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MRFR team have supreme objective to provide the optimum quality market research and intelligence services to our clients. Our market research studies by products, services, technologies, applications, end users, and market players for global, regional, and country level market segments, enable our clients to see more, know more, and do more, which help to answer all their most important questions.

In order to stay updated with technology and work process of the industry, MRFR often plans & conducts meet with the industry experts and industrial visits for its research analyst members.

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**USP OF THIS REPORT**

**Benchmarking With Other Publishers**

**DATA POINTS**
- **2134**
  - Exhaustive coverage of data points including segments and sub-segments; we offer the most detailed dissection of the market.

**NO. OF TABLES**
- **195**
  - A combination of multiple dimensions and dynamics in the form of quants, a third-level crisscrossing of multiple segments and estimations through factor analysis.

**MAJOR COUNTRIES**
- **13**
  - Global study with data points from major contributing regions and key countries.

**QUALITATIVE COVERAGE**
- Overall indicatives for market movements throughout the value and supply chain, including regulations, consumer behavior, cost analysis, and product benchmarking.

**COMPETITOR ANALYSIS**
- **10**
  - In-depth profiles of key market players with a focus on financial information, product/service portfolios, recent developments, and strategies.

**EXPERT INTERVIEWS**
- **35**
  - Supply-side interviews, demand-side interviews, key opinion leaders, and industry experts.

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**Data**
**Estimations**
**Insights**
**RoadMap**
Biomass Power Market Synopsis:

Biomass Power Market is projected to be worth **USD 108.64 Billion** by 2027, registering a **CAGR of 14%** during the forecast period (2021 - 2027). The market was valued at **USD 54.1 billion** in 2020.

The global biomass power market is anticipated to grow substantially during the forecast period due to the increased demand for clean energy generation worldwide to minimize reliability on fossil fuels for power. Furthermore, the rising demand for power across various end-use sectors is also expected to contribute to the growth of the global biomass power market during the forecast period. However, high capital requirements and operating costs associated with biomass power generation are expected to restrain the growth of the biomass power market during the forecast period. Nevertheless, favorable government policies and regulations worldwide are expected to create lucrative opportunities for vendors in the biomass power market.

Key Players:

The prominent players operating in the global biomass power market are Babcock & Wilcox Enterprises, Inc., (US), Mitsubishi Heavy Industries, Ltd. (Japan), Suez (France), Orsted A/S (Denmark), Ameresco Inc (US), Licella Holdings Ltd (Australia), Xcel Energy Inc (US), VEOLIA (France), Vattenfall AB (Sweden), and Ramboll Group A/S (US).

COVID-19 Analysis:

The impact of COVID-19 on the worldwide economy is changing every day. It is proving to be a big challenge for the renewable industry, resulting in a shortage of raw material supply and impending job losses. In the energy & power industry, companies are dealing with several challenges due to a decline in electricity prices post the COVID-19 outbreak. Moreover, the US is one of the largest markets for biomass power generation. The slowdown in the country’s economic growth has affected the overall generation and renewable energy investment globally. Similarly, during the COVID-19 crisis, there has been an increased focus on renewable technologies; however, fewer power plants were working due to labor constraints.

As per the Ministry of New and Renewable Energy (MNRE) reports, in India, only ~222 MW of solar and ~25 MW of wind capacity was achieved in March as all activities have halted due to the pandemic. Likewise, according to the survey conducted by the World Bioenergy Association (WBA), the majority of the respondents mentioned the significant impact of the pandemic on bioenergy business, leading to a reduction in investment and termination of new investments in the bioenergy sector. However, the solid biomass sector, including producers of wood pellets, has not experienced a major change in 2020 due to lesser restrictions. However, various biomass manufacturers such as Mitsubishi Heavy Industries, Babcock & Wilcox Enterprises, Inc., and Suez faced a production shutdown, resulting in huge backlogs and delays in completing orders.

COVID-19 has led to severe impact across all the industries around the world. The rapid spread has led governments across the globe to take stricter actions for the operations of industrial plants and offices, leading to stricter lockdowns. The lockdown had a notable impact on the energy sector overall as energy demand had decreased around 18% to 20% in 2020. Moreover, the virus also significantly impacted the bioenergy sector, emphasizing processed solid biomass such as wood pellets, chips, forest residues, and others. The impact was in terms of a slight decline in revenues and a challenging situation with managing the cash flow of the market players. However, the producers of industrial pellets experienced challenges in the procurement of feedstock as most of the industry depends on forestry harvesting, which was impacted due to national restrictions.
Market Dynamics:

Drivers

- Increased Demand For Power Generation:

Biomass is a sustainable and low-carbon alternative to conventional fossil fuels, which, on combustion, produces bioenergy that is considered as a clean fuel for energy generation. Growing demand for energy across the globe is anticipated to boost bioenergy production through biomass, which is also anticipated to support the growth of the market for biomass power. For instance, according to the International Energy Agency (IEA), bioenergy power production rose by approximately 5% in 2019, which is only a percent less than the 6% yearly power production rate required to meet the 2030 sustainable development scenario goals.

Moreover, renewable power generated from biomass has a wide impact on global warming emissions as it can limit the amount of CO2 released into the atmosphere. Furthermore, increasing the supply of renewable biomass power would allow us to replace carbon-intensive energy sources and significantly reduce global warming emissions. Thus, the increased demand for clean energy generation is expected to drive the growth of the global biomass power market during the forecast period.

