.

Even with the current geo-political situation and the global economic slow-down, demand for carbon credits remains healthy

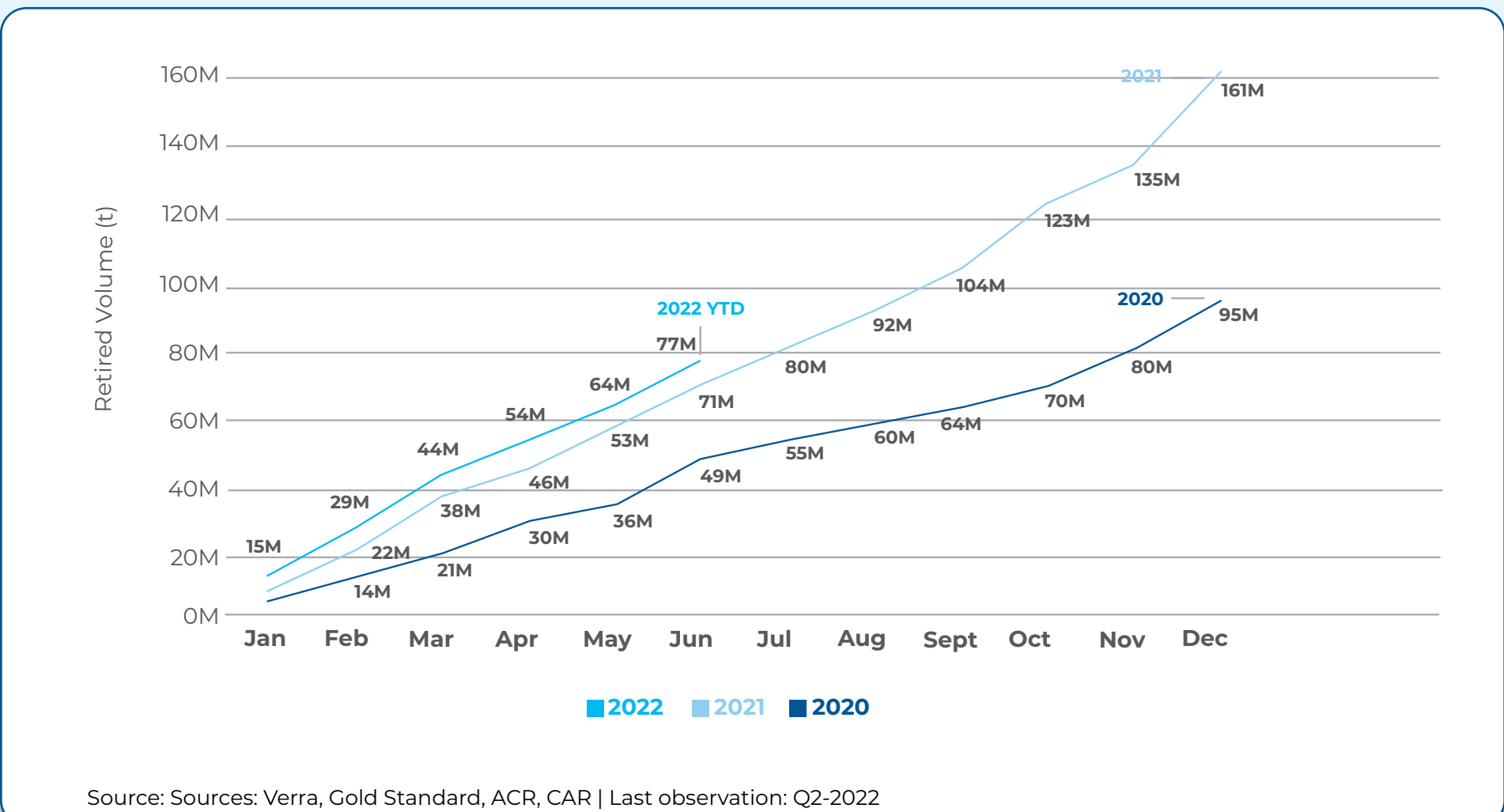
Despite macroeconomic trends, ongoing demand for carbon credits continues its growth, even outpacing 2021 in the first half of this year. This can be attributed to shareholder and investor pressure around ESG performance and a continued push for large companies to set climate goals. Further growth is expected in the second half of the year, which typically sees increased retirements due to financial disclosures and reporting deadlines. Our experience shows that demand remains diverse, with buyers valuing characteristics such as sector, geography, and co-benefits.

³ It is worth noting that eligible projects can in theory generate carbon credits as soon as the emissions removals or reductions have taken place; however, credits will only be officially issued onto a public registry once they have been verified by the respective carbon standards.

