

Comparative Market Insights: Biomass vs Fossil Fuel Costs

Why Biomass Is Becoming a Cost-Competitive Industrial Fuel in India

Rising fossil fuel prices, carbon-reduction targets, and energy supply volatility are driving Indian industries to evaluate biomass and biofuels as sustainable alternatives. Beyond environmental benefits, the **economics are increasingly favourable** when viewed across energy output, transport, and supply stability.

This report compares **cost-per-ton economics, bio-CBG, biodiesel, and pellet viability**, plus **industrial substitution potential** in the Indian market context.

1. Cost-Per-Ton & Cost-Per-Energy Comparison

A meaningful comparison looks beyond price per tonne and focuses on usable energy output and stability.

Fuel Type	Indicative Cost (India)	Notes
Coal	₹6,000–₹10,000 / MT	Typical industrial coal range depending on grade and region ¹
Furnace Oil / LDO	~₹55–₹75 / litre	Estimated industrial fuel oil range ²
Biomass Pellets	₹6,000–₹16,000 / MT	Indian market pellet price range ³

Agro Biomass (Husk, Straw)	₹2,000–₹6,000 / MT	Typical unresolved agro waste guiding price
Bio-CBG	Competitive vs PNG (policy + local)	SATAT/CBG policy supports adoption ⁴
Biodiesel (B100)	~₹65–₹100 / litre	Market quotes for biofuel range ⁵

Key insight: On a usable energy basis, biomass alternatives (pellets, agro biomass) can undercut fossil fuels; especially when sourced locally and transport costs are controlled.

References:

¹ Coal price varies by mine and grade; recent policy changes are affecting domestic coal pricing. [Reuters](#)

² Industrial furnace oil and LDO prices fluctuate; depot prices are currently within this band. [PetroBazaar](#)

³ Biomass pellet market price ranges widely based on feedstock and quality. [RKWindmast](#)

⁴ National bio-CNG (SATAT) policy incentivizes adoption of CBG from waste biomass. [UnivDatos](#)

⁵ Biofuel listings show industrial bio diesel prices in this range. [ExportersIndia](#)

2. Bio-CBG Economics (Compressed Biogas)

Bio-CBG (compressed biogas) is emerging as an alternative to CNG/PNG for industrial heat and transport.

Why it works:

- Produced from agro waste, pressmud, food waste, and other organics
- Backed by the **SATAT scheme** to accelerate production and offtake
- Lower carbon footprint, stable pricing potential

Cost advantage:

Bio-CBG becomes economically attractive when feedstock sourcing is localized and **long-term supply contracts** are in place, reducing transport cost exposure.

Reference:

National biomass market reports highlight growing bio-CBG segments driven by policy and investment. [UnivDatos](#)

3. Biodiesel Economics

Biodiesel (B100) from used cooking oil (UCO) and animal fats is becoming more competitive:

Key drivers:

- Strong domestic demand from bulk consumers and blending mandates
- “Repurpose Used Cooking Oil (RUCO)” and other policy frameworks
- Lower exposure to crude oil price swings compared with diesel

Use case fit:

Biodiesel is especially suitable for fleets, generators, and industrial engines where **fuel price predictability** matters.

Reference:

Biofuel market data shows industrial biofuel pricing in the ₹65–₹100 per litre range. [ExportersIndia](#)

4. Biomass Pellets vs Coal

Industries using boilers and kilns are increasingly adopting biomass pellets due to:

- **Lower emissions**
- **Reduced regulatory constraints**
- **Comparable operating costs** during peak coal price periods

When pellets make sense:

- Plants within **200–300 km** of reliable pellet supply
- Boilers capable of handling biomass blends

- Regions where coal transport costs are high

Pellets provide **stable landed costs**, particularly when coal prices spike due to global crude volatility.

Reference:

India's pellet markets show pricing that can broadly match lower-end coal costs once transport and moisture are factored in. [RKWindmast](#)

5. Industrial Substitution Potential

Biomass and biofuels can partially or fully replace fossil fuels in:

- Cement & steel industry boilers
- Power and captive thermal plants
- Food & beverage manufacturing
- Textile and chemical processing
- Logistics and fleet fuel use

Substitution often begins with **10–30% blended fuel mixes**, scaling based on performance and operating economics.

Reference:

Industry projections and adoption trends highlight increasing biomass integration for cleaner energy use. [UnivDatos](#)

6. Why This Comparison Matters

For Indian industries, the fuel choice is no longer only ESG-driven; it's **economic**:

Key business benefits:

- **Reduced cost volatility:** Biomass pricing is more locally anchored
- **Lower compliance risk:** Cleaner fuel helps meet environmental norms
- **Improved ESG metrics:** Biomass reduces carbon intensity
- **Localized sourcing:** Less dependence on imported energy

Deploying a mix of fossil and renewable fuels often delivers operational resilience.

7. How BioTradX Supports Cost-Effective Transition

BioTradX helps procurement teams make smarter fuel decisions through:

- **Price discovery** across biomass & biofuel categories
- **Region-wise supplier matching**
- **Quality-linked pricing transparency**
- **Secure escrow-based transactions**
- **Reduced procurement risk** for alternative fuels

This supports **data-backed fuel diversification strategies**.

Key Takeaway

Biomass and biofuels are no longer just greener alternatives; they are **commercially viable energy options** for Indian industries. When evaluated on landed cost, energy output, and operational risk, biomass often **competes strongly with traditional fossil fuels**.

Platforms like **BioTradX** make this transition **practical, transparent, and scalable**.

