Decarbonizing at scale: How Buyofuel is making Green Energy bankable

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Indiaâ??s clean energy ambitions hinge on scalable, accountable, and commercially viable biofuel adoptionâ??and Buyofuel is fast emerging as the digital infrastructure powering that shift. In an exclusive conversation with AgroSpectrum, CEO Kishan Karunakaran outlines how the platform is catalyzing Indiaâ??s decarbonization goals by transforming agri-residues, used cooking oil, and waste streams into certified, traceable low-carbon fuels for industry. More than a marketplace, Buyofuel digitizes and de-risks a fragmented biofuel sector, offering real-time pricing, quality assurance, and logistics support across biomass, biodiesel, and bio-CNG.

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The platform is already enabling 30â??60 per cent emissions reductions for industrial clients and is gearing up for next-gen fuels like ethanol and SAF, while piloting blockchain-based traceability and AI-led demand forecasting. As India targets 20 per cent ethanol blending by 2025 and a 45 per cent emissions cut by 2030, Karunakaran positions Buyofuel not as a peripheral player but as a foundational node in the circular energy economy. With an eye on Southeast Asia and Africa, Buyofuel is also building a blueprint for emerging markets to leapfrog into a clean, inclusive bioenergy future.

Letâ??s begin with the big picture.
India has committed to blending 20 per cent ethanol by 2025 and reducing emissions intensity by 45 per cent by 2030. How does Buyofuelâ??s model directly contribute to these national targetsâ??and where do you see your platform fitting into Indiaâ??s broader decarbonization architecture ?

Buyofuel directly aligns with Indiaâ??s ethanol blending and emission reduction goals by digitizing the biofuel supply chain. The platform connects fragmented suppliers of used cooking oil, agri-residues, and biomass to industrial buyers and blenders, ensuring reliable, traceable access to low-carbon fuels. By doing so, it addresses two critical bottlenecks-feedstock mobilization and assured offtake-that often slow down Indiaâ??s blending and decarbonization targets.

Beyond ethanol, Buyofuel facilitates adoption of biodiesel, briquettes, and bio-CNG, all of which displace fossil fuel use in industrial and transport sectors. This not only contributes to Scope 1 and Scope 2 reductions for industries but also aggregates national impact in line with Indiaâ??s 2030 decarbonization roadmap. By embedding traceability and quality assurance into each transaction, the platform ensures every tonne of biofuel traded can be credibly linked to carbon savings. In effect, Buyofuel acts as a digital bridge between Indiaâ??s ambitious targets and ground-level execution, accelerating both scale and trust.

Buyofuel is described as Indiaâ??s first digital marketplace for biofuels.
Is this just a tech-enabled trading platformâ??or do you see it as a strategic node in Indiaâ??s circular energy economy? How does the platform solve for scale, speed, and standardization in a fragmented biofuel supply chain?

Buyofuel is much more than a tech-enabled marketplace. While it began as a platform to match biofuel buyers and sellers, its real value lies in being a strategic node of Indiaâ??s circular energy economy. The platform converts waste streams-used cooking oil, crop residues, food waste-into tradable, bankable energy, aligning with both sustainability and energy security goals. To solve for scale, Buyofuel digitizes a highly fragmented supply chain, onboarding small suppliers and aggregators who previously lacked market access.

For speed, the platform uses real-time pricing algorithms and logistics support, reducing transaction cycles from weeks to days. For standardization, Buyofuel embeds quality certification, traceability tools like BuyoTrace, and compliance with BIS standards, ensuring consistency across fuels and geographies. By integrating technology, market access, and trust infrastructure, Buyofuel transforms an informal, scattered sector into a structured, scalable marketplace that can support Indiaâ??s energy transition at pace. It is infrastructure, not just a platform.

Letâ??s talk about industrial decarbonisation.
From cement kilns to commercial fleets, how are your clients using Buyofuel to switch to low-carbon fuelsâ??and what kind of real-world emissions reductions are being recorded across sectors?

Buyofuel is enabling industrial decarbonization at scale by providing direct access to low-carbon fuels. Cement plants are substituting coal with biomass briquettes, reducing carbon intensity of clinker production. Food processing industries and hotel chains are replacing furnace oil with biodiesel sourced via the platform, lowering Scope 1 emissions. Fleet operators are piloting bio-CNG for logistics, particularly in urban clusters.

