



2022

Carbon Credit
Crunch Report



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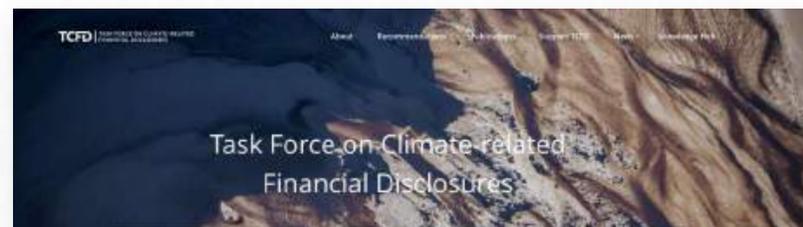
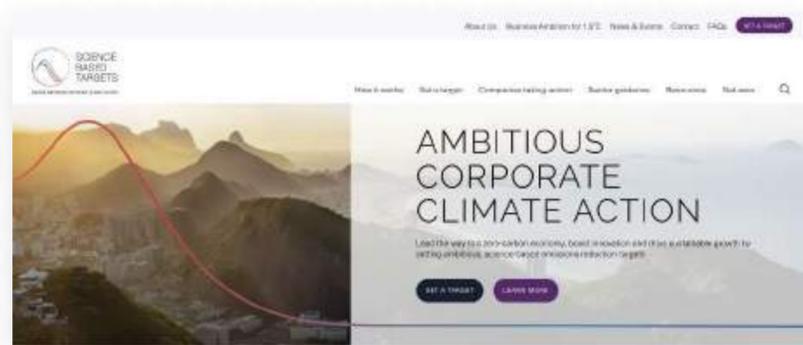
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Introduction



Sources: [the Science Based Targets Initiative \(SBTi\)](#) and [the Task Force on Climate-Related Financial Disclosures \(TCFD\)](#)

The first Sylvera Carbon Credit Crunch report

In June 2021 we published our first proprietary research report on voluntary carbon markets (VCMs).

In this report, we noted that there was a considerable uptick in the volume of credits issued and retired. In analyzing this data, we assumed that when a credit is issued and retired that a buyer is likely involved.

We pointed out that this demand was, in all likelihood, the result of long-term policy trends, such as the creation of the [Carbon Offsetting and Reduction Scheme for International Aviation \(CORSA\)](#), and macroeconomic trends, such as the growing focus on [climate-related financial risk](#) and [the importance of managing corporate emissions](#).

While demand can be switched on or off, supply is constrained by a number of factors.

This is why our data showed that while the inventory of issuable voluntary carbon credits had grown consistently each year since the creation of VCMs, starting in 2020, this trend had reversed, with inventory falling year on year.

We also noted that cheaper, energy-based voluntary carbon credits were being snapped up, forcing buyers to select from more expensive nature-based credits. This increases demand, and therefore prices, of nature-based credits.



Sources: [BloombergNEF](#) and [Financial Times](#)

We predicted that this market paradigm — of demand outpacing supply — would create significant upward price pressure and a scramble for quality, as astute investors and corporations looked to lock in high-quality credits ahead of further price increases.

Some conclusions we drew were that high prices of carbon credits would make decarbonization more expensive, complex and risky for organizations and incentivize them to decarbonize now, not later. We also stated that these high prices would drive meaningful climate outcomes and discourage land use activities that were harmful to the climate, such as logging, and encouraging ones that were better for the climate, such as forest protection.

Our first analysis proves to be correct

We have seen exactly this trend of increasing carbon credit prices play out during the second half of 2021.

The value for the 2021 voluntary carbon credit market breached \$1billion in November 2021. [Xpansiv CBL](#) reported that "Total carbon-offset volume transacted on Xpansiv exchange CBL exceeded 121.5M mtCO₂e (tons) in 2021, up 288% from 2020 levels."

Headlines from leading publications including [BloombergNEF](#), [Financial Times](#), [S&P Global](#) and [Ecosystem Marketplace](#) confirmed that our prediction of rapid market growth had come to pass.



Sources: [Harvard Business Review](#) and [the Wall Street Journal](#)

The second Sylvera Carbon Credit Crunch report

In response, we carried out our second proprietary research project on VCMs.

This research confirmed that 2021 indeed marked a major turning point for VCMs, with demand accelerating, and far outstripping supply.