Cumulative Issuances of Carbon Credits (2020 - 2022)



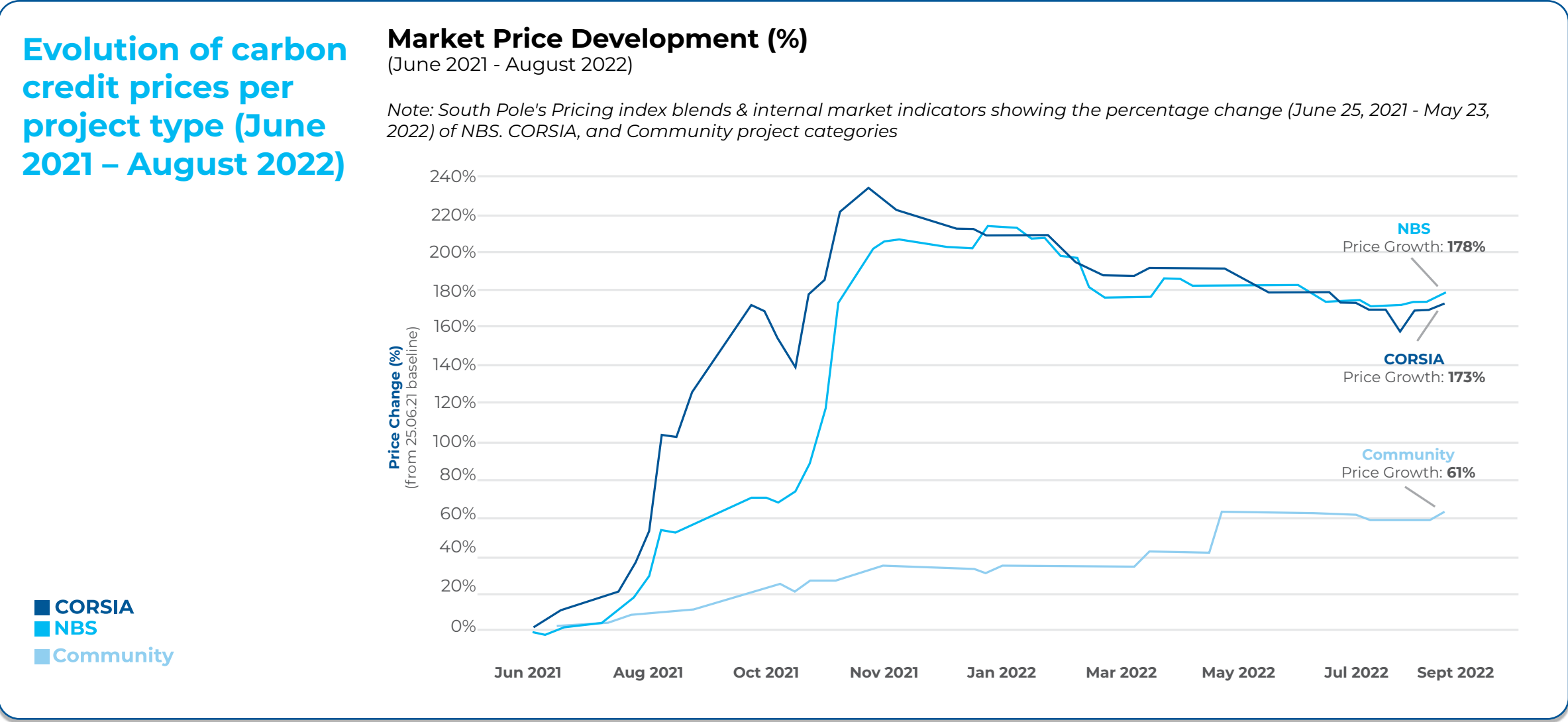
Cumulative Retirements of Carbon Credits (2020-2022)



Despite high-demand, prices have softened in some areas

Prices have softened compared to 2021, which saw unprecedented price rises, but remain well above historical levels. This may be a reaction to the current global economic outlook and the market readjusting to find a new equilibrium at higher price levels as a result of the long-term trend of demand increasing at a faster rate than supply. Trove, a market analyst, forecasts an increase five to ten-fold over the next decade, which would cause average prices to reach up to 30 USD. While Bloomberg NEF suggests by 2030 if removals are gradually phased in the average cost of a carbon credit would be 48 USD. While many scenarios are possible, all point to a steady rise in prices compared to today.

There is one exception to price stabilisation: removal credits. With limited supply and growing demand as companies set their sights on net zero, the price of removals has grown 72% in the past year.⁴ Similarly, market commentators, like Ecosystem Marketplace, have identified that projects with certified co-benefits aligned with the UN’s Sustainable Development Goals (SDGs) attract significantly higher prices, which has been key in driving market growth.⁵



⁴ South Pole Pricing Index
⁵ Forest Trends' Ecosystem Marketplace, "The Art of Integrity: State of Voluntary Carbon Markets, Q3 Insights Briefing", Forest Trends Association, 2022
⁶ Betty Jiang and others, "Treeprint, Carbon Markets, The Beginning Of The Big Carbon Age", pg. 21, Credit Suisse, 2022.

Different VCM scenarios for 2030: price, demand and market size⁶

| Scenario | Pricing (USD/Ton) | Demand (GtCO ₂ /Year) | Market Size (USD Billion) |
|---|-------------------|----------------------------------|---------------------------|
| Taskforce on Scaling Voluntary Carbon Markets (TSVCM) Projections | | | |
| Priortization of Low Cost Supply | USD 10-USD 20 | 1-2 | USD 10-USD 40 |
| Preference for Local Supply | USD 50-USD 90 | 1-2 | USD 50-USD 180 |
| Trove Research | | | |
| Trove Research | USD 220-USD 30 | 0.5-1.5 | USD 10-USD 40 |
| BloombergNEF Projections | | | |
| Maintaining Status Quo (primarily low-quality credits) | USD 11 | 1 | USD 11 |
| SBTI Scenario (removal project credits only) | >USD 200 | 1 | >USD 200 |
| Hybrid Scenario (graqual phase-in to removal only) | USD 48 | 1.7 | USD 80 |

