Supercritical

How to structure a good biochar offtake

Learn how to secure stable biochar supply through well-structured offtakes. Supercritical's expert guide on contracts, pricing, and supplier vetting.

Introduction

Offtake agreements are essential for scaling biochar carbon removal (CDR), and securing future supply of high-quality biochar CDR credits. Sourcing large volumes of biochar credits is especially difficult due to the nature of biochar projects; they are physically constrained, with each site capped at around 100,000 tonnes per year. When buyers sign an offtake, they lock in access to scarce supply.

Corporate net zero commitments indicate that demand for CDR is about to surge—but if organizations don't start signing offtake agreements today, there will not be enough supply to meet net zero targets.

Offtakes are long-term, multi-year purchase agreements that secure future carbon removal credits before they are issued. Offtakes unlock the project financing required for suppliers to build their infrastructure and scale.

Many buyers hesitate to engage in offtakes due to concerns about delivery risk, pricing uncertainty, and supplier credibility. A well-structured offtake agreement addresses each of these points, balancing risk and value creation for both buyers and suppliers.

Why offtakes are critical for carbon removal

Offtake agreements are the backbone of a functioning carbon removal market. They give biochar developers the financing certainty they need to build and scale, and help buyers lock in stable pricing and supply in an increasingly competitive space. Without offtakes, biochar projects will stall, and buyers will risk paying a premium or missing their net-zero targets entirely.

62%	Most high-quality biochar capacity in 2025 is already spoken for.
31%	Saving secured by customers who secure credits in advance.
<½	Less than half of the projected carbon removal demand by 2030 is financed.

01 Offtakes enable projects to scale

New carbon removal projects can't get built without upfront capital. Bankable, long-term contracts from buyers unlock the financing required to expand capacity and deliver credits.

02 Offtakes secure pricing and supply

The best credits don't last. In 2024, 88% of high-quality biochar credits were sold by October. Already, 62% of 2025 credits are locked into offtake agreements. Prices rose 18% last year—but early movers are saving up to 31% by securing credits in advance.

03 The market is tightening fast

Less than half of the 50 Mt of projected carbon removal demand by 2030 is financed. Of the 10,000+ companies with science-based targets, only 29 are listed on CDR.fyi. This means massive latent demand is poised to hit the market. Offtakes provide a strategic advantage by securing future supply at today's rates.

The three pillars of a well-structured offtake

Ultimately, a 'good' biochar offtake is one that meets your procurement goals, is signed with a properly vetted supplier, and is structured to reduce financial and delivery risks. While every company's carbon removal strategy is unique, certain principles apply universally to maximize value, minimize exposure, and support supplier scalability.

There are three key "buckets" to consider when structuring an offtake.

01

Contracts

Structuring the legal framework to mitigate risk and secure delivery.

02

Commercials

Understanding pricing, discounts, and financial structures.

03

Continuity

Managing risk post-transaction to ensure timely credit delivery.

Those who take a structured, risk-aware approach to offtakes today will secure stable pricing and reliable supply. Buyers must decide on several structural elements, each with trade-offs:

Buckets	Factors	Consideration
01 Contract	Volume commitment	Should the offtake cover 100% of projected removal requirements, or should a portion be left for spot market purchases? Many companies **commit to 80–90%** of their expected needs through offtakes, leaving **10–20%** for flexibility to 'top up' or experiment with novel technologies.
	Timeframe	Shorter contracts (3 years) offer **more flexibility**, while longer-term (5+ years) agreements **secure better pricing and supply guarantees**. As the market matures and suppliers seek financing certainty, longer-term offtakes could become the norm—similar to solar PPAs, which commonly span 15–20 years.
	Clauses	Buyers can consider including **most favored nation (MFN) clauses** to ensure they receive **pricing adjustments** if the market shifts. **Termination and force majeure** clauses should be tailored to reflect supplier capacity and potential risks.
02 Commercials	Payment structure	Paying **on delivery** reduces upfront risk but comes at a **higher cost**. Prepaying **yields the largest discounts**, but introduces **counterparty risk**, (risk of the supplier not fulfilling their obligations)—which may be mitigated through **insurance**.
	Supplier selection	Projects with **strong MRV systems and proven delivery records** are preferable for risk-averse buyers. **Newer, high-potential suppliers** may offer deeper discounts but require **greater due diligence**.
03 Continuity	Managing credit delivery	Buyers should establish **post-purchase monitoring strategies** to ensure **credits are delivered on time**. Working with **trusted marketplaces and suppliers with transparent MRV** reduces **delivery risk**.

George Jones
Director of Operations & Supply at Supercritical

"A 10-year contract with a 5-year break clause? That's the kind of creative structuring we'd love to see more of. It balances security with flexibility."

Different buyer profiles and their offtake strategies

We see two key categories of CDR purchasers: the pragmatic, near-term net zero buyer, and the long-term catalytic buyer. Near-term net zero buyers range on the spectrum of risk appetite versus price sensitivity but will generally seek low-risk, high-quality supply. Catalytic buyers are less risk-averse and more concerned with market-building. They know they need to invest now to scale the market so they can access the credits they need later.

