

ARBOR DAY CARBON

2023 Insights Summary

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Overview

In the face of escalating climate change, the importance of voluntary carbon markets in advancing sustainable practices has never been more critical. Unlike any other system, the carbon market uniquely places a tangible value on nature, recognizing the Earth's resources as finite rather than boundless. Historically, society's pursuit of economic growth has led to the extensive exploitation of our resources. Businesses and individuals alike have left indelible marks on the planet through pollution and the extraction of natural resources. Now, the Earth's capacity to sustain us and operate as a viable entity is increasingly under threat.

The voluntary carbon market has emerged as a solution to this issue, assigning both a cost to businesses for extracting value from the planet and valuing nature for the services it provides to humanity. The good news is that it's not too late for businesses and humanity to get back on track – if we acknowledge the limits of Earth's systems and learn to thrive within these boundaries. All the natural and engineered technologies to solve systemic issues are at our

fingertips. It's on us to find the right balance for present and future generations.

The voluntary carbon market is still relatively new, rapidly evolving and maturing. Market players are navigating through successes and failures, often in the public eye, learning and adapting at an unprecedented pace. Over the past year, a pressing need to foster trust in the market has come to the forefront. Trust is the bedrock upon which the voluntary carbon market must build its future. It's essential for driving expansion in this market and, by extension, infusing the planet with critical resources.

The Arbor Day Foundation has spent more than 50 years building trust and credibility as the world's largest tree planting nonprofit. We work closely with our extensive network of planting partners to unlock the power of nature-based climate solutions in communities around the globe. We are guided by a dedication to planting the right trees in the right place, at the right time, and for the right purpose. Hundreds of corporations have joined us on this journey, eager

to achieve their environmental and sustainability goals through trees, including large-scale afforestation/reforestation and agroforestry carbon credit projects.

As detailed in the following report, the Arbor Day Foundation rigorously vets our carbon project developers and matches corporations with high-quality products. We are thorough with our science and devoted to prioritizing enriching community impacts. Our process embraces transparency, accountability, honest communication, and third-party verification. This report provides a comprehensive analysis of both our approach to and perceptions of supply, demand, and key market observations within the voluntary carbon market. It underscores the urgent need for corporations to take climate action right now in order to further the market's capacity for a positive impact on the climate, as well as clearly identifying what that impact looks like.

We believe these insights highlight the importance of forestry and the responsible growth of the voluntary carbon market.

Learnings: Supply

Barriers to Creating More Supply

Right now, the voluntary carbon market is facing a ‘bear market’ with reduced demand and not enough high-quality supply. One contributing factor is buyers’ renewed interest in purchasing both nature-based and technology-based removal carbon credits instead of reduction or avoidance credits. Afforestation/reforestation and agroforestry removal projects in the voluntary carbon market will undoubtedly struggle to advance and scale if buyers don’t ramp up direct investment or advanced market commitments in planting and growing new forests. However, buyers represent just one-half of the equation.

Project developers play a key role in the market’s ability to generate more supply. Project developers are responsible for taking the project from the conceptual to the physical. In the design process, they identify the methodology to be used, the estimated amount of carbon to be sequestered, set timelines for the project’s implementation, and how they plan to monitor it over time. Project developers often engage and establish relationships with landowners if the project requires land to be converted into forestland. Additionally, project developers collaborate with standards and verification

entities to validate the impact and quality of their project’s carbon credits. The process requires both time and significant upfront capital, not only for planning but also for planting and caring for trees that grow large enough to sequester carbon.

But without the allure of lucrative – and quick – returns to attract potential investors, project developers are left to raise their own capital to cover the substantial costs of implementation. It’s no easy task. This struggle to secure necessary funding slows down the ability to increase quality supply in the voluntary carbon market and obstructs environmental and social progress.

The Arbor Day Foundation has recognized this critical gap in the market and is stepping in to help bridge the divide. As the world’s largest tree planting nonprofit, we are uniquely positioned to provide literal seed money to project developers. This capital is primarily intended to cover the initial costs associated with planting new trees, which is often the most significant barrier project developers face. We utilize blended finance options, mostly tree planting grants and balance sheet working capital for buying and selling carbon credits, to maximize the efficacy of our efforts.