#1

Nature-based removal projects take root

Credits from avoidance projects keep the lion's share of the NbS market, but removal projects are picking up pace

This year the share of nature-based removals have surged: jumping from 8% in 2021 to 18% of all NbS retirements. Nature-based removal projects capture carbon dioxide from the atmosphere, for example, by restoring natural ecosystems or managing land in a more sustainable way to increase carbon stocks. The popularity of NbS removal projects can be put down to two main reasons. Firstly, because they are important in long-term net zero targets– to achieve net zero companies must reduce their emissions by 80-90% and neutralise the remaining with removals. Although most companies do not need to neutralise their emissions for another decade or so, high-quality NbS removals are viewed as a future-proof purchase.

Secondly, demand for all types of nature-based projects –including reductions and avoidance as well as removals– is driven by the broad impacts they can have beyond carbon. These ‘co-benefits’, often aligned with the UN’s SDGs, include enhancing and protecting biodiversity, charismatic wildlife and unique ecosystems; and building prosperous communities and supporting women through forest-friendly livelihoods. NbS projects offer buyers one of the few means to transparently channel results-based finance to vulnerable communities, Indigenous Peoples and Local Communities (IPLCs) or farmers. As mentioned previously, this has led to a growth in importance of co-benefit standards, such as the Climate, Community & Biodiversity Standard (CCB), Verra’s Sustainable Development Impact Standard (SD Vista) and new, early-stage [ABACUS label](#), which intends to specifically catalyse growth in high-impact nature-based

carbon removal projects. These additional labels are key to providing assurance that impacts are monitored, measured and verified by independent bodies and as a result are valued by buyers.

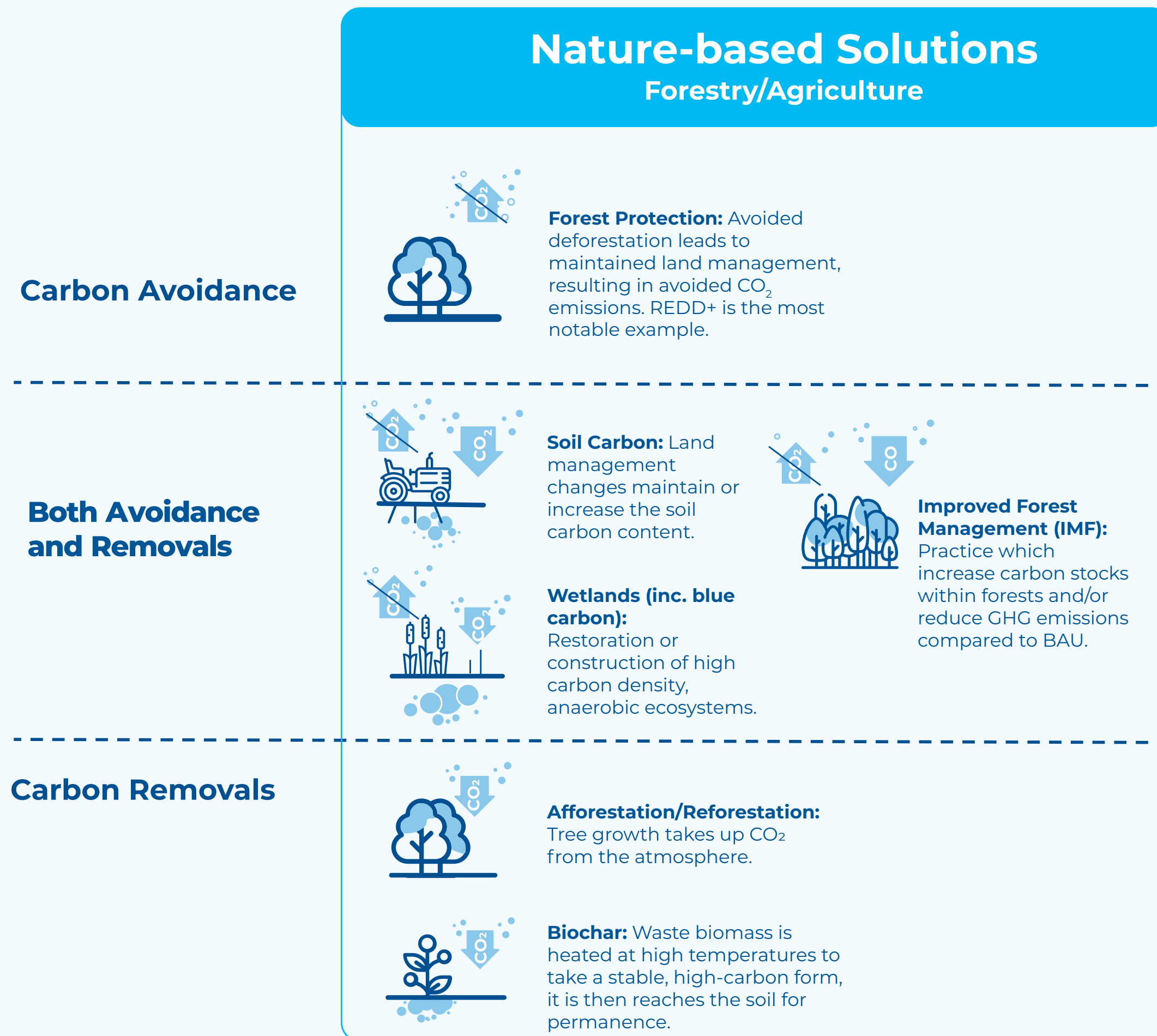
“Nature-based removal projects are on a promising growth trajectory thanks to continuing strong demand and an increasing pipeline of projects around the world. However, **our planet’s existing forests contain more carbon than exploitable oil, gas, and coal deposits combined**. They are also home to 80% of terrestrial biodiversity and provide livelihoods for nearly two billion people. **We must not forget to protect them**. An effective way to channel finance into forest protection is by supporting carbon avoidance projects, such as REDD+, as part of your climate strategy.”