On average, industries switching to biofuels through Buyofuel are reporting 30-60 per cent reductions in their carbon footprint from fuel use, depending on the sector and feedstock. For instance, every tonne of biomass briquettes displaces nearly 1.5 tonnes of COâ?? equivalent compared to coal. Similarly, a switch from diesel to biodiesel reduces lifecycle emissions by up to 78 per cent. Buyofuel captures and reports these savings through traceability, giving clients verifiable ESG metrics. By making these reductions measurable and auditable, the platform doesnâ??t just supply fuelâ??it enables industries to actively demonstrate and quantify progress toward decarbonization targets.

Youâ??re operating at the convergence of waste, energy, and policy.
India produces more than 500 million tonnes of agri-residues annually, much of which is burned. How is Buyofuel turning this into a bankable energy streamâ??and are there policy or logistical bottlenecks still holding back this transition?

India generates over 500 million tonnes of agricultural residues annually, much of which is burned, worsening air pollution and wasting energy potential. Buyofuel digitizes this challenge into an opportunity by connecting local aggregators, farmers, and biomass processors to industrial buyers seeking affordable, low-carbon fuels. Through its marketplace, residues like rice husk, bagasse, and cotton stalks are converted into briquettes, pellets, or directly used for bio-CNG feedstock. This creates additional farmer income streams while reducing open-field burning.

However, logistical challenges remain-collection, storage, and transport of bulky residues is expensive, and seasonal availability creates supply gaps. Policy bottlenecks include limited minimum support pricing for biomass and uneven state-level incentives. Buyofuel bridges these gaps by pooling demand, supporting logistics partners, and creating assured offtake markets. But scaling this transition fully will require targeted policy supportâ??such as viability gap funding and carbon credit monetization-to make residue-to-energy economically attractive for all stakeholders across Indiaâ??s agricultural belt.

Weâ??re increasingly seeing sustainability move from CSR to CFO.
How does Buyofuel enable your industrial customers to meet ESG benchmarks or reduce Scope 1/2 emissions? Are carbon credits or verifiable emission savings part of the platformâ??s roadmap?

Sustainability has moved from boardrooms to balance sheets, and Buyofuel positions itself as a tool for CFOs and sustainability officers alike. By switching to biofuels through the platform, industries directly reduce Scope 1 emissions from combustion and Scope 2 emissions linked to grid electricity, where bio-CNG and biomass replace conventional fuels. The platform also provides auditable data on emissions savings, supporting ESG disclosures and compliance with global reporting frameworks such as GRI and CDP.

This transparency allows industrial clients to quantify carbon reductions in annual sustainability reports, strengthening investor confidence. Buyofuelâ??s roadmap includes enabling carbon credits by linking verified transactions to policy-aligned carbon markets. This will give industries not only fuel cost savings but also a second layer of financial value through credits. In essence, Buyofuel transforms compliance into competitive advantage by embedding decarbonization into daily procurement, making sustainability both measurable and monetizable for Indian industry.

Trust is a major concern in digital fuel trading.
What mechanismsâ??pricing algorithms, quality certification, logistics trackingâ??have you built to ensure industrial buyers are willing to shift fuel procurement online?

Trust is the foundation of digital procurement, and Buyofuel has built mechanisms to address quality, pricing, and delivery assurance. The platform integrates transparent pricing algorithms based on live market conditions, reducing buyer skepticism around cost volatility. For quality, every supplier is required to provide certification in line with BIS standards, supported by BuyoTrace, a digital tool that ensures traceability of feedstock origins and production processes. Logistics tracking, through GPS-enabled transport partners, allows buyers to monitor their consignment in real time.

In cases of dispute, Buyofuel provides arbitration and escrow-linked payments, ensuring funds are released only upon confirmed delivery. These mechanisms build confidence among large industrial clients, who otherwise face high risk in informal markets. By combining technology with trust infrastructure, Buyofuel creates an environment where industries are willing-and increasingly eager-to shift fuel procurement online, knowing their cost, quality, and sustainability criteria are consistently met.

Biofuel adoption often suffers from variability in quality and availability.
How do you ensure consistent fuel specs and supply chain reliability across regions, and how are you integrating with local aggregators or processors to close the last-mile gap?