Below is a framework for structuring a biochar CDR offtake based on buyer profile.

Buyer profile	Risk-averse near-term net zero buyer	Price-optimizing near-term net zero buyer	Catalytic buyer
Risk appetite	Low	Moderate	High
Price sensitivity	Moderate to high Need cost predictability, willing to pay slightly more for stability	Low to moderate Willing to take on some risk to secure cost savings	Low Focused on market impact rather than securing lowest cost
Offtake structure	Pay on delivery, shorter term (3 years), prioritize experienced developers, strong MRV requirements	Pay upfront, commit to longer-term offtakes (5+ years), secure volume discounts, may consider newer suppliers	Invest in new developers, flexible terms, willing to prepay to accelerate project financing
Optimized for	Supply security, price stability	Cost efficiency, long-term savings	Market-building, early access to innovation

Practical tips for structuring a strong offtake

- **Start with a risk matrix**
  Identify and prioritize key risks before negotiations to focus on what truly matters.
- **Leverage expert support**
  Work with intermediaries or legal counsel who specialize in carbon markets to avoid costly mistakes.
- **Know what you're buying**
  Understand the nature of CDR credits, permanence factors, and any restrictions on claims.
- **Negotiate with an open mind**
  There's no one-size-fits-all approach; buyers should remain flexible to find a balanced agreement.
- **Ensure contract manageability**
  Agreements should be structured in a way that is practical to monitor and enforce over time.

A step-by-step guide to getting started

Find

1 Forecast emissions and figure out what you're optimizing for

- How much removal do you need?
- Over what timeframe?
- What are your price sensitivity and risk tolerance?

2 Source and filter suppliers

- Map the market
  The biochar market is fragmented, with no centralized price or quality benchmarks. Finding the right credits requires cutting through opaque data and unreliable claims.
- Create a shortlist
  With such variance in project quality, it's critical to filter options by method, pricing, availability, and proven quality standards.

Many buyers spend months manually researching projects and issuing RFPs, only to end up with limited visibility and uncertain quality. Supercritical provides real-time access to market data, filtering out low-quality options from the start.

Select

3 Perform deep due diligence on 1–2 projects

- Assess project viability
  Not all carbon removal projects are created equal. Buyers must evaluate additionality, permanence, feedstock quality, and MRV (monitoring, reporting, and verification) to ensure credibility.
- Avoid greenwashing risks
  Some projects look promising on paper but lack the scientific rigor to deliver verifiable removal.
- Leverage expert vetting frameworks
  Supercritical applies a hierarchical, three-stage vetting process across four dimensions:
  a) Climate science
  b) Delivery risk
  c) Environmental factors
  d) Social impact

Due diligence is resource-intensive, requiring expertise that many sustainability teams don't have in-house. Supercritical's pre-vetted marketplace eliminates this bottleneck, surfacing only rigorously assessed, high-quality projects.

4 Structure your agreement

- Negotiate the right contract terms
  Consider volume, timeframe, price sensitivity, and risk appetite.
- Secure favorable pricing structures
  Some suppliers offer discounts for upfront payments, while others structure contracts around pay-on-delivery models to mitigate counterparty risk.
- Standardize agreements
  Procurement can be delayed by contract complexity and legal reviews. Supercritical streamlines transactions with standardized contracts, ensuring a faster, more secure purchasing process.

Buyers who hesitate risk missing out. Top-tier credits sell out quickly, and market prices fluctuate. Act decisively and leverage an expert intermediary to ensure access to the best removal opportunities.

Manage

5 Monitor post-agreement

- Monitor project milestones and delivery timelines
  Offtakes are multi-year commitments, which requires ongoing oversight.
- Stay ahead of delivery risks
  Forward-purchased credits may be tied to early-stage projects with technical, regulatory, or financing uncertainties.
- Ensure credits are retired properly
  Managing credits post-purchase includes working with registries, tracking verification reports, and integrating removal into corporate sustainability reporting.

Without a fit-for-purpose tracking system, buyers struggle to manage credits post-purchase. Supercritical removes this challenge by overseeing credit delivery, registry interactions, and retirement documentation.

Supercritical

A smarter way to buy offtakes

As the leading carbon removal marketplace, Supercritical streamlines your offtake process across discovery, diligence, purchase, and retirement.

130,000%

Premium biochar credits available through exclusive Supercritical and Exomad Green partnership.

We've expanded our partnership with Exomad Green to secure 130,000 tonnes of biochar carbon removal, equivalent to the total biochar delivered globally in 2024. With this deal, we're introducing a multi-year biochar offtake product, providing our buyers exclusive access to Exomad's most reliable and durable credits for 2025 and beyond, and ensuring stable supply and transparent pricing as the market tightens.

If you're committed to hitting your net-zero targets, the time to act is now. High-quality biochar CDR supply will not last. Supercritical provides radical transparency in price, availability, and quality, helping you secure top-tier CDR credits quickly and confidently.

Get in touch today to explore your biochar offtake options.

Request access to the Supercritical marketplace

Speak with one of our carbon removal experts