State of VCMs in 2021 and beyond: Trends continue

Demand growth for carbon credits in 2021 was driven by the growing interest of the public, shareholders and investors in Environmental, Social and Governance (ESG) performance, and specifically the push for large companies to set net zero goals, which has brought new entrants with deep pockets to VCMs. Another unexpected source of demand in 2021 was the rise of the carbon crypto movement, which resulted in an additional 15 million credits being retired.

Total issuance and retirement in 2021 is around three times the total of 2020.

Given the wider adoption of ESG, and the success of COP26 in setting a framework for voluntary carbon trading, the bull market case for VCMs is looking increasingly robust, which we believe will be reflected in 2022 market activity.

In this second report, we outline our latest research into VCMs and share some possible interpretations of trends in 2022 and beyond.

Credit prices are increasing. Why?

Demand for credits has exploded

The number of credits issued and retired has exploded after a decade of incremental growth.

Usually, this means that it has found a primary market buyer such as a corporation, another organization, speculator or intermediary. Therefore the explosion in issued and retired credits represents buyer demand.

This demand is due to:

1. increasing stakeholder pressure on nations, organizations, corporations and asset managers to make binding net zero commitments: The number of large organizations making these commitments has been increasing rapidly. These commitments involve making deep emissions cuts, which for many companies in the short- to medium-term, about 5 to 10 or 15 years, includes the responsible use of carbon credits.
2. increasing speculative activity: meaning that market participants have been buying credits with the intention to sell them for more in the future.
3. bridging credits onto blockchains: in 2021, this created the so-called "crypto carbon" space.

Issuance and retirement rates continue to accelerate

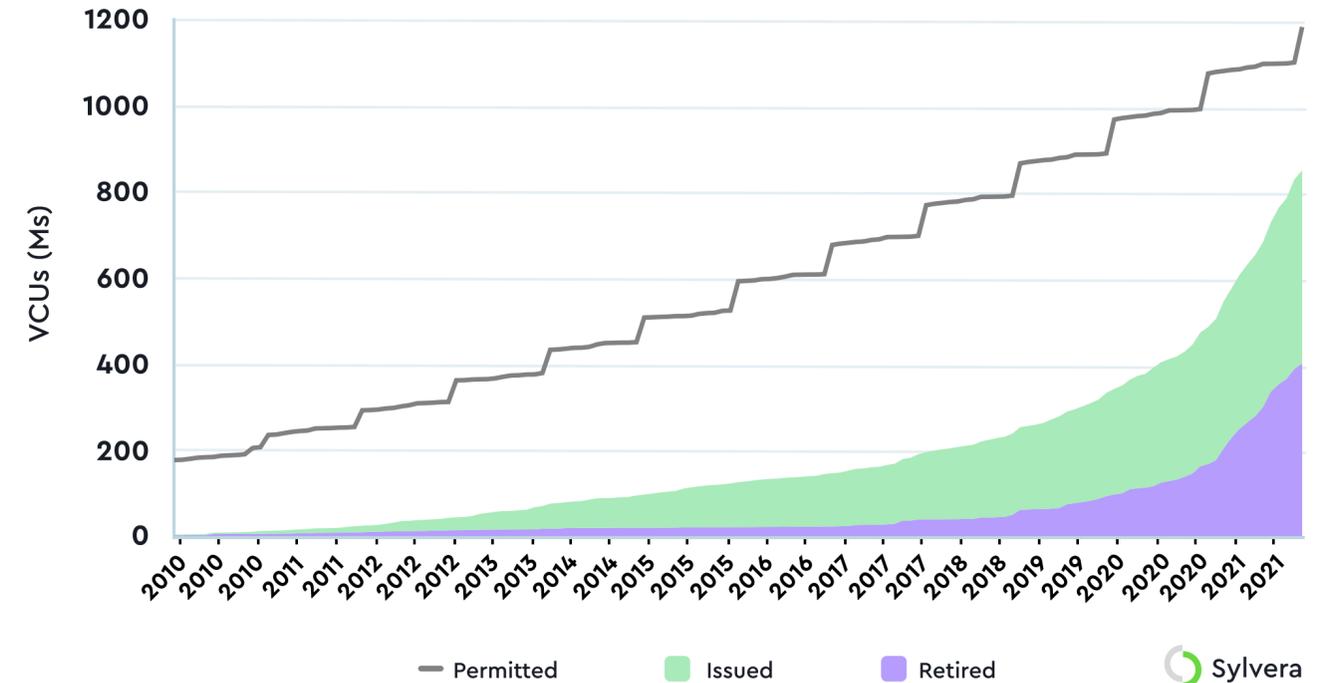


Figure 1

Credit prices are increasing. Why?