Our contribution also goes beyond the financial. As the project progresses and trees begin to mature, the Arbor Day Foundation leverages its worldwide network to engage potential buyers who might be interested in purchasing the soon-to-be-available carbon credits associated with the project. We then facilitate a connection with the buyer and the project developer.

We believe this process is filling a critical need in the market, but a shift in the mindset among buyers is still needed. Forestry is not a mechanism for instant gratification. There’s a potentially years-long gap from the initial feasibility investment and tree planting to when the new forest can be deemed a tool for carbon removal and creating profitable revenue. The whole process takes time and requires patience and persistence. In our conversations with potential buyers, some have pointed to examples of bad actors in the marketplace taking funds and then failing to deliver on promises as an explanation for their hesitation. While it is true those examples exist, many more examples show the process working efficiently and as intended. There are some risks with carbon credit projects. But if buyers and project developers lead with aligned values and quality-oriented priorities right from the

beginning, it can strengthen the project against those risks and increase confidence among everyone involved.

Practicing Due Diligence

Over its more than 50 years, the Arbor Day Foundation has carefully cultivated an extensive network of tree planting organizations, project developers, corporate partners, managing foresters, and investors. Meaningful and complementary partnerships are instrumental to our success, which is why we set the bar high when developing relationships across all areas of our business.

In the carbon space, our partnership process begins with a thorough vetting of a project developer. We conduct our own research on their history and require them to answer tough questions about their operations, methodologies, and any ongoing work. Like an extended job interview, the process allows us to identify red flags early, seek additional detail on seemingly murky claims, and weed out bad actors. Typically for project developers, the more credits they issue, the more money they make. We want to ensure they aren't cutting corners in their work simply to reach the finish line faster.

There can also be a conflict of interest if project developers are creating the methodologies for their projects or handpicking their verifier. Again, the Arbor Day Foundation's due diligence process acknowledges these potential issues and investigates them. In this initial phase, we're also focused on determining if the project developer's goals align with our own and if the proposed project fits demand criteria. Only project developers of the highest quality advance through this extensive screening process.

Once we have vetted the developer, we examine the project itself just as carefully – with a robust checklist that accounts for project design and potential harms and benefits. Carbon accounting needs to be rigorous. Monitoring, reporting, and verification (MRV) needs to be consistent with better use of remote sensing technology that works with people for ground truthing, especially when new trees are young. Standards bodies need to evolve to proven digital MRV technologies for verification and issuance. This can help reduce the bottlenecks with limited technical staff capacity and third-party verifiers.

Developers are also required to identify all ecological, economic, and social risks associated

with a project, and we work with them to shape a mitigation plan to avoid or minimize potential harm. The Arbor Day Foundation helps realize those plans by enlisting the help of implementation partners with boots on the ground in the region of the project. Through every stage, project developers ensure the project maintains a high level of quality. Those organizations also connect with landowners, communities, and Indigenous peoples who might be impacted by the project and collaborate with them on how to create shared benefits.

When we plant trees, carbon removal is only part of the goal.

Avoiding Carbon Tunnel Vision

The low supply of afforestation/reforestation credits in the forestry carbon market can also be linked to the increased attention on other forms of carbon removal technology like direct air capture and enhanced mineralization. The conversation around these engineered climate solutions has positioned them as opponents to nature-based solutions, like forestry. But really, we believe we shouldn't approach these tools that fight climate change as 'either-or' options. Instead, we should work to embrace 'and.' We need engineered solutions, and we need trees.

We need every tool we have at our disposal to address climate change. Trees are important because the fight against climate change isn't simply about removing carbon from the atmosphere. It's also about addressing the issues that carbon in the atmosphere causes. If we lock in on this 'carbon tunnel vision,' we ignore the needs of communities, deprive ecosystems of biodiversity, and lose other services that trees and forests provide like soil erosion prevention and microclimate stabilization.

