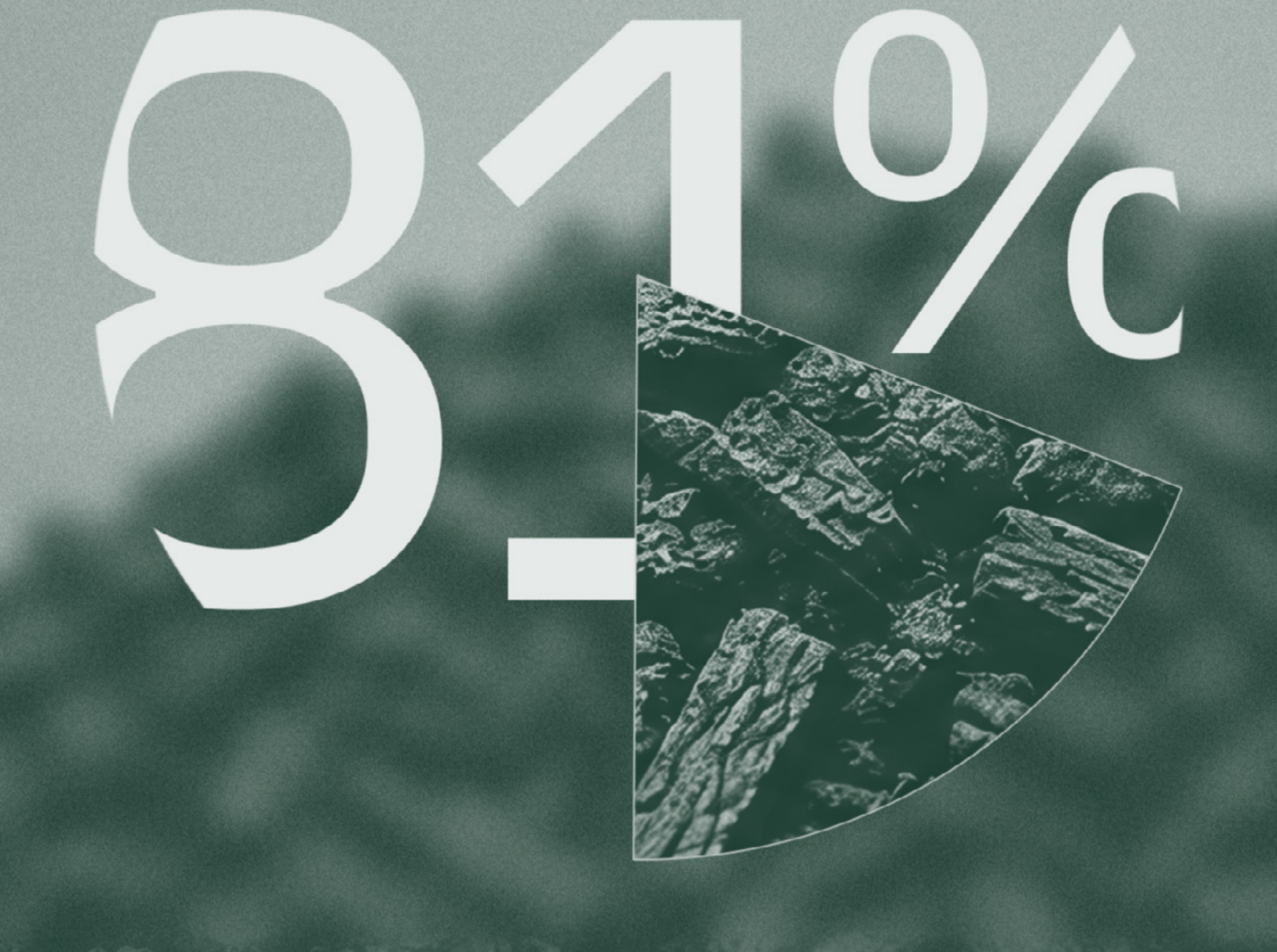
Supercritical

The biochar supply crunch

Market intelligence for H2 2026

SEPTEMBER 2026



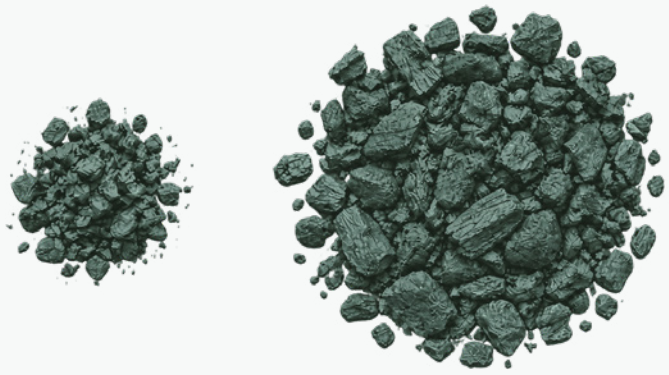
81% of high-quality biochar supply was committed by July 2026.

In 2025, that threshold wasn't crossed until October.

Biochar sales in H1 2026 nearly doubled compared to H1 2025, and excluding Microsoft, **the rest of the market grew more than fivefold.**