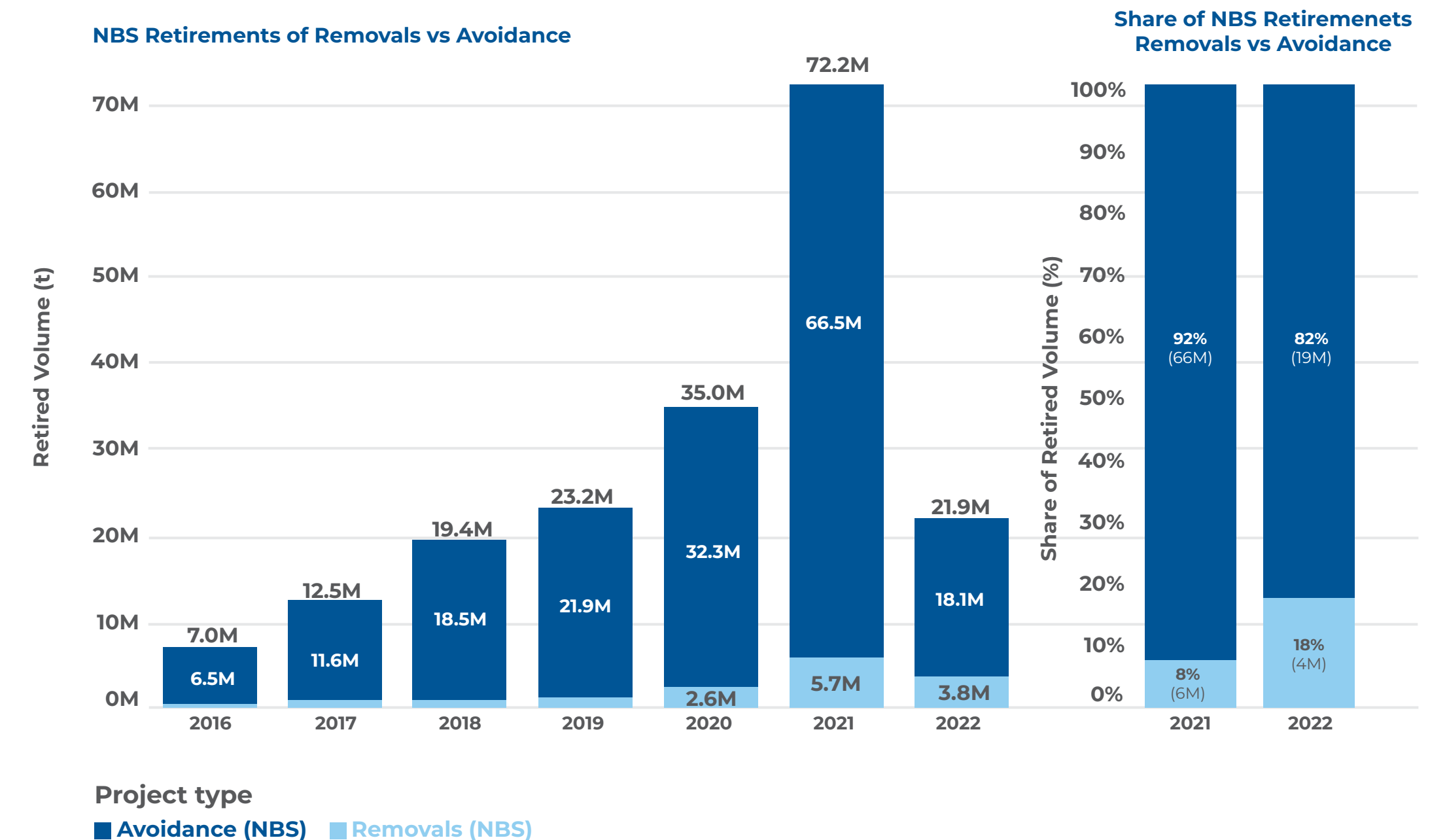
Janka Jurisits
Senior Manager - Carbon Portfolio
South Pole



The different types of nature-based carbon projects



Retirement of carbon credits: nature-based avoidance projects vs removal projects (2016 – 2022)



Source: Verra, Gold Standard, ACR, CAR | Last observation: Q2-2022 | Please note the share of 2022 figures are to date.

