



RESEARCH

# Where the Carbon Offset Market Is Poised to Surge

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Decarbonization strategies are driving a rapidly evolving market for offsets. Where are the opportunities?



## Key Takeaways

- Although many companies are working to eliminate emissions entirely, carbon offsets will remain a critical tool in fighting climate change.
- The voluntary carbon-offset market is expected to grow from \$2 billion in 2020 to around \$250 billion by 2050.
- Three shifts now underway will bring new opportunities for investors as product mixes grow and evolve to help meet net-zero targets.

Voluntary carbon offsets are helping companies and countries meet ambitious climate targets. By purchasing “credits” from projects that remove or reduce carbon output, the private and public sectors hope to mitigate the impact of their emissions in the short term as they work toward

eliminating their carbon emissions.

To reach the sustainability goals in the 2015 Paris Climate Accords and various national and company-level targets, Morgan Stanley Research estimates that the world must remove at least 1 gigaton of carbon dioxide per year by 2030, based on analysis of data from Network for Greening the Financial System, though the opportunity for avoidance or reduction credits could be up to 10 gigatons per year. Each carbon offset represents one metric ton of carbon dioxide removed, reduced or avoided in the atmosphere.

"The carbon-offsets market has evolved rapidly, prompting increasing interest from investors and corporates," says head of ESG fixed income research Carolyn L Campbell. While offsets should be used only against unavoidable emissions for which there are no other viable alternatives, they represent an important runway while other methods to decarbonize develop, she says. Campbell and her team estimate that about 4,000 carbon-offsets projects have issued credits for roughly 1.7 billion offsets (or 1.7 gigatons of carbon). With 3,800 more projects listed, pre-registered or registered and awaiting credit issuance, the voluntary carbon-offsets market is expected to grow from around \$2 billion in 2022 to about \$100 billion in 2030 and around \$250 billion by 2050.

Just where that growth occurs, however, is largely dependent on three key shifts in the carbon offset market, centered around which credits to buy and whether to buy any at all. Here Morgan Stanley Research outlines the risks, opportunities and emerging trends.

## 1. From Reduction and Avoidance to Removal

Currently, projects that focus on avoiding or reducing atmospheric emissions of carbon dioxide account for 82% of the offsets market. Buyers of this type of offset get credit for preventing future emissions by, for example, protecting forests or opting for renewable energy over fossil fuels.

By contrast, removal credits ameliorate the impacts of past emissions. Accounting for 5% of the market, removal credits are based on projects that directly remove carbon dioxide from the atmosphere—such as tree planting to sequester carbon or technology-based techniques for capturing carbon directly from industrial processes and fossil-fuel run power stations, for instance. (The remaining 13% of offsets represents a mix of avoidance/reduction and removal projects.)

Removal projects are likely to gain importance in the long term, but scaling and cost hurdles are currently constraining the supply. Avoidance and reduction credits will continue bridging the gap until the transition is complete.

"Avoidance credits are still needed now, and can finance important transitions ahead of regulations, legislations or economic feasibility," says Campbell.

Once buyers shift toward removal projects over the course of the decade that demonstrably and permanently take out carbon dioxide out of the atmosphere, they should generate enough carbon-offset credits to reach companies' net-zero targets.

## 2. From Nature to Technology

Nature-based carbon-offsets projects are largely designed to reduce emissions from deforestation and forest degradation. Their impact is difficult to measure, but they represent an important interim solution until there is no more land left to reforest, or until countries pass more aggressive laws to conserve existing forests and natural systems.

After 2030, however, technology-based carbon removal will likely outpace nature-based measures. "Indeed, most well-established net-zero models rely on tech-based removal after 2030, seeing upward of 5 gigatons of carbon dioxide removed per year by 2050," says Campbell.

Tech-based offset projects include such measures as deploying new renewable technology; preventing or capturing methane leakage from fossil fuel production, mining, landfill or livestock; replacing wood-burning stoves with clean cookstoves; capturing carbon dioxide directly from the air; and storing captured carbon from emission sources and permanently storing underground.

## 3. From Offsets to Investments

In an ideal world, a company or a country should invest in technologies, improvements and efficiencies to set itself on a path toward absolute zero—that is, no emissions whatsoever—while offsetting current emissions in the interim. Indeed, some companies, most notably certain airlines, are increasingly shifting more of their sustainability budgets to research and development and stepping back from offset purchases. For air carriers, which face sector-specific decarbonization

rules and have a high degree of control over the majority of their emissions, the ability to invest in available—albeit expensive and still maturing—tech solutions to help meet decarbonization goals represents a unique case, says Campbell. While the high-emitting steel and cement industries share a similar profile, they aren't subject to global emissions regulations as airlines are and don't share the same proximity to consumers either.

*For more Morgan Stanley Research insights and analysis on the future of carbon offsets, ask your representative or Financial Advisor for “Carbon Offsets: Rapid Growth and Product Evolution (Feb. 21, 2023).*