Offtakes drove nearly all of that growth. Most high-quality capacity was committed before spot season began.

Biochar has delivered more than twice the volume of all other permanent removal pathways combined, and it is the only method with a liquid spot market.

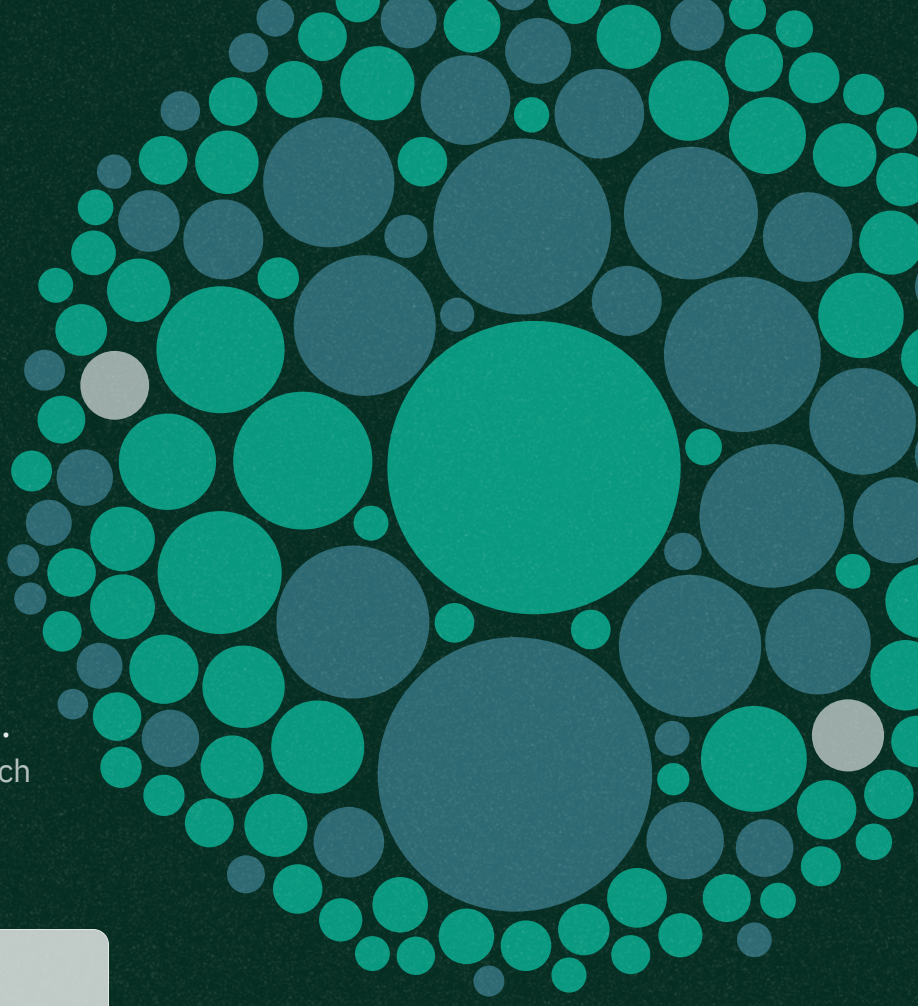


2025 2026

This report is for buyers entering the biochar spot market in H2 2026. It covers what's left, what counts as high-quality, and what pricing looks like for the rest of the year.

