

# **India Biomass Market By Type (Natural Biomass, Residual Biomass, and Biomass Produced By Energy Crops), By Technology (Thermochemical, Biochemical), By Products (Biopower, Transportation Fuels, Biogas, and Biomaterials), By End Use (Industrial, Transportation, Residential, Utility, and Commercial), By Region, Competition, Forecast and Opportunities, 2019-2029F**

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## **Abstracts**

India biomass market is expected to increase during the forecast period because India is aiming to reduce its reliance on fossil fuels in its journey to reach net-zero emissions by 2070. It has accordingly mandated utilities to co-fire biomass with coal. This will raise demand for biomass in the coming years, but ample domestic supplies mean that consumers are unlikely to turn to the seaborne market, at least in the foreseeable future.

India currently has an installed capacity of 10.2 GW for biomass production. Investments and collaborations in the biomass energy ecosystem is expected to present an ample opportunity for organizations to make climate-smart decisions and move the country closer to goal of net-zero carbon emissions. Government initiatives such as biomass power & cogeneration program along with the revised policy for biomass utilization have promoted technologies for the optimum use of the country's biomass resources. Other factors such as attractive investments from foreign green companies and technological advancements are contributing to driving the biomass market in India.

According to the MNRE (Ministry of New and Renewable Energy), the present

accessibility of biomass in India is projected at about 750 mm tonnes per year. It is renewable, widely available, carbon-neutral and has the ability to provide substantial employment in the rural areas. Biomass is also able of providing firm energy. About 32% of the total primary energy consumed in the country is still obtained from biomass and more than 70% of the country's population depends upon it for its energy requirements. Ministry of New and Renewable Energy has appreciated the potential and role of biomass energy in the Indian context and hence has introduced a number of program for promotion of efficient technologies for its use in numerous sectors of the economy to certify derivation of maximum benefits. For efficient utilization of biomass, bagasse-based cogeneration in sugar mills and biomass power generation have been taken up under biomass power and cogeneration program.

Biomass is a renewable organic material that derives from plants and animals. Biomass represses stored chemical energy from the sun that is fabricated by plants through photosynthesis. Biomass can be burned down directly for heat or transformed to liquid and gaseous fuels through numerous processes. Biomass is used for heating and electricity generation and as a transportation fuel. Biomass is a worthy fuel in many countries, especially for cooking and heating in India.

#### Biomass Power and Bagasse Co-generation Program:

To harness energy from biomass, the Ministry of New and Renewable Energy, Government of India (MNRE, GoI), and the Ministry of Power (MoP, GoI) has been working to promote the biomass power and bagasse co-generation program under biomass mission. It is projected that around 18 GW of electricity might be generated from the leftovers of agricultural and agro-industrial activities although the cumulative potential is projected to be around 28 GW. The potential for surplus power generation in sugar mills through bagasse cogeneration is estimated to be close to 8 GW. This estimate considers gradually increasing steam temperature and pressure, as well as more efficient project configuration in newly constructed sugar mills and the ongoing modernization of existing sugar mills. Therefore, the anticipated potential for biomass-based electricity is around 26 GW. Up to the end of 2020, the nation would be home to more than 550 different Biomass Independent Power Producer (IPP) and Bagasse Cogeneration-based power plants with a combined capacity of 9.37 GW. To date, approximately 550 power plants with a combined capacity of 9.37 GW have been commissioned in the states of Maharashtra, Uttar Pradesh, Karnataka, Tamil Nadu, Andhra Pradesh, Chhattisgarh, West Bengal, and Punjab, in India. These states account for most of the country's overall power generation capacity. The Bagasse Cogeneration Sector contributed 7.56 GW to this total, while the Biomass IPP Sector

contributed 1.83 GW. Till December 2020, more than 200 biomass (non-bagasse) cogeneration units with a combined capacity of 772 MW have been set up across the nation (MNRE, 2021). There is a significant amount of potential for using bio-crops to produce biofuels, such as ethanol and biodiesel, through biochemical conversion and chemical conversion methods, respectively.

Similarly, various types of biomass waste, such as wood wastes, agricultural residues, animal manures, and municipal wastes, all have significant potential for producing energy either through thermochemical or biochemical processes. In 2018, some important bioenergy programs were started viz, the New National Policy on Biofuels and the program on Energy from Urban, Industrial, and Agricultural Waste/Residues. These initiatives aimed to keep ongoing policies and programs up to date to better address the upcoming difficulties in the energy sector. In addition, the government of India has taken several initiatives to increase the amount of biogas that is produced in the nation. The New National Biogas and Organic Manure Program (NNBOMP) and the Biogas Power Generation (Off-grid) and Thermal Energy Application Program (BPGTP) were both recently introduced by the government as central schemes to ease the process of establishing biogas production units.

### India Biomass Market: Challenges

Despite the growth potential, the India biomass market faces several challenges. One of the main challenges is the accessibility and cost of biomass feedstock. The cost of biomass can differ depending on the season, location, and availability, which can impact the profitability of biomass power plants. In addition, the transportation of biomass from the source to the power plant can add to the cost.

Another challenge is the environmental effect of biomass power plants. While biomass is considered a renewable energy source, its production and use can still have adverse impacts on the environment. For example, the combustion of biomass can release greenhouse gases and other pollutants, which can contribute to climate change and air pollution. Therefore, it is essential to ensure that biomass power plants are used within environmentally sustainable practices.

Additionally, the process of biomass generation requires high initial and operating cost. High transportation, feedstock acquisition cost along with cost associated with pre-treatment technologies of biomass is expected to restrain the growth of the industry. Moreover, the additional expenses associated with cost of generating electricity is hindering the market growth.

## Market Segmentation

India biomass market is segmented into type, technology, products, end use and region. Based on type, the market is segmented into natural biomass, residual biomass, and biomass produced by energy crops. Based on technology, the market is segmented into thermochemical and biochemical. Based on products, the market is segmented into biopower, transportation fuels, biogas, and biomaterials. Based on end use, the market is segmented into industrial, transportation, residential, utility, and commercial. Based on region, the market is segmented into North India, South India, West India, and East India.

## Market Players

India Biomass market players include Bharat Petroleum Corporation Limited, Indian Oil Corporation Limited, Reliance industries Limited, Universal Biofuels Private Limited Private Limited, Khanda Biofuels Private Limited Private Limited, G-Energetic Biofuels Private Limited, Altret Industries Private Limited, Biodiesel Technocrats Private Limited, Abellon CleanEnergy Limited, and Universal Biofuels Private Limited Private Limited Private Limited.

## Report Scope:

In this report, India Biomass market has been segmented into following categories, in addition to the industry trends which have also been detailed below:

India Biomass Market, By Type:

Natural Biomass

Residual Biomass

Biomass Produced by Energy Crops

India Biomass Market, By Technology:

Thermochemical

Biochemical

India Biomass Market, By Products:

Biopower

Transportation Fuels

Biogas

Biomaterials

India Biomass Market, By End Use:

Industrial

Transportation

Residential

Utility

Commercial

India Biomass Market, By Region:

North India

West India

South India

East India

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in India biomass market.

*India Biomass Market By Type (Natural Biomass, Residual Biomass, and Biomass Produced By Energy Crops), By Tec...*

### Available Customizations:

India biomass market with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

#### Company Information

Detailed analysis and profiling of additional market players (up to five).

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