CarbonAtmos

The Regenerative Curator

The Investment Case for Premium Carbon Credits

Why Institutional Buyers Choose CarbonAtmos

Prepared by CarbonAtmos LLC

March 2026 | Confidential

The biochar carbon credit market grew **435%** in 2024. Over **40%** of 2026 supply is already locked under forward contracts. This paper presents why the world's largest buyers—Microsoft, Boeing, Swiss Re, Grab—are securing biochar credits now, and why CarbonAtmos is the supplier to bet on.

Executive Summary

The biochar carbon credit market grew **435% by volume in 2024**, from $14.6M to $181.5M. CarbonAtmos is the **only supplier offering a diversified portfolio** of biochar removal credits and hydropower avoidance credits under one roof—a combination no competitor matches.

Biochar removal credits trade at **$148–$170 per tonne**, with premium projects confirmed at **$200/tonne** (NextGen CDR Facility). The voluntary carbon market exceeds **$2 billion** and grows at **30%+ annually**. CORSIA mandates for aviation begin in 2027, creating billions in captive annual demand. **40% of 2026 biochar supply is already locked under forward contracts.**

> **The window is closing.** Microsoft has purchased 129,000 tonnes of biochar credits—46% of all biochar credits ever bought. Altitude (Switzerland) and Green Carbon Inc (Japan) are already buying Philippine biochar. Grab and Offset8 Capital have committed $50M+ to Indonesian biochar. The buyers are here. The question is whether you secure supply before they do.

Why CarbonAtmos

- **Only supplier** combining biochar removal + hydropower avoidance credits
- **Zero global competitors** in pineapple waste biochar—first-mover advantage
- **Vertically integrated:** own feedstock, own production, own distribution, own credits
- **$5–$15/ton feedstock cost** (company waste, near-zero cost)—margins 3–5x competitors
- **Southeast Asia first-mover:** zero major biochar producers in the region despite abundant waste
- **$4.8M–$10.4M/year** conservative revenue across 6 streams; up to $30.5M at premium pricing
- **Puro.earth CORCs**, **GCC certified**, **CORSIA eligible**, pursuing **ICVCM CCP label**

This paper presents why institutional buyers should secure CarbonAtmos credits now—before supply constraints tighten further and premium pricing becomes the floor, not the ceiling.

Why Biochar Wins

The Highest-Value Credit Category

Biochar is a stable, carbon-rich solid produced by heating agricultural waste through **pyrolysis** at 400–700°C in an oxygen-free environment. The resulting material locks atmospheric carbon for **over 1,000 years**—making it the gold standard in carbon dioxide removal. The market agrees: biochar grew **435% by volume in 2024**, from $14.6M to $181.5M, faster than any other credit category.

1,000+ Year Permanence

Permanence is what separates premium credits from junk. Forestry credits offer 10–100 years but face reversal risks from fire, disease, and land-use change. Soil carbon degrades within decades. Biochar's aromatic carbon structure is **thermodynamically stable for 1,000+ years**—verified through peer-reviewed geochemistry research (Lehmann et al., 2015). This is why **Swiss Re signed a 7-year, 70,000-tonne contract exclusively for biochar credits**.

3:1 Removal Ratio

Each tonne of biochar removes approximately **3 tonnes of CO_2** from the atmosphere when accounting for the full lifecycle: avoided emissions from waste decomposition, direct carbon sequestration, and reduced fertilizer requirements from improved soil health.

Premium Pricing, Growing Demand

Biochar credits trade at **$148–$170/tonne**, with confirmed transactions at **$200/tonne** (NextGen CDR Facility). This 10–300x premium over avoidance credits reflects buyer confidence in the science. And the agricultural carbon credit market is growing at **31.9% CAGR to 2034**—meaning today's prices are the floor, not the ceiling.