How much biochar is left?

Biochar has no shortage of projects. Hundreds are projecting 2026 credits across three production tiers, from high-tech industrial pyrolysis to open-pit artisanal kilns. Total capacity looks healthy. **But most of it would not pass a serious quality assessment, and most of what does is already committed.** For spot buyers, the question is how much is worth buying—and how much is left.

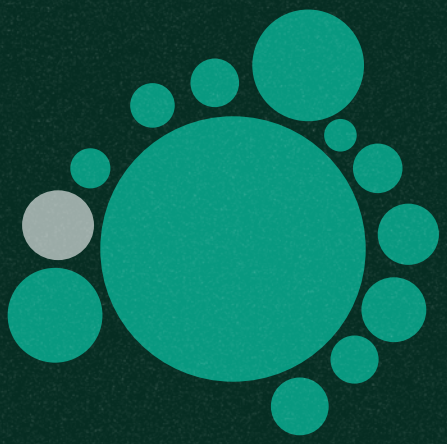


INDUSTRIAL DISTRIBUTED ARTISANAL

01

Every biochar project on the market

Each bubble represents a biochar project projecting 2026 credits, sized by volume and colored by production type.



02

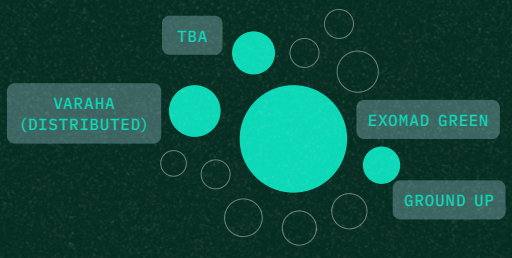
What passes vetting

When you filter for quality, the market gets a lot smaller. Our Climate Science team has evaluated over 400 biochar projects. Thirteen have passed. Read Biochar quality is a spectrum for more on where we draw the line.

03

What's left for spot buyers

When you filter further by what's still available, the supply crunch becomes clear. By July 2026, 81% of high-quality supply was committed through offtakes and exclusive agreements. Buyers in pharma, finance, aviation, and consulting have active RFPs that could capture 70% of what remains.



04

Available exclusively through Supercritical

Of the high-quality supply that remains, 46% is accessible exclusively through Supercritical from four vetted projects across India and Bolivia.

Why most projects don't pass

Registries and rating agencies are a necessary baseline for screening projects at scale. They do not replace direct vetting. Supercritical's 118-point protocol goes deeper on additionality, methane monitoring, delivery confidence, and site-level conditions. Registered, rated projects can still fail on all four. These are anonymized examples:

PROJECT A

Failed on additionality

An existing facility sought credits for biochar production that predated a minor modification.

`Additionality is much harder with retrofits`

PROJECT B

Failed on MRV

Open-pit production across multiple sites, no methane monitoring. Methane from production could negate the removal benefit.

`Artisanal projects do not meet our quality bar`

PROJECT C

Failed on delivery

A single-kiln operation producing approximately 800 tonnes per year with no multi-year delivery history.

`Sub-scale projects are much less likely to deliver`

PROJECT D

Failed on health and safety

Site visit revealed inadequate controls and an unreported burn incident.

`Site visits can reveal details that don't show up on paper`

Rising demand, tighter supply

H1 2026 VS H1 2025

2x

Biochar sales nearly doubled year-over-year, from **1.59Mt** to **2.99Mt** across 280 deals.

EXCLUDING MICROSOFT

5x

The rest of the market grew more than **fivefold**, from 350kt to 1.89Mt. Offtakes drove nearly all of it.