#2

Involvement of new actors and technologies are driving maturity and ambition

Digitalisation of climate action project development and MRV promises improved market access, efficiency and transparency

With a focus on **quality, transparency and traceability**, increasing attention is being put on the digital measurement, reporting and verification (MRV) of project impacts. There has been particular interest in how new technologies can enhance automatic data capture and processing: while rigorous and structured, much of carbon project development, MRV and certification processes remain manual, expensive and in some cases, complex. This limits access to the VCM to a relatively small number of market participants, mostly larger companies in the Western world. The hope is that applying new technologies will change this, unlocking access to the market for smaller organisations in developing countries, making MRV as accurate as possible and allowing better and continuous data sharing between all stakeholders. Digital MRV is also key in clarifying how to monitor the emission reductions and removal of pioneering climate technologies that will be explored in the next section.

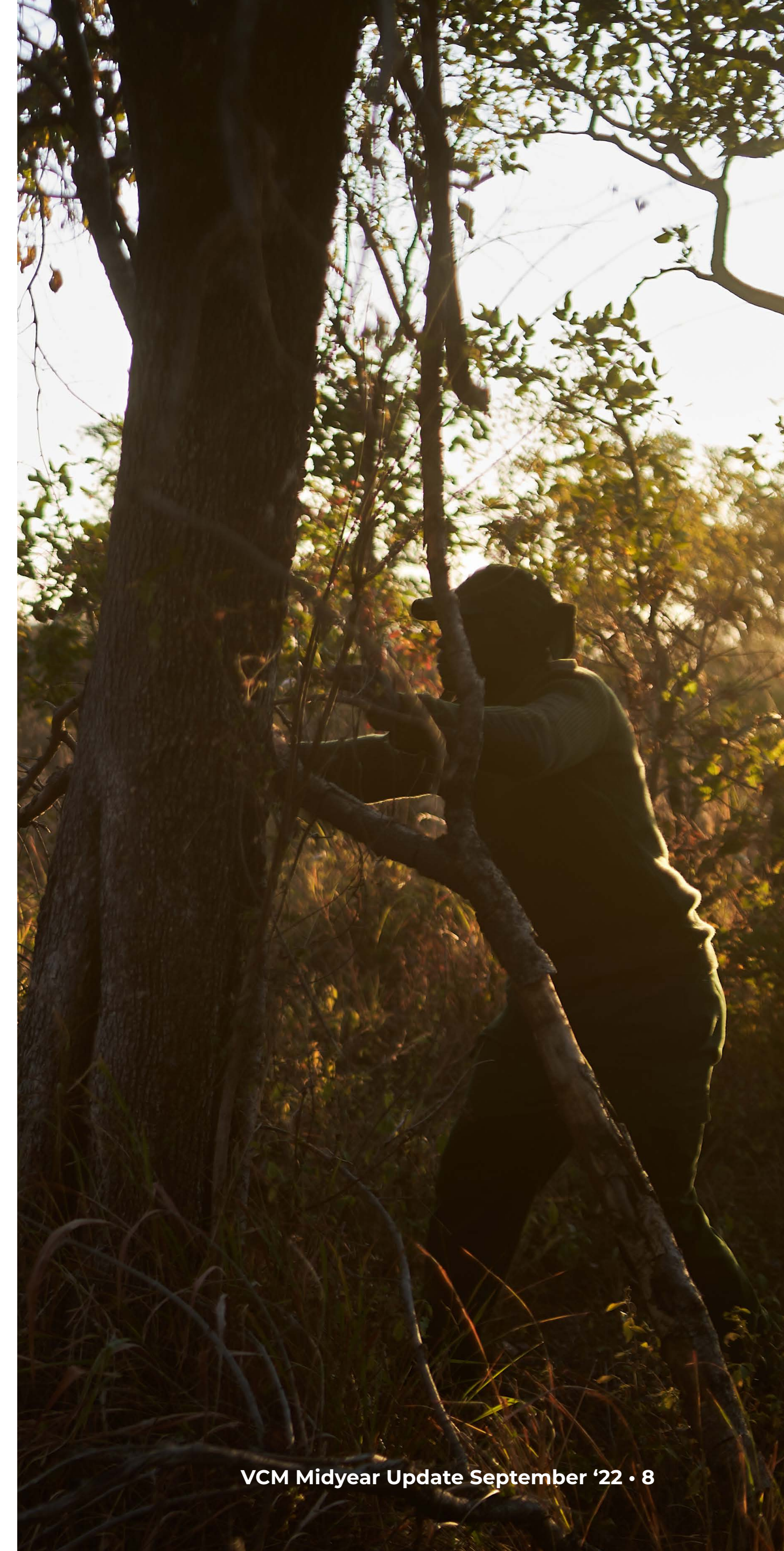
Earlier this year, the Gold Standard received a US\$ 1 million grant from Google.org's philanthropy programme to develop new technology and governance innovations that unlock impact data of the highest quality and channel more carbon finance to

communities most vulnerable to climate change by designing and testing digital solutions that are open source, low-cost and low-energy.

“When it comes to the data measurement, data management and processing, the digital path has already been paved for certain technologies. Excitingly, we are already starting to test them in specific areas, like renewable energy projects. **By saving time and improving accuracy, digital MRV increases impact, trust:** it's a win-win development for buyers and the organisations carrying out the project.