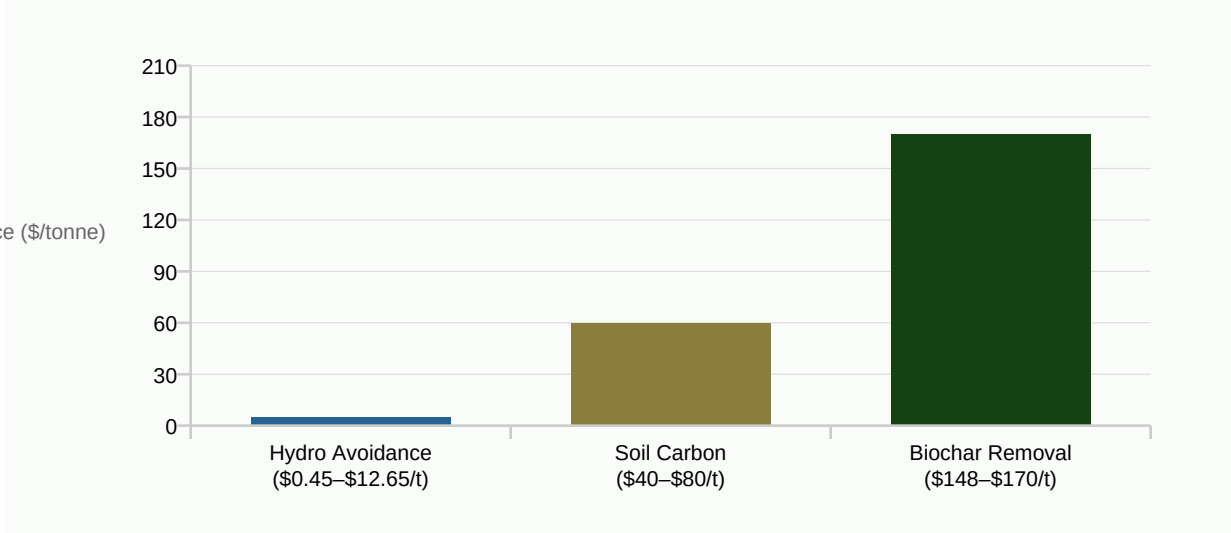

Figure 1: Carbon credit pricing by type (representative mid-range values, 2025–2026)

Supply is already constrained: 2025 biochar supply was nearly sold out by Q3. Over **40% of 2026 supply is locked under forward contracts**. Buyers who wait risk paying more—or being shut out entirely.

The Biochar Production Process

CarbonAtmos operates a **vertically integrated production model**—from agricultural waste sourcing through pyrolysis to certified soil application. We own every step of the chain. No dependencies on third-party processors. No middlemen. Full chain-of-custody documentation and quality control at every stage.

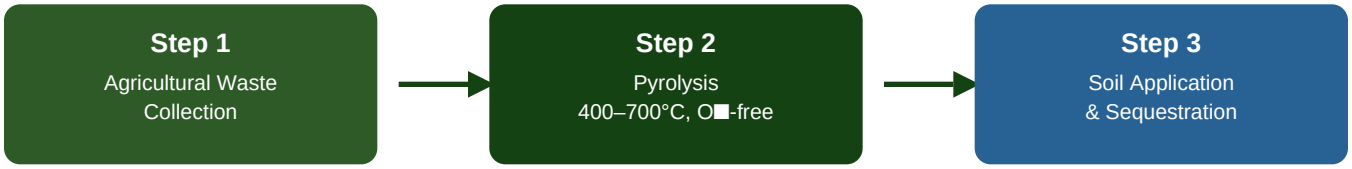

Figure 2: CarbonAtmos biochar production and sequestration process

Step 1: Agricultural Waste Collection

Feedstock is sourced from our own partner operations: **corn stalks and residues** from our 5–10K hectare contract grower network in Jember, East Java, and **pineapple processing waste** (65–70K tonnes/year available) from Nature's Fresh in Bukidnon, Philippines. Feedstock cost: **$5–$15/ton**—company waste at near-zero cost. This waste would otherwise decompose in open fields, releasing methane and CO_2.

Step 2: Pyrolysis

Biomass is processed through **WasteX Carbonizer** units—industrial pyrolysis systems operating at 400–700°C in oxygen-free conditions. Output: **84% fixed carbon** with an **H:C molar ratio below 0.4**—exceeding the thresholds required by Puro.earth and the European Biochar Certificate (EBC). Production cost per ton: **~$45–$110**. Revenue per ton: **$555–$580**. That's a **405–535% gross margin**.