Biochar demand is rising fast. As the market matures, growth is coming from offtakes as buyers shift from one-off purchases to multi-year procurement.

Biochar sales

	H1 2025	H1 2026	YOY
Total	**1.59Mt** (624 deals)	**2.99Mt** (280 deals)	**+88%**
Spot	**174kt** (570 deals)	**81kt** (224 deals)	-54%
Offtake	**1.42Mt** (54 deals)	**2.91Mt** (56 deals)	**+106%**

Excluding Microsoft

	H1 2025	H1 2026	YOY
Total	**350kt** (623 deals)	**1.89Mt** (278 deals)	**+439%**
Spot	**174kt** (570 deals)	**81kt** (224 deals)	-54%
Offtake	**176kt** (53 deals)	**1.81Mt** (54 deals)	**+925%**

The two-speed market

Every year, biochar follows two buying seasons. Large buyers contract supply through multi-year offtakes in the first half, and spot purchases follow in the second half. In 2026, that split accelerated sharply.

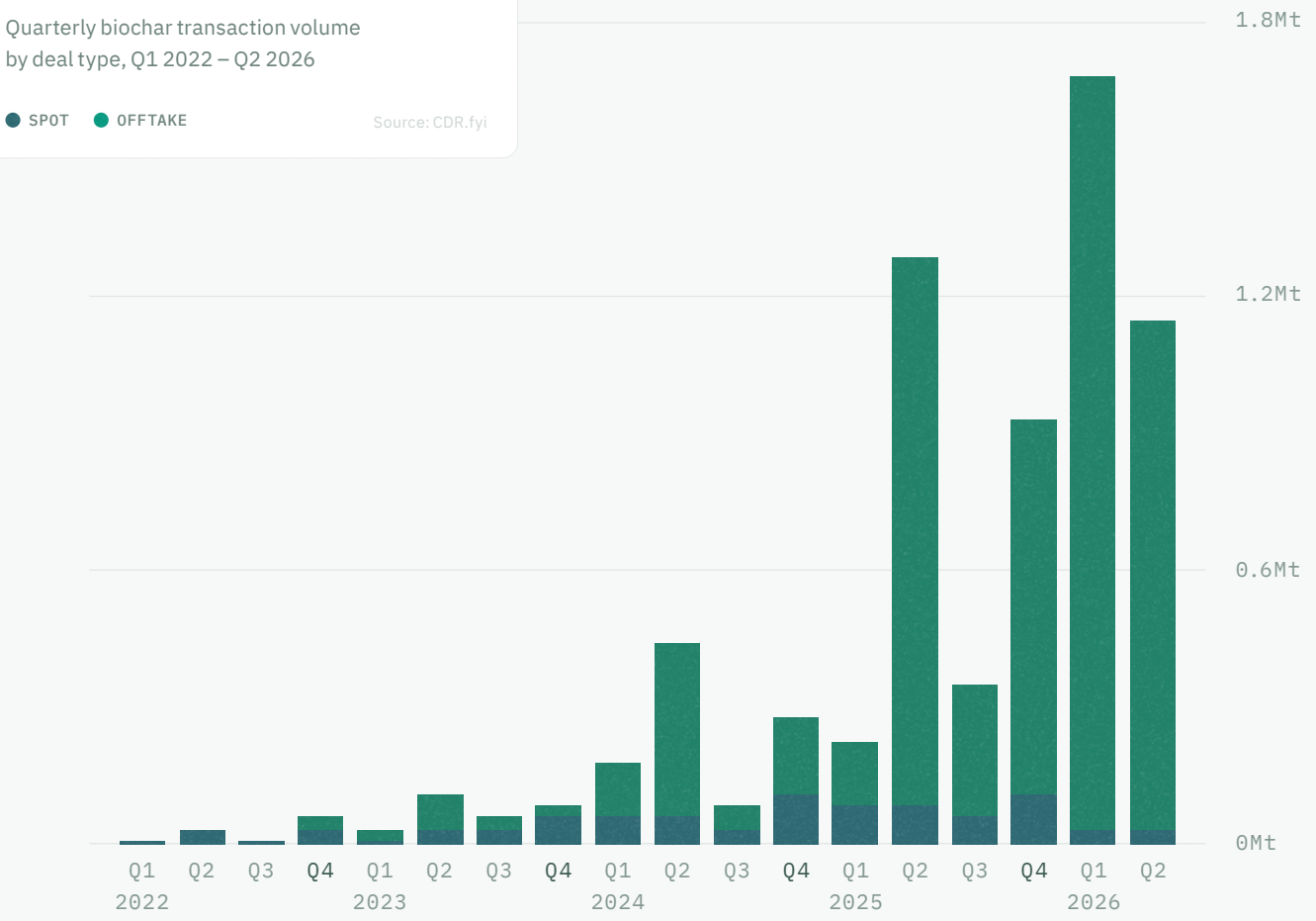
- **Total biochar sales nearly doubled year-over-year**, from 1.59 million tonnes in H1 2025 to 2.99 million tonnes in H1 2026.
- **Non-Microsoft buyers purchased more biochar in H1 2026 than in all of 2025**. Almost all of that growth was driven by offtakes.
- **Offtake volume in the non-Microsoft market jumped tenfold** from 176,000 tonnes in H1 2025 to 1.81 million tonnes in H1 2026.
- Meanwhile, spot volume halved.