Bamshad Houshyani
Director Project Development & Implementation, South Pole



Technical removals gather traction, but the market remains nascent

The critically important role of technical carbon removals to achieve net zero at or below 1.5 °C is well publicised. Yet, technologies and projects that suck carbon out of the atmosphere and store it permanently remain expensive and scarce, with certification to uphold environmental integrity of such activities almost non-existent. Despite the interest in technological removals to meet corporate net zero targets, the market remains very illiquid with only a handful of sizable buyers generally purchasing future removals bilaterally. To date, less than 600,000 tonnes have been purchased across the entire market, with a single deal accounting for >60% of all offtakes purchased and only 5 buyers having bought more than 10,000 tonnes of technical carbon removals.⁷

“In order for more technical carbon removal projects to reach the market and operate at commercial scale, **companies with the budget need to support innovative carbon removal companies** developing these projects to generate revenues for their offtakes. At the same time, companies like South Pole are helping to build the infrastructure that will help this market to grow by establishing demand from buyers while developing the architecture to support a credible and liquid market. Among other initiatives South Pole is undertaking, the NextGen CDR Facility promotes this market-oriented approach, ensuring the quality of carbon removals becomes more reliable and the price per tonne of CO₂ removed more attractive over time.”



Philip Moss
Director - Carbon Removal Markets, South Pole

Work is in full swing to increase the number of methodologies available to quantify carbon removals under mainstream standards. While methodology development is a long and stringent process, it is fundamental to catalysing dramatic change in the availability of technical removals. Biochar is an example of a technology set to benefit from [a newly released methodology](#) under the leading carbon standard Verra and co-developed by South Pole. Over the course of the next year, we expect to see a surge in Verra-certified biochar projects thanks to the demand for high-quality and high-integrity removal credits, which this methodology assures. We are also likely to see the first ICROA-approved methodologies for other technical removal types such as Direct Air Capture.

For many companies, however, carbon removals are only beneficial when decarbonisation is at its maximum and when they are fully embedded as the third pillar of climate action alongside mitigation and adaptation efforts. In other words, carbon removals, technical or natural, are not a licence to continue polluting.

Growing interest from the financial sector

There is growing interest from strategic investors in the VCM. It's not just banks but more patient capital from sovereign wealth funds and private equity who are also interested in the market: this has the potential to bring lots of capital into the VCM. Analysts at a recent Xpansiv webinar suggested the reason for this could be the increased pressure of ESG performance but also the perception that the VCM potentially doesn't correlate with the wider economy.⁸

⁷ 2022 <<http://cdr.fyi/>> | Retirement data as of September 2022..
⁸ Xpansiv, Voluntary Carbon Market Quarterly Review & Outlook, 2022 <<https://www.youtube.com/watch?v=cnQwpUFP8A8>>.

#3

Quality, governance and legitimacy: best-practice helps to create confidence



The market is maturing quickly with record projects, buyers and prices; this is triggering increased scrutiny from all angles. A growing number of high-profile initiatives and bodies are emerging; together, they are helping to drive transparency and integrity from which they hope scale will follow. As a member of these initiatives, South Pole ensures our clients are fully aligned with best practices and evolving standards.

Emerging framework on the quality supply of carbon credits

In a bid to bring integrity to the supply side of the VCM, the ICVCM released the anticipated Core Carbon Principles (CCPs) and Assessment Framework (AF) in July. The goal is to increase confidence in the market by standardising what constitutes high quality. While the draft CCPs and Assessment Framework still need to complete public consultation and substantial revision, South Pole anticipates the work of the ICVCM will be influential in market perception of quality.

“Build integrity and scale will follow”
ICVCM 2022⁹

Using carbon credits within a climate strategy

The Science Based Targets Initiative (SBTi)’s new Net Zero Standard provides guidance on what is needed by companies to achieve the 1.5°C Paris Agreement goal. The SBTi encourages companies to set ambitious targets and strategies to reduce their Scope 1, 2 and 3 emissions and to finance mitigation efforts beyond their value chains because it will increase our chances of keeping 1.5°C within reach. They suggest two main reasons why a science-based target (SBT) alone may not be sufficient:

1. A significant amount of emissions occur beyond the reach of corporate supply chains.
2. While companies with an SBT represent a significant and growing share of the economy, the majority of companies do not have ambitious emission reductions targets.¹⁰

Carbon credits thus play an important role in helping companies compensate for their emissions along the pathway towards net zero.

18% of climate neutral claims are backed up by an SBT.¹¹

⁹ "About Us - Benchmarking For Voluntary Carbon Markets", ICVCM, 2022 <<https://icvcm.org/about-the-integrity-council>>

¹⁰ Beyond Value Chain Mitigation FAQ (2021) <<https://sciencebasedtargets.org/resources/files/Beyond-Value-Chain-Mitigation-FAQ.pdf>>

¹¹ South Pole, Claiming Climate Neutrality: The Top Four Priorities, 2022.

Getting corporate claims right

It's never been more important for businesses and brands to get their climate communications right. However, the landscape is evolving and knowing what can and can't be claimed can be confusing.

Complementary to the SBTi's Net Zero Standard, the Voluntary Carbon Markets Integrity initiative (VCMI) and the UK government have launched a Claims Code of Practice (CoP) on how companies should use carbon credits within their strategies and the claims that they can make. The CoP aims to bring integrity, transparency and accountability to corporate claims while accelerating near-term climate finance. It outlines criteria for the high-integrity use of carbon credits aligned with global pathways for 1.5°C and also includes guidance on ranking a claim as bronze, silver or gold.