Step 3: Soil Application & Permanent Sequestration

Certified biochar is applied to agricultural soils for **permanent carbon storage** and **measurable soil improvement**: 20–30% increased water retention, reduced fertilizer runoff, and improved microbial habitat. This creates direct economic value for host farmers—and an additional revenue stream through **biochar-coated seeds** (PT AHSTI already produces 5 corn seed varieties, with biochar coating commanding a **25–40% seed premium**).

Quality Metrics

Parameter	Target	Standard
Fixed Carbon Content	≥84%	Puro.earth CORC / EBC
H:C Molar Ratio	<0.4	EBC / IBI Guidelines
Polycyclic Aromatic Hydrocarbons	<6 mg/kg (basic)	EBC Premium Grade
Heavy Metals	Below threshold	EU Fertiliser Regulation 2019/1009
Moisture Content	<30%	Transportation & storage spec

Table 1: CarbonAtmos biochar quality specifications

Our Portfolio

CarbonAtmos is structured as a **multi-asset carbon credit portfolio**—the only supplier combining verified removal credits (biochar) with certified avoidance credits (hydropower) under a single commercial framework. Three active verticals. Two countries. One point of contact.

Hydropower Avoidance Credits — Philippines

Euro Hydro Power operates four run-of-river hydroelectric plants with a combined capacity of **9.6 MW**, backed by **129 Department of Energy contracts**. These facilities generate **GCC-certified avoidance credits** that are CORSIA-eligible—qualifying for aviation industry mandatory offset requirements beginning in 2027. Hydro credits provide high-volume, lower-cost offsets ($0.45–$12.65/tonne) ideal for large-scale compliance buyers.

Corn Biochar — Indonesia

Operations are based in **Jember, East Java, Indonesia**, in partnership with **PT AHSTI**. Corn stalk and residue feedstock is processed through **WasteX Carbonizer** units on-site, with **20,000 tonnes/year capacity** and a 5–10K hectare contract grower network. Credits are certified through **Puro.earth** as CO_2 Removal Certificates (CORCs). Indonesia's PR 110/2025 lifted the carbon credit trading moratorium—and PT AHSTI is positioned to capitalize immediately.

Pineapple Biochar — Philippines

Pineapple waste operations target **65–70K tonnes/year of processing waste** from **Nature's Fresh** operations in **Bukidnon, Mindanao, Philippines**. The Philippines is the world's second-largest pineapple producer, generating millions of tonnes of processing waste annually—virtually none of which is currently converted to biochar. **CarbonAtmos is the first company globally to produce certified carbon removal credits from pineapple waste biochar.**

Vertical	Type	Location	Capacity	Certification	Price Range
Euro Hydro Power	Avoidance (Hydropower)	Philippines (4 ROR plants)	9.6 MW 129 DOE contracts	GCC CORSIA eligible	$0.45–$12.65/t
Corn Biochar	Removal (Biochar)	Jember, Indonesia	20K t/yr capacity	Puro.earth CORC	$148–$170/t
Pineapple Biochar	Removal (Biochar)	Bukidnon, Philippines	65K t/yr feedstock	Puro.earth CORC	$148–$170/t

Table 2: CarbonAtmos credit portfolio overview

Proven Market

These are not projections. These are confirmed transactions from companies already buying what CarbonAtmos sells—biochar removal credits and SE Asian carbon credits.

Who Is Already Buying

- **Microsoft** — 5.1M tonnes/yr CDR commitment, 129K tonnes biochar purchased (46% of all biochar credits ever bought globally)
- **Altitude (Switzerland)** — 360K tonnes of CORCs purchased from Alcom Philippines. Already buying Philippine biochar from our region.
- **Green Carbon Inc (Japan)** — Active MOU with Alcom Philippines for biochar credits.
- **Grab (SE Asia)** — Purchasing Indonesian corn cob biochar now (Biochar Life project).
- **Offset8 Capital (Abu Dhabi)** — $50M committed to Indonesian biochar (Sawa project).
- **Google** — 100K tonnes via Varaha, Frontier founding member.
- **Swiss Re** — 70K tonnes, 7-year contract, exclusively biochar removal credits.
- **Boeing** — 40K tonnes, specifically purchasing SE Asian biochar.
- **Shopify** — 11K tonnes CDR, 50+ carbon removal partners.
- **NextGen CDR Facility** — 193K tonnes advance purchase pool at **$200/tonne confirmed**.