Inventory of credits is rapidly diminishing

Between January and December 2021, inventory of voluntary carbon credits fell by around 50%.

This is likely the result of:

1. the explosion in demand discussed previously
2. constrained supply that cannot respond elastically to rising prices.

Carbon credits from new projects take anywhere from a minimum of one year, an average of two to three years and a maximum of five years to come to market.

This lag is due to:

1. the complexity and time required to develop a new project and issue credits to the market, limited sources of project finance capital
2. the talent, skills and relationships required to develop high-caliber projects.

Inventory of issuable credits more than halved in 2021

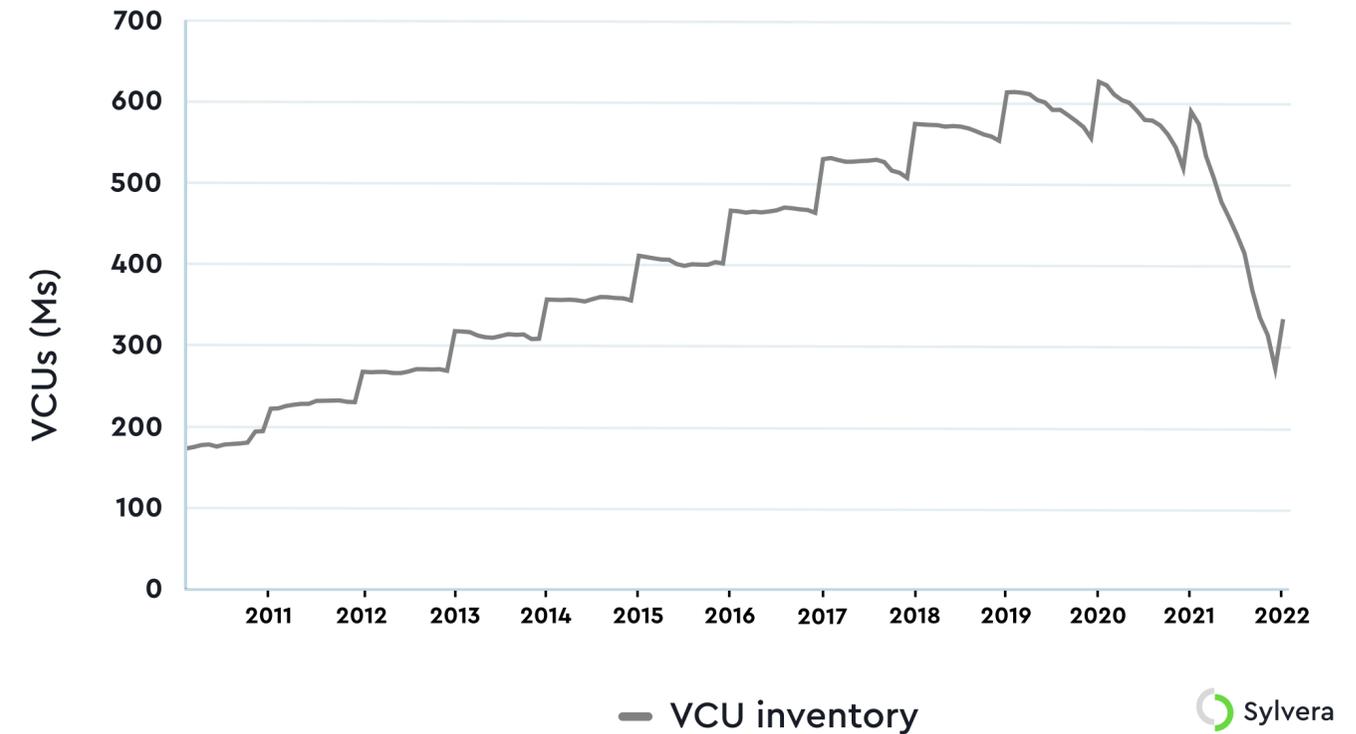


Figure 2

Credit prices are increasing. Why?

Inventory of credits is rapidly diminishing

On current trends, the available inventory of credits risks being exhausted within the next several years.

While speculators crystallizing gains may alleviate some supply pressure, developers will likely struggle to match the explosive demand.

The inelastic supply of carbon credits forces buyers to compete for existing inventory.