Forests and other nature-based solutions are a holistic approach to carbon removal. When we invest in trees, we are removing carbon from the air. We are also improving water quality, supporting livelihoods, protecting wildlife, fostering biodiversity, improving mental and physical health, and changing lives. Trees are a tool we have right now to activate with affordable speed and scale in ecosystems around the world. While scientists refine emerging carbon removal technologies and determine how to scale them, we can continue taking steps forward by leveraging the benefits of nature now.

Trees and the forest carbon market are not the whole solution to mitigate climate change, but

they are undoubtedly an indispensable piece of the puzzle.

The Future

Planting new forests can be a win-win for the voluntary carbon market, allowing investors and corporations to support nature and achieve climate goals with one proven solution. This is a mechanism for us to restore these ecosystems that hold so much of our world's natural resources. Through the revenue these projects generate and the benefits they can yield for landowners and caretakers, they can also empower people and communities to thrive.

Nature doesn't exist in a vacuum. Trees are part of a living ecosystem that's intertwined with the lives of people and wildlife. Investment in nature-based solutions has a ripple effect, carrying out benefits for the climate, communities, and biodiversity. That's why overcoming the initial financial barrier that exists in implementing the creation of new forests is so critical. As the voluntary carbon market moves forward, we hope more companies will take that important first step of investing in growth at the beginning.



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Learnings: Demand

Thinking Long-Term

At the Arbor Day Foundation, as of November 2023, we've observed a certain amount of hesitation among buyers. We believe there's a variety of possible contributing factors including emerging regulations, key staff turnover at companies, and ambiguity for corporations about what will be considered allowable claims by initiatives like the Science Based Targets initiative. Heightened media scrutiny has also undoubtedly played a role, with bad actors being publicly identified and fraudulent projects exposed. The criticism has generally been a motivator for needed market evolution, but some broad generalizations have unfairly cast a shadow over the efficacy of this work overall. More than anything, it's perpetuated a lack of trust in the voluntary carbon market, which has greatly affected demand. To truly affect long-lasting change, where benefits are not immediately realized but gradually accrued over time, buyers need to be able to trust in their partners and a long-term process.

In this sense, afforestation/reforestation and agroforestry are akin to infrastructure projects like the construction of bridges, roads, and power plants. These projects require significant upfront investment and are labor-intensive, like

the effort and resources required for planting and growing trees. The payback period can be lengthy as the trees steadily grow and begin to sequester carbon, similar to the long-term returns generated by infrastructure projects. The challenge lies in forgoing the inclination to maximize short-term returns and incentivizing long-term thinking.

Companies need to act now to achieve the long-term results needed to reach climate goals for 2030, 2040, or even 2050.

Of course, this is not entirely simple. Companies know that investment in afforestation/reforestation projects and the long-term perspective can include some risk. For those willing to engage, services have emerged that are designed specifically to protect a buyer's risk. Insurance offerings for afforestation/reforestation projects are typically available in two forms:

- Delivery risk insurance ensures a buyer is either financially compensated or awarded replacement carbon credits if a project developer fails to deliver the agreed-upon credits.
- Invalidity risk insurance protects the buyer if a carbon credit is canceled because

of natural reversal, like wildfire, floods, or drought. It can also protect the buyer from human reversal risks such as illegal logging, poor forestry management, or fraud on behalf of the project developer.

Insurance companies like Kita and Oka can help corporations limit their liability and secure significant portions of their investment. Carbon insurance companies typically have a standard of requirements that projects must align with in order to qualify for insurance.

Aligning Investment with Supply Chain Interests

Some companies are identifying 'net zero' as their long-term goal. While the achievement of net-zero goals remains a pivotal component in the fight against climate change, incorporating a nature-positive view is believed to generate more holistic solutions for the world's environmental and social challenges. That really begins with private sector leaders realizing their companies rest on the bedrock of nature, and they cannot exist in isolation from it. Recognizing their broad-based dependence on the ecosystem could make them think more deeply about the potential risks they face if the ecosystem is compromised. It could also lead them to evaluate the impacts their operations are having on the

ecosystem, understanding that their existence is fundamentally linked to its preservation.

