

# India Biomass Market: Current Analysis and Forecast (2025-2033)

<https://marketpublishers.com/r/IFA1CEE87395EN.html>

Date: July 2025

Pages: 90

Price: US\$ 3,999.00 (Single User License)

ID: IFA1CEE87395EN

## Abstracts

Biomass is a renewable energy source that is produced by the use of organic material such as crop residue, wood, animal waste, and biodegradable municipal waste. Also, it generates heat, electricity, and fuels such as biogas and biodiesel by combustion, anaerobic digestion, and gasification methods. In India, biomass is a very much needed component of clean energy, especially in agrarian-based and rural economies.

The India Biomass market is set to show a growth rate of about 7.47% during the forecast period (2025-2033F). The favorable government policies, such as SATAT (Sustainable Alternative Towards Affordable Transportation) and the National Bio-Energy Programme, are accelerating infrastructural and plant growth. Adding to this, the agricultural potential in India is very high, and therefore, the country has a continuous supply of crop residues, which comprise the backbone of India's biomass value chain. Also, the rise in industries demanding cleaner and comparatively economical energy is driving companies towards the use of biomass solutions. Therefore, these developments are establishing a healthy environment of scalable and sustainable biomass in the nation.

On March 28, 2025, Department of Agriculture and Farmers Welfare (DA&FW) is primarily supporting the efforts of States of Punjab, Haryana, Uttar Pradesh and NCT of Delhi for combating paddy stubble burning under the Crop Residue Management Scheme being implemented from 2018-19, focusing on both in-situ and ex-situ management of paddy straw. The intervention aims at establishing a robust supply chain of paddy straw for various end-user industries in biomass power generation and biofuel sectors.

Based on the product, the market is segmented into solid biomass, liquid

biofuels, biogas, and others. Among these, the biogas market segment is expected to grow with a significant CAGR during the forecast period (2025-2033), with the rising interest in sustainable energy and circular waste management. Driven by government initiatives, projects such as SATAT are encouraging the private sector's involvement in establishing compressed biogas (CBG) plants. This creates new sales points for businesses in raw materials procurement, construction of plants, and marketing of Compressed Bio Gas (CBG). For instance, on April 23, 2025, following its earlier announcement on September 13, 2024, Bharat Petroleum Corporation Limited (BPCL) and GPS Renewables Private Limited officially entered into a Joint Venture (JV) agreement to establish Compressed Biogas (CBG) plants across India. This strategic alliance is a significant step towards advancing India's energy transition and contributing to BPCL's Net Zero goals.

Based on the feedstock type, the market is segmented into dedicated energy crops, agricultural crop residue, forestry residues, sorted municipal waste, and others. Among these, the agricultural crop residue market held a significant share of the market in 2024. The agricultural sector of India produces a substantial amount of waste products, including crop residue, which is now being converted into a source of biomass that businesses are utilizing as a steady feedstock. The push to stop stubble burning in North India also accelerates the pumping of residue and processing activities. This enhanced and affordable availability favors the feasibility of expanding biomass projects and long-term energy contracts.

Based on the application, the market is segmented into industrial, transportation, residential, power & heat generation, and commercial. Among these, the power & heat generation is expected to grow with a significant CAGR during the forecast period (2025-2033). The low-emission energy solutions demanded in industries are driving the use of biomass in power and thermal applications. Firms are capitalizing on the use of biomass to produce captive power, cogeneration, and the substitution of fossil fuels in boilers. Coupled with regulatory incentives, Renewable Energy Certificates (RECs) and green power targets add more rewards to companies investing in biomass-based utilities.

For a better understanding of the market adoption of the India Biomass market, it is analyzed based on its state-wise presence in India, such as North India, East India, West India, and South India. South India is expected to grow with a significant CAGR during the forecast period (2025-2033). The South region is

emerging as a promising, rapidly expanding biomass market, driven by industrial demand for biomass and robust, well-developed renewable energy policies, such as those in Tamil Nadu, Andhra Pradesh, and Karnataka. These states offer an active regulatory climate, good grid connectivity, as well as co-firing and decentralized energy incentives. Firms are turning to biomass boilers and CBG plants to minimize their dependency on coal and oil. The existence of mature biomass equipment suppliers and EPC companies also facilitates speedier project development. Due to increased awareness of sustainable energy and governmental goals, the South is becoming a hotspot for biomass-based industrial development.

Some major players running in the market include Punjab Renewable Energy System Pvt. Ltd., Husk Power Systems Pvt. Ltd., Abellon CleanEnergy Limited, Thermax Limited, SHALIVAHANA GROUP, ORIENT GREEN POWER COMPANY LIMITED, A2Z Group, BIOD ENERGY (INDIA) PVT LTD., Universal Biofuels Private Limited (Aemetis, Inc.), Godawari Power & Ispat Limited.

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