This has encouraged large emitters to move upstream into project sponsor or developer roles to enhance the security of their own long-term carbon credit supply.

Year-on-Year Change in Available Inventory

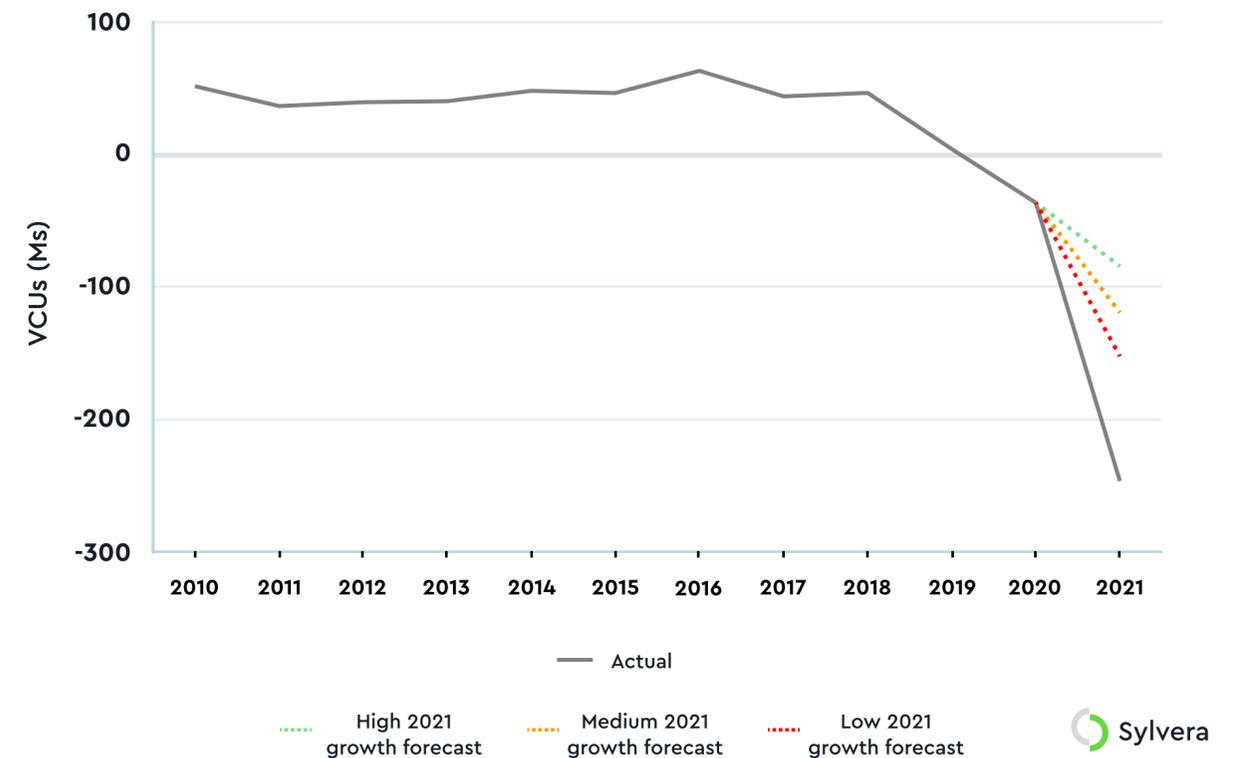


Figure 3

Credit prices are increasing. Why?

More expensive nature-based credits will soon be all that is left

Our research shows that the inventory of energy-based credits, historically the cheapest carbon credits on the market, is being eroded at pace.

As a result, buyers must increasingly rely on credits from agriculture, forestry, and other land use (AFOLU) projects.

These AFOLU assets typically trade between 2 and 4 times the price of energy credits.

In other words, buyers are forced to compete for more expensive, nature-based credits.