This broader perspective would encourage corporations to go beyond just setting net-zero targets. It would prompt them to consider how they can contribute to the health and resilience of the ecosystems they depend on, not just for their own survival but also for the wider prosperity of the planet and humanity. This understanding could foster a culture where companies view themselves not only as entities operating within markets but as integral parts of ensuring the ecosystem's – and the company's – well-being.

We have already begun to observe shifts in the buying behaviors of corporations that demonstrate an effort to address supply chain considerations while maintaining a commitment to sustainability objectives. For example, leaders from a rubber company are becoming interested in purchasing carbon credits from rubber trees. Or a coffee company is interested in carbon credits from forests in the region where their product is sourced.

At the Arbor Day Foundation, we are enhancing our ability to respond to specific geographical

and product-related preferences. This year, the Foundation developed an in-house geographic information system (GIS) team to regularly organize and analyze data. That information helps us more easily identify overlaps and gaps in planting partner territories and provides a holistic view of our carbon credit projects. We believe the tool will help us strengthen our service and meet the needs of our corporate partners hoping to intertwine their supply chain with their sustainability commitments.

Equitable Benefits

As the voluntary carbon market continues to advance, we hope to establish an investment model where nature is viewed as a valuable asset, warranting our protection and capable of providing substantial financial, social, and ecological returns. This shift in focus could foster more inclusive participation in environmental conservation efforts, harmonizing the relationship between economic development and ecological preservation.

In recent years we've been encouraged by how, in the right projects, benefits are shared equitably and fairly in this market. This is particularly noticeable in scenarios involving agricultural practices. If economic incentives or subsidies

compel individuals in rural regions – either locally or internationally – to cut down existing forests with agricultural goods, they are likely to succumb to these incentives despite understanding the potential negative implications to the ecosystem. It highlights the need to redesign such approaches and assign value to the protection and restoration of ecosystems in conjunction with regenerative agriculture.

This shift in perspective is vital, especially in the context of marginalized rural communities. Here inhabitants often feel devalued and migrate or move to urban areas in search of better opportunities, especially after their land has been degraded. Then those who remain are often impoverished and turn to work that further degrades the land rather than enhances its value. That trend leaves rural landscapes, which are essential to everyone, without caretakers and opportunity.

We hope to see more value being placed on conservation and regenerative practices in rural areas, leading to change that brings about more equitable progress in the future.

Market Observations

Prevalence of Rating Agencies

Historically, some buyers have struggled to navigate the unfamiliar terrain of the voluntary carbon market and differentiate high-quality projects from low-quality projects. In some cases, corporations have funded seemingly first-rate carbon credit projects only to later discover the projects were fraudulent or actually caused harm to the environment and communities. The occurrences have reaffirmed a need for transparency in project details and additional evaluation. In 2023, we saw more carbon credit rating agencies emerge to help satisfy this demand. These agencies independently assess carbon credit projects and score them based on their likelihood of successfully sequestering carbon and creating legitimate climate, environmental, and social impact. Raters also consider a project's compliance with specific industry standards, its impact on local communities, and its reporting and documentation.

Typically, scores are based on a letter-grade scale of AAA to D, though some organizations use alternate signifiers. They can evaluate afforestation/reforestation and agroforestry projects as well as REDD+ and IFM projects. Much of the supply in the market originates

from already established forests through REDD+ or IFM projects. These projects have faced scrutiny due to the lack of precision in baselines and the resulting over-issuances of carbon credit volumes, lack of transparency in financial benefit sharing with landholders, and lack of human rights safeguards. Rating agencies have played a pivotal role in highlighting these issues and pushing for improvement in the accuracy of all project types.

The prevalence of rating agencies and their appraisals is critical in standardizing what is considered 'high quality' within the market and creating a unified comprehension of integrity among all stakeholders. It empowers potential buyers with valuable information that helps them make informed decisions about their investments. And it helps project developers have a common understanding of what qualifies as a high standard and how to meet it.

A high rating from one of these independent authorities distinguishes a project from the rest of the marketplace and signals to investors they can trust the project will be environmentally effective. These agencies contribute to building and maintaining confidence in the voluntary carbon market, which in turn encourages more investment

in projects that genuinely contribute to emissions reduction and sustainable development.