> **Key insight:** Altitude and Green Carbon Inc are already buying Philippine biochar. Grab and Offset8 are already buying Indonesian biochar. These are not cold leads—they are warm markets with proven demand for exactly what CarbonAtmos produces.

Market Size & Growth

The voluntary carbon market exceeds **$2 billion**, growing at **30%+ annually**. The agricultural carbon credit segment is growing at **31.9% CAGR to 2034**. CORSIA mandates beginning in 2027 create **billions in captive annual demand** from aviation alone. And **40% of 2026 biochar supply is already locked under forward contracts**—meaning the buyers who act first get supply, and the rest get wait-listed.

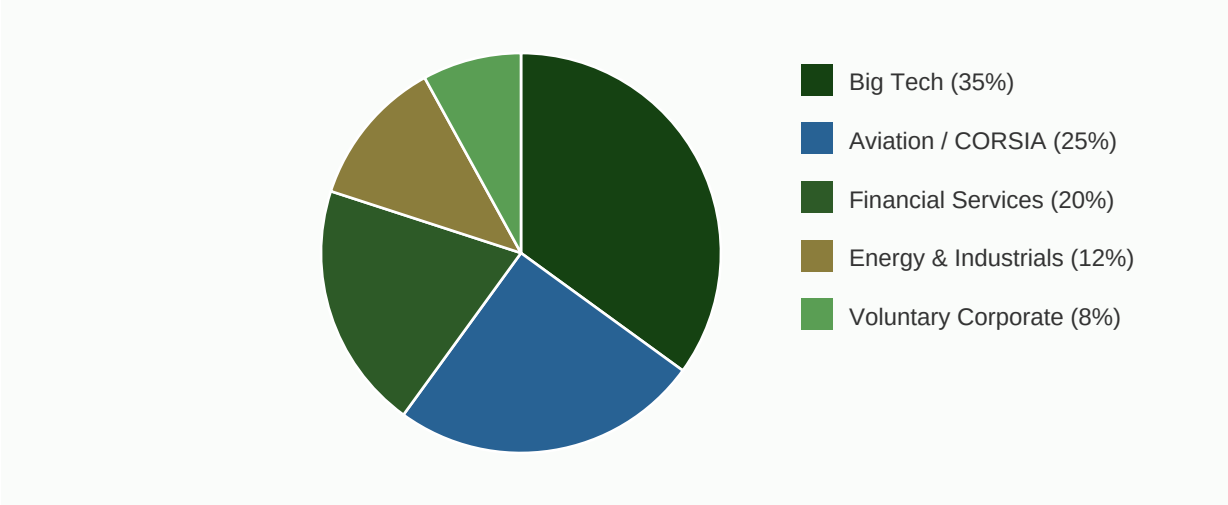

Figure 3: Projected carbon credit buyer segments by demand share (2026–2030 outlook)

Our Competitive Edge

CarbonAtmos is not a reseller. We are a **vertically integrated carbon removal company** with direct control over every link in the chain—feedstock, production, certification, and distribution. Here is why that matters for your portfolio.

Only Multi-Asset Carbon Credit Supplier

No other supplier combines **biochar removal credits** and **hydropower avoidance credits** under one roof. One relationship gives you portfolio diversification, supply resilience, and optimized pricing across credit types—from $0.45/t hydro offsets to $170/t premium biochar.

405–535% Gross Margins

Feedstock cost: **$5–$15/ton** (company agricultural waste, near-zero cost). Production cost: **$45–$110/ton**. Revenue per ton: **$555–$580** across all credit and co-product streams. Our margins are **3–5x higher than competitors** who purchase feedstock at market rates. Conservative annual revenue: **$4.8M–$10.4M**. High case with premium pricing: **$17.3M–$30.5M/year**.