Nature-based credits will soon be the only game in town

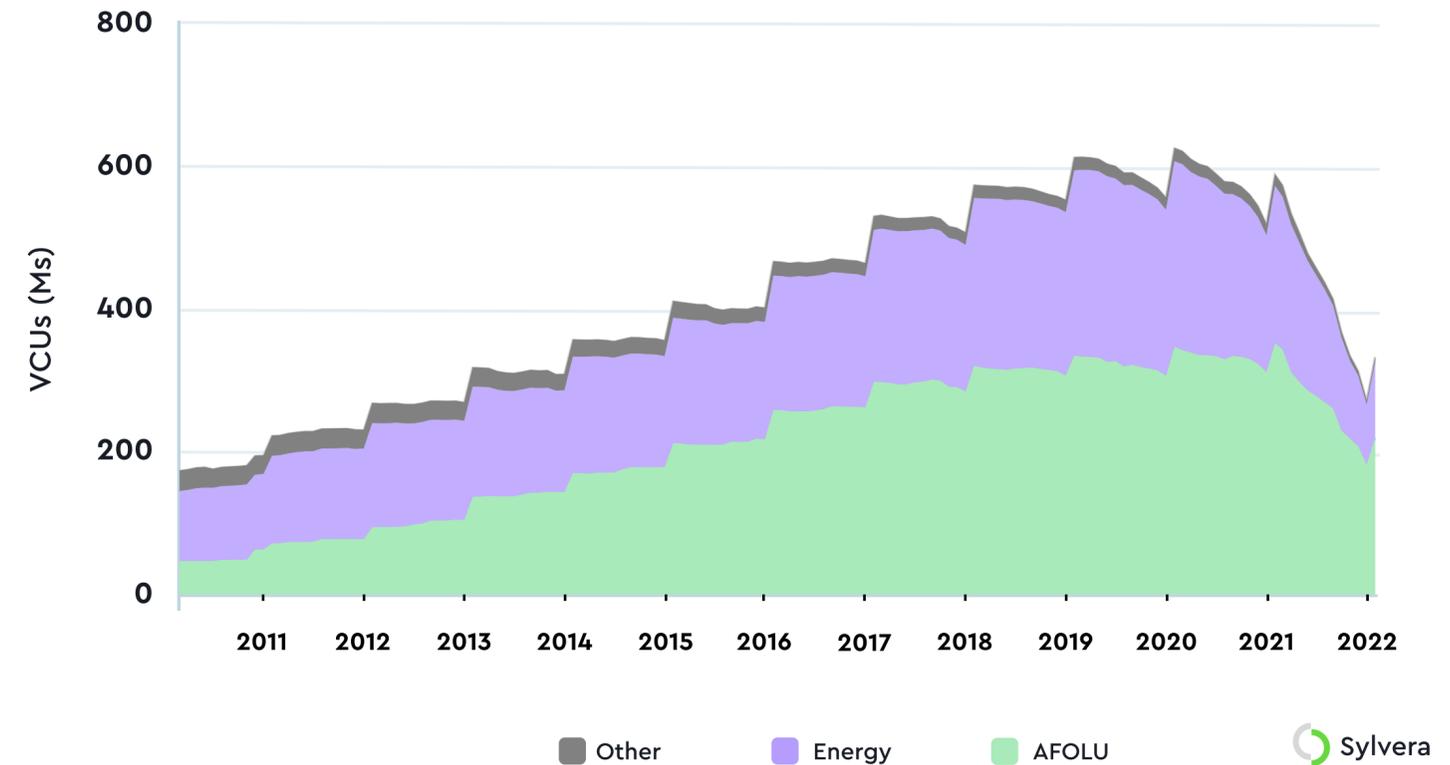


Figure 4



Credit prices are increasing. Why?

This results in VCMs experiencing significant price pressure

As a result of the exploding demand for credits, the rapidly diminishing inventory of credits and buyers being forced to compete for more expensive nature-based credits, VCMs are experiencing significant price pressure.

Xpansiv CBL noted that "carbon credit transactions topped \$550M in 2021 as more than 121.5 mtCO₂e (tons) were exchanged. 2021 volume was 288% above 2020 levels, and the dollar value exceeded 2020's total by 23 times."

In the short- and medium-term, about one to five years, demand is set to increase, with supply lagging behind, resulting in continued upward price pressure for this time frame.

What is the impact of high credit prices?

Achieving climate commitments becomes more expensive, complex and risky

Due to shareholder, employee and customer pressure, more and more organizations are making net zero commitments.

However, organizations have based their net zero pathways on outdated carbon prices.

Recent and future increases in the price of carbon risk derailing existing decarbonization plans of organizations, and will present significant costs to those who fail to prepare for the new paradigm.

Government Policy And Regulation

Carbon Might Be Your Company's Biggest Financial Liability

by Robert G. Eccles and John Mulliken

October 07, 2021



Yaroslav Danylchenko/Stocksy

What is the impact of high credit prices?