In addition, a number of countries are beginning to regulate corporate claims. [France has already done so](#), Finland has recently announced an intent to regulate what companies claim with the UK, Netherlands and New Zealand likely following suit.

Reduction and compensation are critical to catalysing climate action, but you can't "offset and forget". South Pole has developed guidance based on best practice from the market to give organisations the confidence they need to to accelerate climate action using carbon credits without being accused of greenwashing.

[Download our full report: Claiming your business is climate neutral: the top four priorities](#)

A three-step process for the investing in climate action projects effectively



Step 1: Measure & set science-based reduction targets

Before using carbon credits, companies must have a net zero date no later than 2050 with reductions targets across scope 1,2,3 and interim targets at least every five years that are aligned with 1.5°C. They must also publicly disclose their footprint and progress every year. This is designed to demonstrate that carbon credits do not replace decarbonisation but go hand in hand.



Step 2: Purchase high-quality credits on the way to net zero

Use verified high-quality carbon credits to compensate for annual emissions as the company is transitioning to net zero. Once a net zero target is achieved, by 2050 or before, removals credits are used to neutralise remaining emissions.



Step 3: Report transparently on the use of carbon credits

Report annually on the use and types of projects purchased in a transparent, detailed manner and publish the results publicly online.

#4

Growing interest in and attention to how the VCM best supports a country's climate goals

After years of negotiation, last year at COP26, nearly 200 governments finally reached a consensus on making the Paris Agreement fully operational; while the new rules on Article 6 increase certainty about and confidence in carbon markets and will help countries achieve their climate goals, they also added a degree of complexity. As countries implement the rules, linkages between compliance and voluntary carbon markets continue to evolve, in particular around how voluntary action fits into national climate plans; we could see divergent approaches emerging in different countries in terms of how countries track, regulate or tax carbon projects.

This won't affect the credits which have already been issued but the rules must be ironed out for credits issued post-2021 so as not to slow ambition. As countries implement strategies and policies to achieve their National Determined Contributions (NDCs), some countries may require some carbon credits to be used by governments for compliance purposes and some activities may shift from being eligible under voluntary carbon markets to emerging domestic and international compliance markets. Together, this could affect the supply of carbon credits and push prices up.

“The VCM is designed to raise climate ambition by staying ahead of and beyond regulation. As government action evolves, so must the market to ensure companies are supporting ambitious climate action that could not otherwise happen. The VCM can continue to play an important role by driving innovation and delivering climate action beyond what governments can mandate.”



Naomi Swickard,
Head of Public Affairs, South Pole

Conclusion

“When every fraction of a degree counts, we need to use all the tools available to tackle climate breakdown. Supporting certified climate action projects can help sharpen the VCM to create maximum impact for communities, biodiversity and sustainable development. But companies must only purchase high-quality credits certified by leading standards alongside stringent reduction measures and then communicate their actions and progress transparently.”



Carlos Garcia-Borreguero
Practice Lead Climate Action Credits, South Pole

Meaningful and ambitious action isn't going to be built overnight and it requires deep expertise and understanding to keep up to date with the evolving landscape. In our next annual update, we will look more closely at the long-term price curve and trajectory of the carbon market.

In the meantime, our team is here to accompany you on your climate journey with bespoke workshops to interpret the trends we are seeing in the voluntary carbon market so you and your team can develop the expertise to turn climate ambition into concrete impact.



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Glossary

- **ABACUS**
ABACUS is a new label launched by Verra to demonstrate additional benefits in carbon removal projects validated and verified under the new Afforestation, Reforestation and Revegetation (ARR) methodology. At time of writing it is in the pre-consultation phase.
- **Additionality**
Additionality means that the effect of a project activities resulting in GHG emission reductions and/or removals that are above business-as-usual scenarios and would not have been possible without the revenue from the sale of carbon credits.
- **Carbon standards**
Carbon standards are the independent bodies designed to uphold the integrity of projects and principles of sound climate action by certifying and issuing carbon credits and overseeing public carbon credit registries. Credible standards clearly define the methodology for measuring emission reductions, terms for project additionality, project type, third party verification and validation, and the process for selling and retiring the credits. South Pole only sells carbon credits verified by ICROA-endorsed carbon standards to ensure that the project is real, verified, permanent and additional.
- **Carbon avoidance**
Carbon avoidance can be achieved through activities that result in fewer greenhouse gases from being released compared to the business-as-usual scenario, for example, forest protection projects.
- **Carbon removal**
Carbon removal can be achieved through activities that permanently remove greenhouse gases from the atmosphere. Carbon dioxide removal is considered to be nature-based, such as reforestation, or technical, like direct air capture; or it can be a mix, like biochar.
- **Climate Community and Biodiversity Standard (CCBS)**
CCBS, often referred to as a co-benefit label, is used to recognise proven additional community and biodiversity benefits achieved by land-management projects. CCBS has been managed by Verra since 2014.
- **Certification**
Certification is a written assurance provided by an independent body that the product, service or system in question meets specific requirements.
- **Core Carbon Principles (CCPs)**
The CCPs are 10 principles being developed by the ICVCM panel of experts with long-standing experience in the environmental and social integrity of carbon markets. Alongside the Assessment Framework (AF), the principles aim to set new threshold standards for high-quality carbon credits and how they can be applied. They will also define which carbon-crediting programs and methodology types are CCP-eligible. The Core Carbon Principles and Assessment Framework will be issued in Q4 2022, following a public consultation launching in July.
- **Compliance carbon markets**
Compliance carbon markets are those regulated by national, regional, or international laws that mandate companies and governments must reduce their emissions. Unlike voluntary carbon markets which only involve carbon credits, compliance carbon markets can involve both carbon credits or carbon pricing instruments.
- **The International Carbon Reduction and Offset Alliance (ICROA)**
ICROA is a non-profit membership organisation, established in 2008, with an aim to promote best practice across the voluntary carbon market, representing the interests of service providers in promoting emissions reductions and offsetting to the highest standards of environmental integrity and in support of the Paris Agreement
- **The Integrity Council: Voluntary Carbon Market (ICVCM)**
The ICVCM is an independent governance body for the voluntary carbon market who's core purpose is to ensure the voluntary carbon market accelerates a just transition to 1.5°C. The Integrity Council is developed the
- **Intergovernmental Panel on Climate Change (IPCC)**
The IPCC is an intergovernmental body of the United Nations, providing scientific assessments on climate change.
- **Indigenous Peoples and Local Communities (IPLCs)**
According to the IPBES, IPLCs are, typically, ethnic groups who are descended from and identify with the original inhabitants of a given region, in contrast to groups that have settled, occupied or colonised the area more recently.
- **Issuance**
Issuance of carbon credits means that the emissions reductions achieved by the project have been translated into carbon credits