Part of that acceleration is pre-compliance procurement. SBTi's Corporate Net-Zero Standard v2 makes permanent carbon removal mandatory from 2035, ramping up to 100% of residual emissions. Companies building removal into their net-zero targets are locking in supply years ahead of the deadline, which means larger offtakes, earlier in the year, at volumes that were unusual 12 months ago. In Europe, the Carbon Removal Certification Framework certified biochar as permanent removal in February 2026, and EU buyers watching the direction of the ETS are moving earlier too.

Offtakes have already claimed the majority of near-term supply. What remains is a smaller pool, contested by a larger number of spot buyers arriving at the same time.

Market structure: spot vs offtake

Quarterly biochar transaction volume by deal type, Q1 2022 – Q2 2026



Why everyone arrives at once

Q4 has been the largest quarter for spot deals every year since 2022. In Q4 2025, 994 spot transactions moved 125,000 tonnes, averaging roughly 125 tonnes per deal. Three factors concentrate buying in Q4:

01

Revised emissions

No sustainability team knows its exact annual footprint in January. Scope 3 arrives last because it depends on suppliers reporting their own numbers first. An acquisition, increased travel, or a change in operations can shift the tonnes needed by December well beyond the Q1 estimate. Spot buyers enter the market once they have a confirmed number, which concentrates purchasing in Q4.

02

Delivery shortfalls

73% of biochar projects revised their capacity downward in 2025. When multi-year offtakes underdeliver, buyers, intermediaries, and projects return to the spot market in Q4 to cover the gap. Who bears responsibility for sourcing replacement credits varies by contract. As the most liquid permanent removal credit on the market, biochar often fills that gap, even when the original offtake was for another method.

03

Crediting seasonality

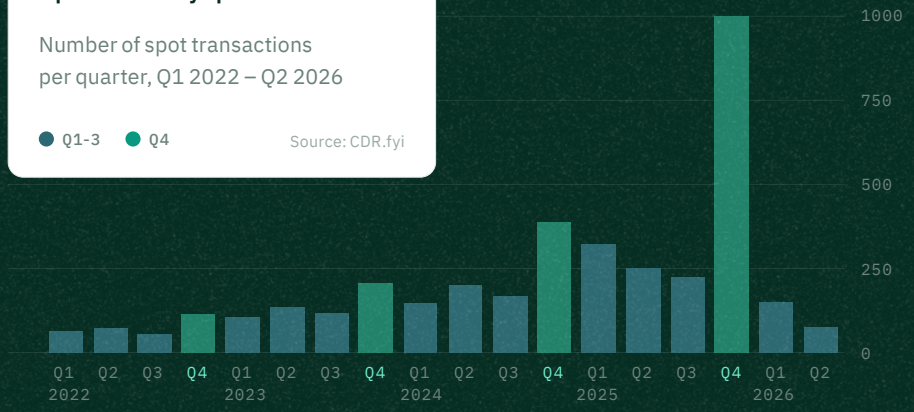
A credit can't be issued until a registry has audited the removal behind it. For biochar, the material has to be produced, sequestered, sampled, and verified by a third-party auditor. That process can take months. Registries are moving toward more frequent issuance, but most new supply still only clears audit late in the year. Fresh supply and peak demand arrive in the same window.