Of course, there are some challenges. Rating agencies primarily utilize publicly available data and engage with project developers at varying degrees. Some rating agencies accept payment to accelerate deeper assessments which can call into question the integrity of the agency. In the future, we'd like to see rating agencies collaborate more closely with project developers and standards bodies to fill gaps in their knowledge of a project. The information could help give context to why certain decisions were made and sharpen the accuracy of their assessment, especially for legacy projects, leading to more higher-quality projects over time. Overall, rating agencies will likely continue to take on power in this space as they work to instill trust.

Hopefully, these systems will incentivize project developers to elevate the environmental and social standards of their projects. We see the presence of these agencies as a market-wide move toward the high standard of quality we've spent years honing and constantly improving at the Arbor Day Foundation. In fact, the Foundation has already established

relationships with rating agencies to inform our own project selection process. We are in the business of crafting high-quality, high-impact work. Rating agencies help raise the bar for the entire industry and play a key role in fostering lasting trust.

Greenhushing

Another notable trend we observed in the last year is that more corporations are deciding not to publicize their involvement in carbon crediting projects and other forms of climate action. Now known as ‘greenhushing,’ companies are keeping silent to avoid potential public criticism for their sustainability efforts or being perceived as ‘greenwashing.’

As the discussion over climate change and corporate sustainability becomes increasingly political, it’s easy to understand why corporate leaders would shy away from speaking out about their own initiatives. The choice is seemingly harmless. After all, private sector leaders are still doing the work and making investments. They’re just not talking about it.

Although greenhushing can be well-intentioned, it can also yield consequences that are detrimental to the market as a whole. If the

public can’t see the action a company is taking, neither can other corporate leaders who may be new to sustainability. Climate Impact Partners released a report that estimates 66% of all Global Fortune 500 companies have significant climate goals. Frankly, it’s simply not enough.

We can’t afford to have corporations sitting on the sidelines of sustainability in this urgent fight against climate change, but newcomers are less likely to take their first leap if they’ve never seen it done or feel like they must be perfect. We hope the criticism of the market leads to higher standards and more precise science, but we are concerned that we might be critiquing ourselves into inaction. Perfection does not exist anywhere, but meaningful progress is happening. Those corporate leaders are less likely to benefit from the experience of a corporate peer and engage in the knowledge-sharing needed to continue improving the market.

There are things that certainly need to improve within the voluntary carbon market, but reaching full clarity on some of those issues will take years. As we continue having those conversations, the Arbor Day Foundation encourages companies to get involved now. Taking that step may not initially be

comfortable, but it is courageous. We need more courage around climate action. Get in the arena and stay in it even when the critics are loud.

Keeping the details of climate projects under wraps also goes against the effort to create a standard of transparency within corporate sustainability. In fact, data shows that consumers recognize and appreciate a company’s openness about their environmental initiatives. Data from the Harris Poll released in 2023 revealed that 71% of consumers are more loyal to companies that take an active role in protecting the environment. More than half of consumers also said they’d be willing to pay more for products from companies with a strong stance on sustainability. By opting to keep sustainability initiatives under wraps, companies are potentially depriving themselves of critical consumer support.

Looking Forward

There are palpable shifts on the horizon for the voluntary carbon market. The Voluntary Carbon Markets Integrity Initiative recently released new guidance for its Carbon Integrity Claims Branding and MRA framework. It allows companies to make high-integrity claims about their use of carbon credits and encourages

companies to offset along their net-zero journey, not solely at the end.

Another significant change ahead in the voluntary carbon market is the widespread adaptation of the Integrity Council for the Voluntary Carbon Market's (ICVCM) core carbon principles (CCPs). The ICVCM developed its 10 principles with input from hundreds of organizations, and each principle falls under one of three primary subcategories: emissions impact, governance, and sustainable development. Like rating agencies, the ICVCM anticipates launching an assessment system to evaluate carbon credit projects. Projects meeting CCP standards will receive a CCP-approved label for their carbon credits (akin to a USDA organic sticker on a piece of fruit) affirming to buyers that the project attached to the carbon credit has been properly evaluated by a standardized set of principles. The seal of approval identifies the carbon credit as being of high integrity. The mechanism aims to foster a sense of trust in the market that eventually leads to a heightened level of financial investment.