Variability in fuel quality and supply has historically slowed biofuel adoption. Buyofuel addresses this challenge by creating an integrated ecosystem of verified suppliers, processors, and logistics partners. The platform standardizes specifications-such as calorific value for briquettes or ester content for biodiesel-against national and international benchmarks, rejecting suppliers who do not comply. To ensure consistency across regions, Buyofuel partners with local aggregators and processors, creating decentralized nodes of supply that can meet demand without long-distance transport bottlenecks.

The platform also employs predictive analytics to forecast demand and manage seasonal fluctuations in feedstock availability. Logistics tie-ups ensure last-mile delivery, particularly for smaller MSME buyers. Together, these measures close the reliability gap, ensuring industries have continuous access to compliant, quality-assured fuels. By converting a fragmented, informal supply chain into a digitally integrated network, Buyofuel makes biofuel procurement as predictable and professional as conventional fossil fuel sourcing.

Letâ??s zoom out.
As the IEA predicts bioenergy will account for nearly 30 per cent of global renewable energy demand by 2030, what does Buyofuelâ??s global ambition look like? Is there a blueprint for scaling to other emerging markets?

As the International Energy Agency projects bioenergy to contribute 30 per cent of global renewable demand by 2030, Buyofuel sees itself as a scalable model for other emerging economies facing similar challenges of waste, energy access, and decarbonization. Its blueprint rests on three pillars: digitizing fragmented feedstock supply, embedding trust through traceability and certification, and enabling policy-linked adoption at scale. Southeast Asia, with its abundance of palm oil residues and rising industrial energy demand, is a natural next market. Africa, where biomass is already the dominant energy source but lacks formal markets, offers another opportunity.

Buyofuelâ??s model can be adapted through local aggregator partnerships and integration with regional carbon markets. While India remains its home base, the company envisions becoming a pan-emerging-market infrastructure provider for biofuels, enabling developing economies to leapfrog fossil dependence. Global ambition, for Buyofuel, means scaling trust infrastructure across borders while retaining local adaptability.

Innovation at the edge: compressed biogas, ethanol, and beyond.
Whatâ??s the next frontier for Buyofuelâ??are you venturing into new fuel categories, blockchain traceability, or AI-driven fuel demand forecasting?

Buyofuelâ??s future lies in innovation that integrates fuels, technology, and finance. The platform is expanding beyond biomass, biodiesel, and bio-CNG into newer categories like ethanol and sustainable aviation fuel, preparing for the next wave of demand. On the technology side, blockchain-based traceability is being piloted to provide immutable records of feedstock origin and carbon savings, which will be crucial for carbon credit trading.

AI-driven forecasting is another frontier-using machine learning to predict regional demand patterns, optimize logistics, and align suppliers with upcoming industrial needs. These innovations not only improve efficiency but also enhance trust, compliance, and monetization opportunities for stakeholders. By combining fuel diversification with digital intelligence, Buyofuel aims to future-proof its marketplace, ensuring it remains relevant as Indiaâ??s energy transition evolves from coal replacement today to aviation and hydrogen fuels tomorrow. Innovation at the edge ensures Buyofuel grows with, and ahead of, market needs.

Final question: Youâ??re not just selling fuelâ??youâ??re shaping infrastructure.
In your view, what role will digital marketplaces like Buyofuel play in making India's clean energy transition faster, fairer, and commercially viable?

Digital marketplaces like Buyofuel are not just intermediaries; they are enablers of infrastructure. Indiaâ??s clean energy transition requires not only new fuel technologies but also systems that can mobilize waste, aggregate supply, and guarantee reliable, transparent access to biofuels at scale. Buyofuel provides that infrastructure digitally, bridging the gap between policy ambition and industrial adoption. By lowering transaction costs, ensuring standardization, and embedding trust mechanisms, it accelerates adoption across MSMEs and large industries alike.

Equally important, it democratizes participation, enabling small farmers, aggregators, and processors to plug into national decarbonization goals. The result is a faster, fairer, and commercially viable energy transition. In a country where logistics and trust often block sustainable fuel adoption, Buyofuel represents a model for how digital ecosystems can make clean energy accessible, affordable, and accountable. In the broader decarbonization architecture, it is not peripheral-it is foundational.

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