# India Biomass Market will Expected to Grow at a CAGR of 5.2%, Reaching US$ 4.3 billion by 2035 | TMR Research

*India Biomass Market Outlook 2035: Driven by Renewable Energy Goals and Agricultural Waste Utilization*

WILMINGTON, DE, UNITED STATES, September 26, 2025 /EINPresswire.com/ -- The India Biomass Market, valued at US$ 2.5 billion in 2024, is projected to expand at a compound annual growth rate (CAGR) of 5.2% from 2025 to 2035, reaching US$ 4.3 billion by 2035. Biomass, derived from organic materials like agricultural residues, wood chips, and energy crops, is a key renewable energy source in India, supporting power generation, biogas production, and biofuel applications. The market is driven by the government's ambitious renewable energy targets, abundant agricultural waste, and technological advancements in biomass conversion. Challenges include feedstock supply chain issues, policy implementation gaps, and competition from other renewables. This comprehensive report analyzes the market's overview, key drivers, challenges, regional insights, competitive landscape, and future opportunities through 2035.

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Core Market Drivers Propelling Growth to US$ 4.3 Billion
The sustained acceleration of the Indian biomass sector is primarily driven by a synergistic combination of government mandates, abundant feedstock, and escalating energy demands.

1. Favorable Government Policies and Incentives
Government backing is the single most powerful catalyst. Key initiatives are creating a demand-pull environment:

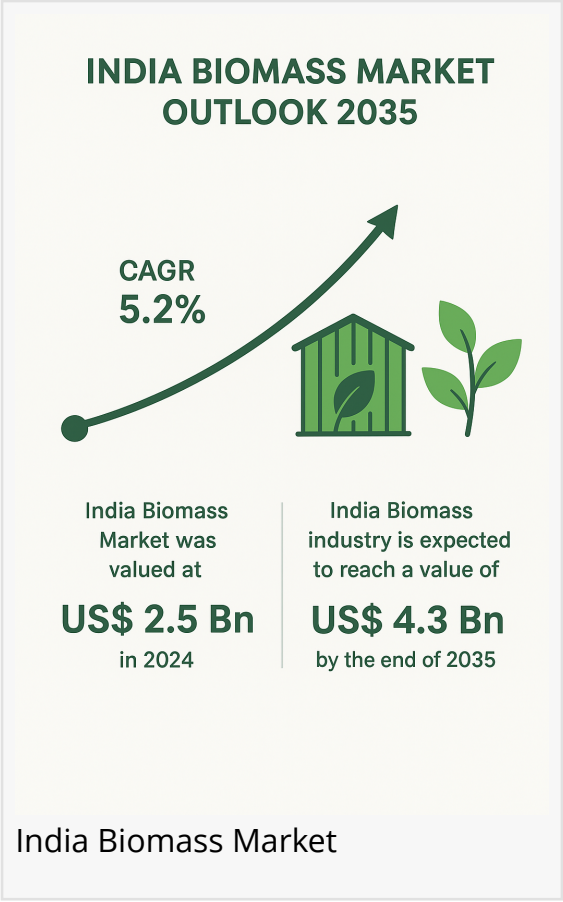
Biomass Co-firing Mandates: The Ministry of Power's directive for thermal power plants to co-fire a minimum of 5% biomass (with plans to increase) alongside coal has created massive,

immediate demand for biomass pellets and briquettes, directly addressing the problem of agricultural stubble burning.

National Bioenergy Programme (NBEP): Providing financial assistance, including subsidies and viability gap funding, for biomass-based power projects, bio-CNG (Compressed Biogas) plants, and promoting efficient conversion technologies.

SATAT (Sustainable Alternative Towards Affordable Transportation) Scheme: This scheme specifically promotes the production of Bio-CNG from various waste and biomass sources, with a guaranteed offtake by Oil Marketing Companies, providing a critical commercial anchor for project developers.

GOBARdhan Scheme: Focusing on establishing Waste-to-Wealth plants, which helps utilize cattle dung and agricultural waste for biogas production, reinforcing the circular economy model.



India Biomass Market

2. Abundant and Diversified Feedstock Availability
India's vast agricultural landscape ensures a colossal and consistent supply of raw material. The country generates an estimated 990 Million Metric Tonnes (MMT) of agricultural residue annually, with a significant portion being surplus. Major feedstocks include:

Agricultural Residues: Rice husk, bagasse (from sugarcane), rice straw, and cotton stalks, which are otherwise often burnt, contributing to severe air pollution.

Forest Residues & Dedicated Crops: Wood waste and fast-growing, non-food bio-crops for sustained energy generation.

Organic Wastes: Municipal Solid Waste (MSW) and animal waste, increasingly being diverted to Waste-to-Energy and biogas plants.