Incentivizes organizations to reduce now, not later, driving meaningful climate outcomes

Carbon markets, both compliance and voluntary, have been designed to drive positive environmental outcomes by attaching a cost to emitting greenhouse gases.

When the cost of offsetting emissions increases significantly, it is rational for organizations to seek ways to reduce greenhouse gas emissions across their business.

Consequently, each increase in the price of carbon puts sustainability closer to these organizations' core strategic decision-making.

Might increase credit quantity, quality and project innovation

Higher credit prices are likely to encourage developers to set up more projects, eventually increasing the quantity of credits in the market. It might also encourage more organizations and individuals to pursue carbon project development and sponsorship.

As credit prices increase, this might also incentivize developers to set up higher quality projects. This is because, as credit prices rise, scrutiny from multiple internal and external stakeholders on what is being bought will also likely increase. This will accelerate the momentum to identify and acquire higher-quality credits.

These higher credit prices will also, in all likelihood, facilitate innovation. Projects previously dismissed as too costly could now be supported, thus unlocking new project types. This could create an environment of significant financial reward for discoveries of new carbon sequestration methods and technologies.

What is the impact of high credit prices?

Good for nature

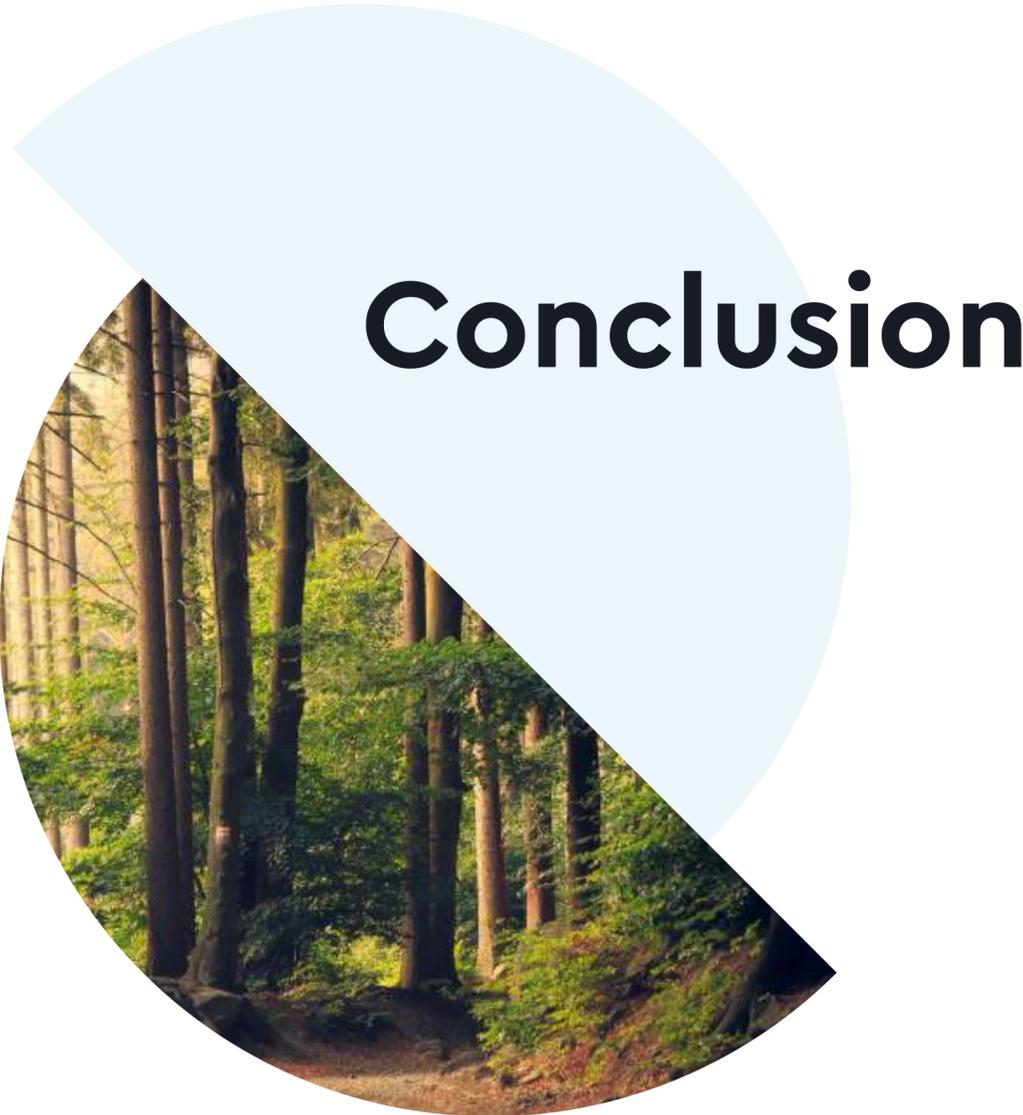
The benefits of higher credits prices on the quality and quantity of new projects should apply to all project types. However, as Figure 4 (on page 7) shows, in the past couple of years, buyers must increasingly rely on nature-based credits that are traditionally higher in price than energy credits. This is logically beneficial for nature-based projects.