Zero Competition in Pineapple Biochar

A search of CDR.fyi, Puro.earth, and Carbonfuture reveals **zero active pineapple waste biochar producers globally**. CarbonAtmos is the first—with 65–70K tonnes/year of feedstock already secured through Nature's Fresh. This is a category we own.

Southeast Asia First-Mover

Zero major biochar producers in the region despite **abundant agricultural waste**. Indonesia's PR 110/2025 just unlocked carbon credit trading—PT AHSTI is positioned. Our local partnerships and regulatory relationships create a **moat competitors cannot cross quickly**.

Warm Leads, Not Cold Calls

Altitude is already buying Philippine biochar (360K CORCs from Alcom). **Green Carbon Inc** has an active MOU in the Philippines. **Grab** is buying Indonesian corn cob biochar now. These are proven buyers in our exact market—the sales cycle is measured in months, not years.

Biochar-Coated Seeds: Hidden Revenue

PT AHSTI already produces **5 corn seed varieties**. Adding biochar coating commands a **25–40% seed premium**—an additional **$6.5M–$13M/year** revenue stream that no carbon-credit-only competitor can replicate.

> **The urgency is real:** 40% of 2026 biochar supply is already under forward contract. The ICVCM CCP label will drive 200–300% price premiums when applied. CORSIA mandates begin in 2027. Buyers who secure CarbonAtmos credits now lock in pre-premium pricing and guaranteed supply.

Certification & Trust

84% of carbon credits fail independent audit (Sylvera, 2024). That statistic is why institutional buyers pay premium prices for credits they can trust. Every CarbonAtmos credit is certified under the most rigorous standards available—the same standards demanded by Microsoft, Swiss Re, and Boeing.

Global Carbon Council (GCC)

Our hydropower credits are certified under the **Global Carbon Council**—a CORSIA-eligible standard recognized by ICAO. GCC certification requires independent third-party validation, conservative baseline methodology, and ongoing monitoring. CORSIA eligibility means these credits qualify for **mandatory aviation offset purchases** beginning in 2027—a market projected to exceed $8 billion annually.

Puro.earth — CO_2 Removal Certificates (CORCs)

Our biochar credits are certified through **Puro.earth**, the world's leading carbon removal registry. CORCs are recognized by the **Science Based Targets initiative (SBTi)** and purchased by Microsoft, Shopify, and Stripe. Puro.earth methodology requires feedstock sustainability documentation, pyrolysis temperature verification, carbon content analysis (H:C ratio), and proof of soil application—the most stringent biochar standard in the market.

European Biochar Certificate (EBC)

CarbonAtmos biochar meets **EBC Premium Grade** quality standards—the European benchmark for biochar purity and carbon stability. EBC certification ensures PAH levels below 6 mg/kg, heavy metal compliance with EU Fertiliser Regulation 2019/1009, and H:C ratios confirming permanent sequestration.

ICVCM Core Carbon Principles (CCP)

The CCP label is emerging as the gold standard quality benchmark. Credits bearing the CCP label command a **200–300% price premium** over unlabeled credits. CarbonAtmos is actively pursuing CCP labeling across all three verticals—buyers who secure credits now lock in pre-CCP pricing before the premium kicks in.

> **Your audit trail is bulletproof.** Every CarbonAtmos credit carries full chain-of-custody documentation from feedstock to final retirement, independent third-party verification, and compliance with the standards your ESG team and auditors demand. No surprises. No retractions.

Secure Your Carbon Credits

CarbonAtmos serves institutional buyers through a **direct engagement model**. No middlemen. No exchange fees. No opaque pricing.

Custom volumes | Forward contracts | Dedicated account management

Email: atlas.systems3@gmail.com | Web: carbonatmos.com

Request a quote today. Supply is limited.

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Data current as of March 2026. Market prices and projections are indicative and subject to change. This document is for informational purposes and does not constitute financial advice or a binding offer.

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