Carbon Removal Market Review 2025: Dynamics and Buyer Insights

What happened in 2025 and what did buyers ask for?

Inside this report

- Understand how the carbon removal market accelerated in 2025 and how purchasing behaviors shaped market dynamics.
- Discover why companies invested in carbon removal and what they demanded in terms of services, carbon removal attributes, and commercials.
- Learn about how leading companies approached carbon removal procurement, their strategies, and the types of portfolios they selected.

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The 2025 carbon removal market in a review

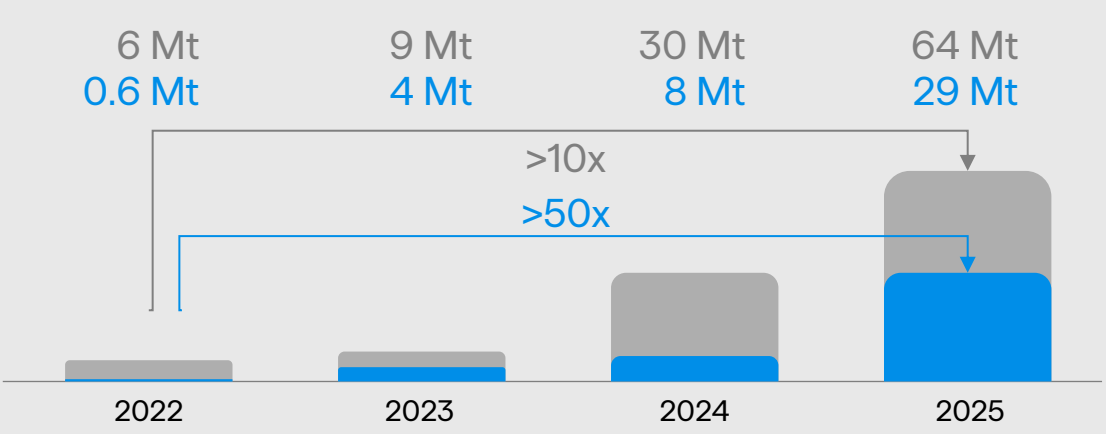
The carbon dioxide removal (CDR) market continued its rapid acceleration in 2025, with volume offtakes reaching 64 million metric tons (Mt), more than double the 30 Mt recorded in 2024. Durable CDR saw the largest leap, growing from 8 Mt in 2024 to 29 Mt in 2025, representing a fourfold increase. Nature-based solutions were also far from stagnant, posting a healthy 1.5 times growth rate, from 22 Mt in 2024 to 35 Mt in 2025. When we look at value, the picture shifts dramatically: durable CDR commands over 85 percent of the $8 billion total CDR market, despite representing only 45 percent of volume. Durable solutions are significantly more expensive due to their technological complexity and novelty, but as the numbers show, this does not reduce demand.

Purchasing power remained highly concentrated, with Microsoft continuing to dominate the market as the largest buyer and accounting for nearly 90% of total offtake volumes. This influence continued to shape market dynamics, including pricing and technology preferences. At the same time, the durable CDR market broadened significantly, with more than 100 first-time buyers entering in 2025. Excluding Microsoft, durable volumes even surpass nature-based quantities, accounting for around 55 percent of purchased volumes in 2025.

Examining technology splits within durable CDR reveals biomass-based solutions – biochar, bioenergy with carbon capture and storage (BECCS), and other biomass pathways – have surged in popularity, now representing over 95 percent of the segment. This trend is fueled not only by Microsoft's heavy investments in BECCS but also by a broader buyer preference for biochar as an affordable durable pathway.

Another defining feature of 2025 was that forward offtakes vastly outweighed retirements and spot purchases. Total retirements were in the double-digit megaton range, of which only 0.6 Mt were durable credits. Spot deals for direct retirement accounted for less than 1 percent of total offtake volumes, almost exclusively made up of nature-based credits. The gap between forward offtakes and spot purchases exists, and is expected to persist, because of supply constraints and the capital-intensive nature of projects. Plants need financing before they can break ground, which can only be unlocked through sufficient demand.

CDR market size in offtake volumes



Source: Bloomberg NEF; CDR.fyi; AlliedOffsets: Voluntary Carbon Market 2025 Review; BeZero; Climeworks analysis

Geographically, the United States leads the pack with more than 35 percent of purchased projects operating in the US, followed by Canada and Brazil, each slightly above 5 percent of projects. This is driven by buyers favoring regions where they operate, supportive regulations and storage potential for durable CDR, and the popularity of forestation, respectively.

Private capital investment in CDR companies exceeded $500 million in 2025. While biomass-based solutions dominated offtake volumes, direct air capture and storage (DACS) led by a wide margin in terms of capital allocation, accounting for nearly 60 percent of total investment.

> “The move into durable carbon removal that we’re making today complements our continuous efforts on accelerating emissions reductions and our existing investments in nature-based carbon removal. Here’s an emerging industry where early engagement catalyzes the scale-up of a wide range of technologies and supports the path for Schneider Electric and others in the future. [...] This agreement represents an important step in diversifying our carbon removal portfolio with high-durability solutions and adds to our carbon removal capabilities as we prepare for the journey to 2050.”

Esther Finidori,
Chief Sustainability Officer,
Schneider Electric

Despite these promising developments, substantial scaling and broader buyer participation are required to meet Paris Agreement-aligned trajectories. According to Climeworks’ global optimal portfolio, 10 Mt should have been retired in 2025, including 1 Mt durable CDR. Looking ahead, around half of the volumes required between 2026 and 2030 (55 Mt in 2030, 165 Mt cumulative) need to be locked in through offtakes today to secure funding and stay on to meet IPCC modeled removal requirements.