In other words, as credit prices climb, conserving and maintaining forests becomes the rational course of action.

Higher prices make more ambitious, larger and higher quality projects possible and make a wider range of activities to protect forests become financially viable. Note that we define quality as the extent to which the carbon claims of a crediting project are justified by the reality on the ground.

While there will always be a wide range in project quality, even among the projects listed on a reputable registry such as Verra, over time higher prices should result in a higher average quality.

While these market dynamics are broadly a good thing for the protection of forests, given the time required to establish new crediting programs, we are unlikely to see these new, high-quality credits hit the market before mid-2023.



Conclusion

The same long-term macroeconomic and policy trends that reached a tipping point in 2021 are likely to continue throughout 2022.

Therefore, we expect to see prices rise in 2022, and the resulting impacts, such as increased focus on carbon liability, decarbonization and nature-based solutions continue.

Key events to look out for in 2022 that might influence these trends include:

- the US Securities and Exchange Commission (SEC) releasing climate disclosure rules in the first half of the year
- the Task Force on Nature-related Financial Disclosures possibly releasing its "beta version" nature-related financial reporting framework between March and April
- the Voluntary Carbon Markets Integrity Initiative (VCMI) releasing Claims Guidance and Access Strategies in April
- the UN Biodiversity Conference (COP15) being held between 25 April to 8 May 2022, though it has been delayed several times due to COVID-19.
- the UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA) meeting in Bonn between 6 and 16 June, to discuss the implementation rules for the Article 6 carbon market mechanisms.
- Climate Week NYC, taking place in New York City, United States, following the United Nations General Assembly in September.
- the 27th Climate Change Conference of the Parties (COP27) being held in Sharm El-Sheikh, Egypt, from 7 to 18 November.

Notes on the data

Verra's VCS registry data as a proxy for VCMs

The trends identified in this report do not take VCMs in their entirety into account. To complete this report, we only analyzed registry data by the verification body, Verra, namely its Verified Carbon Standard (VCS) registry data, which constitutes approximately 60% of all voluntary carbon credits issued. This effectively means that we treated Verra's VCS registry data as a proxy for VCMs.

Throughout this report, when we use the term VCMs we are referring to Verra's VCS registry data and extrapolating to the wider VCMs.

By extension, when we use the term "credit" we are referring to Verified Carbon Units (VCUs) as registered on Verra's VCS registry and extrapolating to other voluntary carbon credits.

Verra VCS registry permittance events

Although Verra publicly provides detailed transaction information, there are some required data points that are not included. Specifically, recent permittance data is not visible on the registry.

Therefore, to complete this analysis, we needed to make a few assumptions, such as assuming that permittance volumes increased in line with historical rates. Please note that permittance events are only revealed when new vintages of credits trade.

With Verra's VCS registry data, the public releases of these permittance events usually occur in Q1, leading to the step line formations in Figures 1, 2 and 3 (on pages 4, 5 and 6) the small spike at the beginning of 2022 in Figure 1 (on page 4). Hence, the exact values and shape of the figures in the analysis will change slightly depending on the date that the research is conducted.

A note on issuance and retirements

Please note that issued credits are constantly being converted into retired credits.

This means that in the future, some issuance events will be retirements.