Other key players in the voluntary carbon market, including the Arbor Day Foundation and

the International Carbon Reduction and Offset Alliance (ICROA), are enthusiastic about the ICVCM stepping into this crucial role. Jeremy Manion, who serves as both the Managing Director of Carbon Markets at the Arbor Day Foundation and the Chair of the Accreditation Committee for ICROA, has expressed approval for ICVCM's standardization efforts.

ICROA, known for endorsing standards and establishing best practices for carbon credit projects, appreciates ICVCM's commitment to evaluating projects on a more granular, methodology-specific level. As the market begins to adapt to ICVCM's core carbon principles, ICROA anticipates an evolution in its role, focusing more on ensuring project developers and retailers operate with integrity. Both ICROA and the Arbor Day Foundation are dedicated to nurturing a more robust, transparent voluntary carbon market. We believe these collective efforts are contributing to a growing expertise within the market, signaling a promising future for carbon credit projects.

We also hope the future holds better financial opportunities for landowners involved in the carbon market. In the last year at the Arbor Day Foundation, we saw the price of



afforestation/reforestation carbon credits settle over \$40 per metric ton. For United States-based projects where labor and land are expensive, this is a revolutionary price point that helps pave the way for better financial offers to landowners and agricultural producers. When we can make landowners better offers, they're more likely to convert some or all of their qualifying land into new forests. And by increasing the recruitment of landowners, we have the ability to fuel the voluntary carbon market with more needed supply.

The Bottom Line

The voluntary carbon market, while still in its adolescent years, has the capacity to revolutionize the way we approach carbon emissions and our collective responsibility towards protecting and restoring ecosystems, which are fundamental to supporting life on Earth. Advancements are already being made in project transparency, due diligence operations, buyer confidence, and corporate engagement. Indeed, there are challenges now just as there are challenges ahead, including emerging regulatory complexities, market volatility, and the ever-present need for greater transparency and simpler verification. But overcoming these obstacles will strengthen the market and, hopefully, broaden the influence of this space.

Some data indicates the desire to widen the scope of the market's impact isn't merely aspirational. A 2023 report from the **Ecosystem Marketplace Initiative of Forest Trends** revealed the tangible benefits of active engagement in this market. The study found that a company's participation in the carbon market can be an indicator of its likelihood to proactively address sustainability in its own operations and value

chains. The Ecosystem Marketplace analyzed data from more than 7,400 corporations participating in the voluntary carbon market and compared it with organizations that do not engage in the market.

The study's findings also determined that companies involved in the voluntary carbon market are more than three times more likely to have an "approved science-based climate target" than companies not involved in the market. Furthermore, 59% of carbon buyers report lower year-on-year emissions as compared to 33% of companies that don't participate in carbon markets. Carbon buyers also outperform their counterparts when it comes to emissions transparency and accountability, with 97% of carbon-buying corporations reporting "board-level oversight of climate-related activities."

Organizations are embracing the purchase of voluntary carbon credits as an integrated approach to accelerate global climate action while also decarbonizing their operations. With continued growth and improvement, the voluntary carbon market has the potential to

make a substantial impact on our global climate and sustainable development goals.

The importance of addressing climate change and its effects cannot be overstressed. It's already reshaping lifestyles around the world, altering the accessibility people have to critical resources. A **growing body of research** consistently highlights tree planting and growing new forests as one of the most cost-effective and scalable countermeasures against climate change. As such, it is imperative that we focus significant investment in the protection and restoration of forests.

The Arbor Day Foundation is steadfast in its dedication to utilizing nature-based climate solutions to nurture our world's ecosystems. We're hopeful more planting partners, corporations, and project developers will continue to engage with this mission. Utilizing the voluntary carbon market as a tool, we can drive meaningful and enduring systemic transformation for life and prosperity on Earth, our only viable home. **What better cause is worth fighting for?**