Q4 spot volume was roughly flat in 2024 and 2025, even as transactions surged in 2025. More buyers competing for the same volume means smaller average deal size and tighter market conditions.

In 2026, the squeeze started earlier. With 81% of high-quality supply committed by July, spot buyers entering in H2 face less supply than at the same point last year.

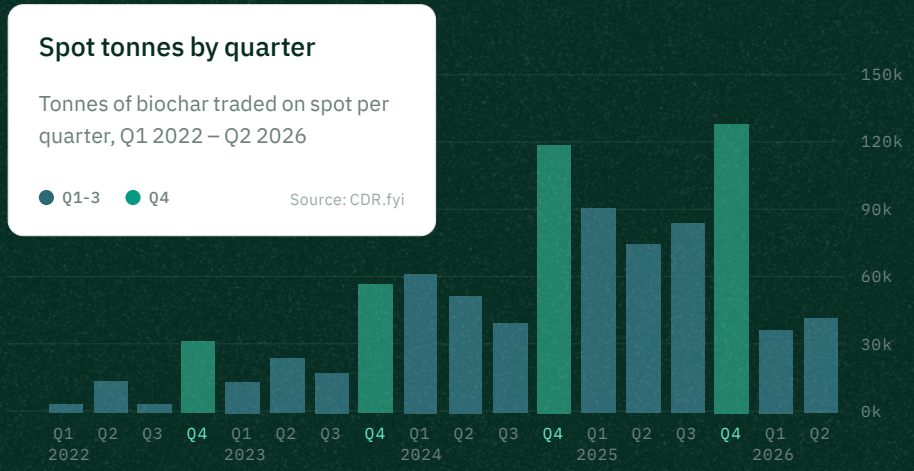
Spot deals by quarter

Number of spot transactions per quarter, Q1 2022 – Q2 2026



Spot tonnes by quarter

Tonnes of biochar traded on spot per quarter, Q1 2022 – Q2 2026



Pricing

High-quality biochar prices have remained broadly stable since 2024, but within the year, they follow a seasonal pattern. The demand dynamics described above compress buying into H2 and push spot prices higher through the second half of the year.

Last July, a buyer purchased biochar credits from us at $155 per tonne. In November, the same credits from the same project sold at $185. That buyer paid the premium knowingly, having bought in Q4 before and understanding spot market seasonality.

Distributed biochar is typically priced below industrial biochar—around $150 per tonne compared to $165—reflecting lower production costs rather than lower quality. Both meet the same permanence and MRV standards.

Buyers pay a premium for proven projects. As more buyers apply independent vetting criteria, high-quality projects command higher prices and sell out faster. Projects that can't demonstrate the same standards compete on price.

JULY 2025 FORWARD PURCHASE

$155

per tonne

NOVEMBER 2025 SPOT PURCHASE

$185

per tonne

Exclusive tonnes for 2026

For 2026, Supercritical has secured exclusive supply from four projects that clear the 118-point bar, up from one (Exomad Green) in previous years.

BOLIVIA

Exomad Green

By far the world's largest biochar project by deliveries, with 300,000+ credits delivered across its first two sites. The parent company has been exporting sustainable timber from Bolivia since 2011 and is planning a major expansion.

`Sawmill waste` `Puro.earth` `BeZero AA` `Calyx Tier 1`

INDIA

To be announced

A large-scale industrial producer converting agricultural residues into biochar. Vertically integrated across feedstock, production, and end use. Announcement pending.