and made available on a public registry. For this to happen, the accrediting carbon standards must have received and approved all necessary project documentation and it has been audited by an independent third party. Each carbon credit that is issued has a unique serial number, this ensures that each carbon credit can be traced and is only used once. It is important to note that carbon credits are issued only after the emission reduction has happened. A project can issue credits more than once and usually does so between 1-5 years, depending on the project.

- **Methodology**

Methodologies are a specific set of criteria and procedures, which apply to specific project activities, for identifying the project boundary, determining the baseline scenario, demonstrating additionality, quantifying net GHG emission reductions and/or removals and specifying the monitoring procedures

- **Monitoring, Reporting and Verification (MRV)**

Measurement, Reporting, and Verification (MRV) is the multi-step process designed to measure the exact amount of greenhouse gas (GHG) emissions reduced by an eligible mitigation activity so that these actions can be converted into carbon credits. MRV happens over a set period of time and the findings are reported to a carbon standard. Before issuing carbon credits, these findings must be approved by the crediting carbon standard and audited by an independent third party so that the results can be certified

- **Nature-based solutions (NbS)**

NbS include carbon avoidance projects such as REDD+ and ecosystem protection and carbon removal projects, like restoration, sustainable plantations or a mix of the both, like regenerative agricultural practices.

- **Registry**

Registries are publicly-available online systems that track the issuance, purchase, and ownership of each carbon credit; they are managed by the carbon standards. Registries assign a unique serial number to record the ownership of credits. When a carbon credit is “used” by a buyer for a compensation claim, the serial number for the carbon credit is “retired” or cancelled from the registry so that it cannot be resold. Registries reduce the risk of double counting.

- **Retirements**

Each carbon credit is assigned a serial number, which is listed on a publicly-available registry. When it is sold and the emission reduction claimed, the credit is then retired—in other words cancelled—from the registry so it cannot be used again. Each retirement has a unique number, providing transparency to the buyer and ensuring that each carbon credit can only be used once.

- **The Sustainable Development Goals (SDGs)**

The SDGs are 17 goals adopted by all United Nations Member States in 2015. They provide a blueprint for peace and prosperity for people and the planet, now and into the future and aim to reflect the interconnectedness of issues such as tackling climate change, alleviating global poverty and protecting the environment.

- **Sustainable Development Verified Impact Standard (SD Vista)**

SD Vista is aimed at certifying projects’ sustainable development impacts, it is developed and managed by Verra.

- **Voluntary Carbon Market (VCM)**

The VCM is the voluntary purchase of carbon credits by companies or individuals; it differs from compliance carbon markets, which are regulated by law.

- **Voluntary Carbon Markets Integrity Initiative (VCMi)**

The VCMi is a multi-stakeholder platform created to foster high-integrity on the voluntary carbon market through credible and net-zero aligned contributions

- **Science Based Targets Initiative (SBTi)**

The SBTi is a partnership between CDP, the United Nations Global Compact, World Resources Institute (WRI) and the World Wide Fund for Nature (WWF) that uses the latest climate science to outline to companies and financial institutions how much and how quickly they need to reduce their greenhouse gas (GHG) emissions in order to limit global warming to 1.5°C and prevent the worst effects of climate change.

Sources:

- Beyond Value Chain Mitigation FAQ (2021) <<https://sciencebasedtargets.org/resources/files/Beyond-Value-Chain-Mitigation-FAQ.pdf>>
- Felicia Jackson, "Carbonfuture To Scale Up Biochar With Digitised MRV", SG Voice, 2022 <<https://sgvoice.energyvoice.com/2022/08/26/southpole-carbonfuture-scale-biochar-digital-mrv/>>
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