3. Energy Security and Decarbonization Commitments
India's commitments at COP26, aiming for 500 GW of non-fossil fuel capacity by 2030 and a Net-Zero target by 2070, necessitate a rapid shift from fossil fuels. Biomass provides a reliable, dispatchable source of renewable energy, often acting as a firming agent to intermittent solar and wind power. Additionally, the increasing energy demand, projected to grow robustly due to urbanization and industrialization, creates an inherent market space for biomass.

## Value Creation and Economic Multipliers

The growth of the biomass market generates significant socio-economic value beyond just energy:

Farmer Income Enhancement: The organized supply chain allows farmers to monetize crop residue, creating an additional income stream and providing a sustainable alternative to open-field burning.

Rural Employment: Developing an efficient biomass supply chain (collection, aggregation, transport, and processing) creates numerous green job opportunities in rural and semi-urban areas.

Pollution Abatement: Utilization of agricultural stubble and MSW directly tackles major environmental and public health issues associated with air pollution and landfill management.

Bio-Fertilizer Production: The residue from Compressed Biogas (CBG) production, known as Fermented Organic Manure (FOM) or digestate, is a nutrient-rich bio-fertilizer, replacing chemical fertilizers and promoting sustainable agriculture.

## Technological Trends Shaping the Market

Modernization of the market is heavily reliant on advanced conversion technologies:

Biomass Pelletization: The process of converting loose biomass into high-density, standardized pellets is critical for the co-firing mandate. It ensures uniformity, easy storage, and efficient transportation, overcoming challenges related to low bulk density.

Compressed Biogas (CBG) / Anaerobic Digestion: This biochemical process for converting organic waste and agricultural residue into high-purity biomethane (CBG) is a major focus area, aligning with the SATAT scheme for vehicular and industrial use.

Advanced Gasification Technologies: Innovations in gasification (thermochemical conversion) are improving the efficiency of converting solid biomass into synthetic gas (syngas), which can be used for power generation or further refined into chemicals and fuels.

Decentralized Energy Solutions: The development of smaller, distributed biomass-based power plants and mini/micro-grids caters to rural electrification and addresses the logistical challenges of transporting low-density biomass over long distances.

## Regional Dynamics

The market exhibits distinct regional profiles based on agricultural practices and government focus:

North India (Punjab, Haryana, UP): Dominant in solid biomass (pellets) due to extreme pressure to manage paddy straw and high demand from nearby TPPs.

West India (Maharashtra, Gujarat): Strong foothold in cogeneration (Bagasse) and emerging as a hub for CBG production using animal waste and industrial sludge.

South India (Karnataka, Tamil Nadu): Mature market with an established base of biomass-based power generation using rice husk and dedicated plantations.

Competitive Landscape

The Indian biomass market is fragmented, comprising both large energy conglomerates and a vast number of small and medium-sized enterprises (SMEs) specializing in localized supply chain management. Competition centers on securing consistent feedstock supply rather than production capacity alone.

Key Power Producers/Aggregators: Orient Green Power Company Limited, Abellon CleanEnergy Limited, and Shalivahana Group focus on utility-scale generation.

Key Biofuel & Technology Players: Praj Industries Limited (technology provider for ethanol and CBG), Indian Oil Corporation (IOCL), Bharat Petroleum (BPCL) (as major off-takers and joint venture partners in biofuels), and Universal Biofuels Private Limited.

Solid Biomass/Pellet Specialists: Companies like Punjab Renewable Energy Systems Pvt. Ltd. (PRESPL) are crucial in building the organized supply chain for co-firing.

Potential Manufacturers

Abellon CleanEnergy Limited
Ecostan
Singhal Udyog
Growmore Biotech Ltd.
Punjab Renewable Energy Systems Private Limited
Sree Amman Briquettes and Bio Fuels
Neerpati Biofuels Private Limited
Shirke Energy
TERI MEHAR AGRO FUEL INDUSTRIES
KKR Bio Fuels.
NARSIHMA AGRO INDUSTRIES
Geetha Biotech

The Road Ahead: Challenges and Opportunities
While the outlook is promising, the market must address key challenges, primarily concerning

supply chain reliability and financing. The current supply of processed biomass often falls short of the mandated demand for co-firing, highlighting the need for greater investment in aggregation infrastructure and pellet manufacturing capacity.

The path to US$ 4.3 Billion by 2035 depends on converting the vast resource potential into a commercial reality. Continuous policy support, private-sector investment in mechanized collection and processing technologies, and a coordinated ecosystem across agriculture, energy, and industry sectors will be essential to ensure India's biomass market delivers on its immense promise—creating energy, wealth, and sustainability.

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Contact:

Transparency Market Research Inc.
CORPORATE HEADQUARTER DOWNTOWN,
1000 N. West Street,
Suite 1200, Wilmington, Delaware 19801 USA

Tel: +1-518-618-1030
USA – Canada Toll Free: 866-552-3453
Website: https://www.transparencymarketresearch.com
Email: sales@transparencymarketresearch.com
Follow Us: LinkedIn| Twitter| Blog | YouTube

Atil Chaudhari
Transparency Market Research Inc.
+ +1 518-618-1030
email us here

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