

Biomass Power Generation Market Set to Reach USD 136.2 Billion by 2035 | TMR

Governments across the globe are promoting and recognizing biomass as a reliable and dispatchable source of renewable energy.

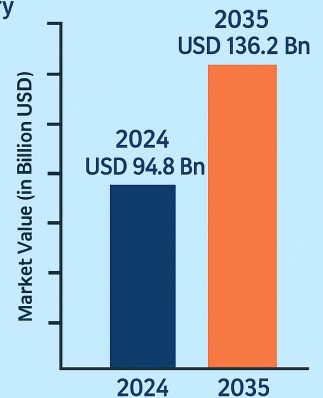
WILMINGTON, DE, UNITED STATES,
September 11, 2025 /

EINPresswire.com/ -- The [biomass power generation industry](#) was valued at USD 94.8 billion in 2024 and is projected to reach USD 136.2 billion by 2035, expanding at a CAGR of 3.4% from 2025 to 2035. Driven by increasing demand for renewable energy and sustainable power solutions, biomass power generation continues to play a significant role in the global energy mix, supporting the transition toward greener energy sources.

BIOMASS POWER GENERATION MARKET OUTLOOK 2035

The biomass power generation industry was valued at USD 94.8 Bn in 2024 is estimated to reach USD 136.2 Bn by the end of 2035

It is estimated to grow at a CAGR of 3.4% from 2025 to 2035



Biomass Power Generation Market



Biomass Power Generation Industry to Expand at 3.4% CAGR Until 2035"

Transparency Market Research Inc.

The global biomass power generation market is expected to witness a CAGR of 3.4% due to the competing forces of energy security and decarbonization. The sector's strength is that industrial users typically represent about 48% of global demand, as it offers baseload energy supporting intermittent renewables.

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Based on industry share, Europe, at nearly 40%, remains the lead market supported by climate policies and district heating systems, while the Asia-Pacific will exhibit the highest growth based on demand for energy and supply of feedstocks. Players such as Drax Group and Ørsted A/S are raising the bar regarding industry regulations to incorporate biomass in large-scale grid (reliable) and combined heat and power (CHP) systems.

Market Segmentation

The biomass power generation market is segmented based on several key factors:

By Service Type: While the provided information doesn't explicitly mention a "service type" segmentation, the market can be understood through its technological applications. These include direct combustion, gasification, pyrolysis, and anaerobic digestion. Direct combustion, a mature and widely used technology, is expected to remain the largest segment in terms of market share due to its simplicity and compatibility with existing infrastructure.

By Sourcing Type (Feedstock): The market is segmented by the type of biomass used. Key categories include:

Agricultural Residues: Crop residues like rice husks and bagasse are a major and widely available source.

Forestry Residues: Waste from logging and wood processing.

Municipal Solid Waste (MSW): Using urban waste to generate energy addresses both energy needs and waste disposal challenges.

Energy Crops: Plants specifically grown for energy production.

Animal Waste: Manure used for biogas production.

By Application (End-Use Industry): The market caters to various end-users:

Industrial: Large-scale industries use biomass for both power and heat, offering energy security and cost savings.

Residential & Commercial: Smaller-scale applications for heat and power.

Utilities: Utility-scale power plants that supply electricity to the grid.

By Region: The market is analyzed across key geographical regions, including:

North America

Europe

Asia-Pacific

Latin America

Middle East & Africa

Regional Analysis

Regional dynamics play a significant role in the market's growth.

Europe: Europe is a leading market, holding a significant share (nearly 40%) supported by strong climate policies and established district heating systems.

Asia-Pacific: This region is projected to exhibit the highest growth rate due to rising energy demand, rapid urbanization, and an abundant supply of agricultural and forestry feedstocks. Countries like India and China have ambitious targets and policies to boost biomass-based capacity.

North America: The U.S. and Canada are major players, with a focus on both traditional and advanced bioenergy technologies. The U.S. Energy Information Administration (EIA) predicts that biomass power capacity will remain stable in the coming years, with consumption shifting slightly across sectors.

Market Drivers and Challenges

Market Drivers:

Growing demand for renewable energy and decarbonization: Global commitments to combat climate change and reduce carbon emissions are the primary drivers for the market.

Abundant availability of feedstocks: The vast amount of agricultural, forestry, and urban waste provides a sustainable and readily available resource for energy generation.

Government policies and incentives: Favorable policies such as feed-in tariffs, renewable purchase requirements, and carbon credit programs make biomass power commercially viable.

Energy security and reliability: Biomass plants can provide a continuous, baseload supply of power, which is a key advantage over intermittent renewable sources.

Challenges:

High initial investment costs: The high cost of building and installing biomass power plants, along with the complexity of the technology, can be a significant barrier.

Fluctuating feedstock costs and supply chain management: The consistency and sustainability of biomass supply can be a challenge, influenced by seasonal availability and logistical issues.

Competition with other applications: Biomass feedstocks can compete with other uses, such as animal feed, which raises sustainability and ethical concerns.

Market Trends

Technological Advancements: The market is witnessing a trend toward more efficient and

advanced technologies, including improved combustion, gasification systems, and combined heat and power (CHP) systems that maximize energy utilization.

Integration with other renewables: Biomass power is increasingly being integrated with solar and wind power to create hybrid systems that provide reliable and continuous energy supply.

Waste-to-Energy (WtE) solutions: With growing urbanization, there is a strong trend toward using municipal and industrial waste for energy generation, which offers a dual benefit of waste management and power production.

Focus on circular economy: The use of waste materials for energy aligns with the principles of a circular economy, creating value from what would otherwise be discarded.

Future Outlook

The future of the biomass power generation market is promising. As governments worldwide implement more stringent environmental regulations and consumers demand greener energy solutions, biomass will play a vital role. Continued technological innovation is expected to lower costs and improve efficiency, making biomass a more competitive and attractive option. The market is also likely to see a greater focus on sustainable sourcing and the development of robust supply chains to address feedstock challenges. The monetization of carbon credits will further enhance the commercial viability of biomass projects.

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Key Market Study Points

Market size valuation and growth forecast (2025-2035).

Detailed segmentation by feedstock, technology, and end-user.

In-depth regional analysis, highlighting growth drivers and market leaders.

Identification of key market drivers and challenges.

Analysis of emerging trends such as CHP systems and waste-to-energy.

Competitive landscape and recent developments of major players.

Competitive Landscape

The global biomass power generation market is characterized by the presence of both large

multinational corporations and smaller regional players. Key companies are focusing on technological innovation, expanding their project portfolios, and forming strategic partnerships to secure feedstock supply and enhance market presence. Some of the major players in the market include:

Ørsted A/S

Babcock & Wilcox Enterprises, Inc.

Engie SA

Drax Group Plc.

Enel Green Power S.p.A.

Veolia Environnement SA

Recent Developments

In 2025, Ørsted announced plans to start carbon capture at its biomass-fired Combined Heat and Power (CHP) stations, with a goal to capture 400,000 tonnes of CO₂ annually.

There is a growing trend of major companies launching new products and initiatives to expand their bio-based portfolios, such as the introduction of renewables-based materials for various applications.

The U.S. EIA reports that biomass power capacity in the U.S. is expected to remain stable through 2025 and 2026, with a focus on wood and waste biomass consumption.

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