What did carbon removal buyers ask for in 2025?

Through our work supporting over 200 organizations on their net-zero journey, including over half of the Fortune 1000 companies that purchase CDR, Climeworks has a unique perspective on buyer behavior and market trends.

In 2025, companies bought CDR for multiple reasons: The vast majority of buyers were motivated by the need to meet climate targets and commitments, including the requirements of the Science Based Targets Initiative (SBTi). CDR investments were often tied to preserving the future of the business and improving brand and reputation, as organizations wanted to demonstrate climate leadership and differentiate themselves from competitors. A significant share of buyers viewed early investments in CDR as a way to mitigate risk because they anticipate future regulatory requirements and wanted to secure supply, lock in price, and gain experience. For some, CDR also represented a strategic investment in a rapidly growing, future trillion-dollar industry. This included forming partnerships and, in some cases, reselling CDR credits as part of broader sustainability products and services.

Source: Bloomberg NEF; CDR.fyi; Climeworks analysis and buyer insights

While a few large buyers such as Microsoft, Frontier, and Google were already building strategic portfolios and primarily engaged in direct project sourcing, most companies began with pilot purchases that included a mix of technologies and projects. This portfolio approach allows for risk mitigation, building market knowledge, and establishing partnerships with suppliers. It has also created strong demand for intermediaries that can provide a broad range of solutions, as well as strategic guidance. Climeworks found that around 60 percent of buyers sought hands-on support for their CDR strategy and delivery, including advice on policy and standards, project selection, portfolio design, contracting, and delivery management, while only about 10 percent were interested in only credit transactions.

Approximately 75 percent of buyers were willing to pay a premium when there was a clear rationale and strategic fit, while only around 25 percent were solving for the cheapest possible solution within removals. Quality, permanence, and co-benefits consistently emerged as premium attributes that many buyers were prepared and willing to pay for. In addition, some companies preferred project locations connected to their operational footprint.

Contract duration preferences varied, with half of buyers opting for short-term agreements (one to three years) and the other half pursuing longer-term commitments (four or more years). For spot purchases and near-term deliveries, technologies like biochar and afforestation, reforestation, and revegetation (ARR) were favored due to their relative availability and affordability. Longer contracts were valued for securing supply and price, often unlocking discounts through bulk purchases or prepayments. While about half of customers were open to prepaying for price advantages, high-maturity buyers purchasing large volumes were less inclined to prepay. Interest in CDR volume options grew, particularly among companies planning to resell credits as part of sustainable offerings.

In addition, recent delivery shortfalls across the industry increased concerns about reliability: roughly 70 percent of buyers expressed interest in delivery guarantees, and up to half indicated a willingness to pay extra for assurance mechanisms.

Climeworks' buyer insights

Buyers asked for four key themes in 2025...

Portfolio approach with end-to-end support from strategy all the way to delivery, across multiple projects

Alignment with business interests and willingness to pay for quality, durability, co-benefits, and geographic fit

Delivery assurance mechanisms at a reasonable premium to reduce shortfall risk and increase credibility

Flexible commercial terms, including contract duration, prepayment plan, and access to volume options

Source: Climeworks buyer insights

Case studies from 2025 Climeworks buyers

What did SAP buy?

SAP partnered with Climeworks in 2025 to accelerate their net-zero strategy. The flagship agreement is a long-term contract for a tailored solution covering 30,000 tons of CDR, with delivery over 10 years. The portfolio consists solely of durable CDR, including DACS, biochar, and enhanced rock weathering (ERW). It is actively managed by Climeworks, with a flexible supplier setup to secure future deliveries for SAP. Further agreements cover spot purchases of approximately 12,400 tons, which also consist exclusively of durable credits. The full 2025 volumes have already been retired into SAP's registry accounts, ensuring full traceability.

How did SAP decide on their winning solution?

SAP prioritized permanence and, with Climeworks' guidance, finalized project selection based on quality, price, and certification criteria. For the spot purchase, Climeworks secured high-durability credits at competitive price points, available for delivery despite supply shortages and tight timelines.

> "Carbon removals are not a substitute for rapid emissions reductions, but they are required to neutralize a limited share of residual emissions in line with the Intergovernmental Panel on Climate Change (IPCC)'s net-zero pathways. Our long-term partnership with Climeworks supports the responsible scale-up of high-durability removals, securing future access and price certainty for a scarce resource essential to sustaining net zero."

Matthias Medert, Global Head of Sustainability, SAP

What did Hartford buy?

In 2025, The Hartford Financial Services Group entered into a partnership with Climeworks to make a pilot purchase and build expertise in the CDR market. The multi-million-dollar, bespoke portfolio covers more than 20,000 tonnes of removals to be delivered between 2025 and 2030. It is highly diversified, consisting of 85% nature-based solutions and 15% durable CDR, with a strong emphasis on ARR. It also includes mangroves, biochar, ERW, and BECCS.

How did Hartford decide on their winning solution?

Hartford's objective was to build internal knowledge in an emerging market. They sought a well-diversified, high-quality CDR portfolio that would give them insights into the most promising technologies and suppliers. The solution they selected positions them strategically on their decarbonization pathway, while also enabling them to explore and develop new product opportunities in an emerging market.

Discover how we use insights from the 2025 buyer landscape to craft a CDR strategy tailored to your business context and goals.

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