`Agricultural residues` `Registered` `Rating underway`

INDIA

Varaha (distributed)

Distributed biochar verified by Isometric, with every batch GPS-tracked from production to soil. Two feedstocks: cotton stalk that would otherwise be burned, and an invasive shrub whose clearance restores native grassland.

`Cotton stalk, Prosopis juliflora` `Isometric` `BeZero queued`

INDIA

Ground Up

Already issuing credits through Isometric, the first Indian project identified through our Supply Development Program to reach that stage. Field trials show up to 38% yield increases for local sugarcane and 59% for wheat.

`Sugarcane residue` `Isometric` `Sylvera A`

Advice for H2 buyers

01 **Move before Q4**
Waiting until Q4 is the most expensive way to buy biochar. It is also the most common. In Q4 2025, 994 spot transactions competed for 125,000 tonnes of supply. Buyers who can move earlier in H2 will pay less and have more choice.

02 **Secure access to supply**
Nearly half of remaining high-quality biochar for 2026 is accessible exclusively through Supercritical. Active enterprise RFPs could claim 70% of what remains. Buyers who need high-quality biochar should act before defensible supply runs out.

03 **Add independent vetting**
Registry certification and an agency rating are necessary starting points, not guarantees of quality or delivery. Registered, rated projects can fail on additionality, methane monitoring, delivery confidence, and site safety. The projects that clear those checks are a fraction of the market.

04 **Plan beyond 2026**
This year's supply crunch is not a one-off. Offtake volume in the non-Microsoft market grew tenfold in a single year, from 176,000 tonnes to 1.81 million tonnes. Each year, a larger share of high-quality supply is committed before spot season begins. Buyers still purchasing on a single-year basis are competing against a growing offtake market for a shrinking pool of available credits.

Speak to a carbon removal advisor

Get in touch

DEFINITIONS AND METHODOLOGY

This report evaluates 119 biochar carbon removal projects across three production types:

Industrial — engineered, fixed-site pyrolysis systems with controlled temperature, residence time, and emissions management. Typically thousands of tonnes per year with consistent output quality.

Distributed — coordinated networks of smaller-scale units, often across multiple sites, distinguished from artisanal production by emissions monitoring, standardized operating parameters, and verified output testing.

Artisanal — small-scale production without centralized quality control or standardized pyrolysis parameters. Output quality varies across batches and producers, and there is no methane monitoring to guarantee climate benefit.

All 119 projects were evaluated against Supercritical's 118-point scientific vetting framework, which covers feedstock provenance, production parameters, carbon stability (H/Corg ratio, fixed carbon content), permanence claims, additionality, monitoring and reporting practices, and third-party verification. Projects that receive a full vet and pass are classified as **high-quality biochar** in this report.

Project-level supply data was compiled from Supercritical's proprietary supply database, informed by direct supplier relationships, registry issuance records, published project documentation, and third-party market intelligence. Data was current as of August 2026.

In the supply visualization, industrial and distributed bubbles are sized by 2026 projected capacity; artisanal bubbles are sized by 2025 issued tonnes under the Global C-Sink Registry, since capacity projections are unreliable for many artisanal projects. The two reflect the best available measure of each project's scale.

Committed — supply that is sold, under offtake, or under exclusive agreement as of July 2026.

Offtake — a multi-year purchase agreement with fixed or formulaic pricing and scheduled delivery volumes.

Exclusive agreement — where an operator (in this case, Supercritical) holds sole commercial access to a project's credits for a defined period.

Spot — an ad-hoc, usually smaller order purchased without a long-term contract, typically for near-term retirement.

The 81% committed figure represents the share of high-quality supply committed as of July 2026. The 46% exclusive figure represents the share of remaining high-quality supply accessible exclusively through Supercritical.

Biochar transaction volumes (the 2x and 5x growth figures) are sourced from CDR.fyi. H1 2026 data covers transactions recorded through June 30, 2026. The "excluding Microsoft" figure removes Microsoft's purchases to show underlying market breadth.

CONTRIBUTORS

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