- **Afforestation:** The [Intergovernmental Panel on Climate Change \(IPCC\)](#) defines afforestation as the “[p]lanting of new forests on lands that historically have not contained forests.”
- **Agriculture, forestry, and other land use (AFOLU) carbon credits or nature carbon credits:** These carbon credits relate to projects that improve the use of land to reduce emissions, according to the [IPCC](#) as “an enhancement of removals of greenhouse gases (GHG), as well as reduction of emissions through management of land and livestock”.
- **Carbon project developer or developer:** The organization that develops a carbon project and submits documentation to a verification body such as [Verra](#) so that it, the carbon developer, can issue verified carbon credits.
- **Carbon project sponsor:** A party that sponsors a carbon project to be developed.
- **Carbon sequestration:** This is when carbon is taken out of the atmosphere and [trapped in biological or geological stores](#). This might include a tree taking in carbon dioxide (CO₂) and carbon becoming part of its biomass. Other forms of life, including people, also store carbon in their biomass. Over time, when they die, what remains of their bodies, shells and bones, become covered in sediment and are stored in the rock formations of the Earth.
- **Energy credits:** These credits are also known as [Renewable Energy Credits \(RECs\)](#) and represent “one megawatt-hour (MWh) of electricity generated from a renewable energy resource”.
- **Inventory:** The remaining number of permitted credits that have not been issued or retired. Arithmetically: inventory = permitted – issued – retired.
- **Issued and issuance:** After [Verra](#) permits a potential number of credits to be issued, the developer can request for credits to actually be issued. It can be assumed that when credits are requested to be issued and are issued that the project developer has a direct buyer for them, in other words, the credits are being sold on the primary market. Issued credits are constantly being converted into retired credits.
- **mtCO₂e (tons):** This refers to carbon dioxide equivalent measured in metric tons. CO₂e means that the amount of greenhouse gas under consideration has the same global warming potential as one metric ton of carbon dioxide. For example, according to the [United Nations Environmental Protection Agency \(EPA\)](#), one metric ton of methane has a CO₂e of 25 metric tons.
- **Net zero:** According to the IPCC “net zero carbon dioxide (CO₂) emissions are achieved when anthropogenic [man-made] CO₂ emissions are balanced globally by anthropogenic CO₂ removals over a specified period”. Reaching a consensus about what net zero means in practice for nations, corporations and other organizations is an ongoing challenge. One solution that has been put forward for corporations is the Science Based Targets Initiative (SBTi) Corporate Net-Zero Standard.

- **Other credits:** These are credits that don't fall neatly into the AFOLU or energy credit categories.
- **Permitted, permittance and permittance events:** When Verra verifies a project, they permit the project to issue a potential number of credits. This is referred to as permittance. A verification body such as Verra can also update the number of credits a project can issue. The time at which this is done can be referred to as a "permittance event." It is important to note that Verra permittance event information only becomes publicly available once new vintages of carbon credits trade. This is revealed at the beginning of every year, which leads to the step line formations in Figures 1, 2 and 3 (on pages 4, 5 and 6).
- **Registry:** Once a carbon project is verified by an organization such as Verra, it is added to the organization's registry of verified carbon projects.
- **Retired:** This means that when a buyer purchases a carbon credit a note is made in the registry of an organization such as Verra that it has been taken off the market. It cannot be bought or traded again. The benefit here is that only the buyer will be able to claim the emissions reduction.
- **Verified Carbon Standard (VCS):** A Verra program that certifies voluntary carbon credit projects thus allowing these projects to trade verified carbon units (VCUs). The VCS is the largest supply of voluntary carbon credits.
- **Verified Carbon Units (VCUs) Ms:** This is the name of a verified carbon credit registered by Verra through their VCS program. It "represents a reduction or removal of one [metric ton] of carbon dioxide equivalent (CO₂e) achieved by a project." Ms refers to Millions.
- **Verra:** An organization that has verified and issued the largest number of voluntary carbon credits to date.
- **Vintage:** Carbon credits from the same carbon project can be issued at different times. The date a carbon credit is issued can be referred to as its "vintage". Different vintages of carbon credits may be perceived as having differing levels of quality by the market.
- **Voluntary carbon markets (VCMs):** International markets where organizations have the option to trade carbon credits that are verified by certification bodies such as Verra, but there is currently no centralized regulation system. These are contrasted with compliance or mandatory carbon markets, which are established and regulated by a centralized authority, such as a government. It might be mandatory for some organizations to buy compliance market credits to meet their legally binding emissions targets.



About Sylvera

Sylvera's mission is to be a source of truth for carbon markets. We help corporate sustainability leaders, carbon traders and policymakers confidently evaluate and invest in the best carbon credits by providing comprehensive and accessible insights on carbon projects. We partner with leading researchers at UCLA, NASA's Jet Propulsion Lab and University College London and we are backed by renowned investors like Index Ventures, Insight Partners, LocalGlobe and Salesforce Ventures.

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