- Rising Energy & Power Demand

Global energy demand has seen an exponential increase over the last few years due to rapid urbanization and a rapidly growing population worldwide. Most of the energy produced across the globe is from fossil fuels, which produce harmful GHG gases on burning. On the other hand, biomass is a carbon-neutral carrier and can make significant contributions in reducing greenhouse gas emissions. The International Energy Agency (IEA) has introduced a biomass action plan. The plan is meant to promote the use of biomass energy as an energy source with huge potential for power generation. Thus, the rising energy & power demand is expected to drive the growth of the global biomass power market during the forecast period.

Restraint

- High Capital Requirements & Operating Cost

Biomass power generation requires high capital investments and has high operating costs. Some of the major costs involved in biomass power generation are feedstock acquisition costs, transportation costs, costs associated with pre-treatment technologies of biomass, and the Levelized Cost of Electricity (LCOE), a calculation of the cost of generating electricity at the point of connection to a load or electricity grid. The LCOE of biomass-fired power plants ranges from 6 to 29 cents per kWh, based on capital costs and feedstock costs, which vary from place to place.

Furthermore, the operations and maintenance (OM) costs associated with biomass power generation accounts for 9 to 20 percent of the LCOE for biomass power plants. Landfill biogas power plants have higher OM costs as compared to other types of feedstock. Thus, the high capital requirements and operating costs involved in biomass power generation are expected to reduce the demand for biomass power, consequently hampering the growth of the global biomass power market during the forecast period. However, various governments around the world are offering subsidies and incentives for small-scale & medium-scale electricity generation plants through biomass sources, which is expected to support the global biomass power market over the forecast period.

Industry News

In February 2021, Babcock & Wilcox (B&W) announced that its B&W Environmental division would design, supply, and install a flue gas energy recovery system as well as innovative water treatment equipment for a waste-to-energy facility in Europe. The contract is worth more than $13 million.

Opportunity

- Favorable Government Policies & regulations

Favorable policies and regulations by governments across the world are expected to present lucrative growth and investment opportunities for vendors and new entrants in the global biomass power market. Governments are promoting the adoption of biomass for power generation as it is a renewable energy fuel and can help prevent the release of harmful CO2 gases and GHG emissions into the atmosphere. For instance, in India,
according to the Ministry of New and Renewable Energy Report published by the Government of India (GoI), the Indian Renewable Energy Development Agency (IREDA) will provide loans for setting up biomass power plants and other biogas cogeneration projects in the country, as a result of which the number of investments in biomass power generation is expected to increase and boost the market growth.

In North America, several federal government tax credits, grants, and loan programs are offered for qualifying renewable energy technologies and projects. The federal tax incentives and credits for qualifying renewable energy projects or equipment will include the Renewable Electricity Production Tax Credit (PTC), the Residential Energy Credit, the Investment Tax Credit (ITC), and the Modified Accelerated Cost-Recovery System (MACRS).

Segmentation: Global Biomass Power Market

<table>
<thead>
<tr>
<th>BY FEEDSTOCK</th>
<th>BY TECHNOLOGY</th>
<th>BY END USE</th>
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<tr>
<td>- Woody Biomass</td>
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<td>- Residential</td>
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<td>- Agricultural residues</td>
<td>- Combustion</td>
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<td>- Forest Residues</td>
<td>- Gasification</td>
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<td>- Biogas landfill &amp; sewage gas</td>
<td>- Co-Firing</td>
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<td>- Middle East &amp; Africa</td>
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<td>- Energy crops</td>
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<td>- South America</td>
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<td>- Industrial &amp; Municipal waste</td>
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The global Biomass power market is classified based on feedstock, technology, end use, and region. By feedstock, the global market has been segmented into woody biomass, agricultural residues, forest residues, biogas landfill & sewage gas, energy crops, industrial & municipal waste. By technology, the global market has been segmented into anaerobic digestion, combustion, gasification and co-firing. By end-use, the global market has been segmented into residential, commercial and industrial.

Biomass power produces electricity from chemical energy that is contained in organic matter. Various types of biomass are suitable for power production, including wood waste, energy crops, and agriculture residues. It is a type of power generated from renewable organic waste that would otherwise be burned or left as fodder in forest fires. In biomass power plants, the feedstock is burned to produce steam that helps turn the turbine to generate electricity, which provides heat to homes and industries.

The global Biomass power market has been segmented into five major regions, namely, North America, Europe, Asia-Pacific, the Middle East & Africa, and South America. The Biomass power market in Asia-Pacific is estimated to account for the highest share of the Biomass power market. Asia-Pacific is one of the largest markets for biomass power in the world. There is an increased demand for energy in the region because of the growing population and rising per capita disposable income in the region. Moreover, these rapidly growing economies in this region are also the top polluters in the world. Moreover, Asia-Pacific is estimated to showcase significant growth owing to the abundant availability of natural resources in the region. Emerging economies such as India and Indonesia promise sizeable growth due to proposed government legislation to increase investments in the biomass power sector.

The report for the global biomass power market of MRFR research covers extensive primary research. This is accompanied by a detailed analysis of qualitative and quantitative aspects by various industry experts and key opinion leaders to gain deeper insights into the market and industry performance. The report clearly illustrates the current market scenario, including the historic and forecasted market size in terms of value and volume, technological advancement, macroeconomic, and governing factors of the market. The report provides comprehensive information about the strategies of the top companies in the industry and a broad study of the different market segments and regions.
GLOBAL BIOMASS POWER MARKET

The Biomass Power Market size is projected to reach USD 55.84 billion by 2025 from an estimated USD 36.77 billion, with a CAGR of 6.22% from 2019 to 2025.

BY FEEDSTOCK
- Woody Biomass
- Agriculture Residues
- Biogas & Energy Crops

BY APPLICATION
- Residential
- Commercial
- Industrial

BY REGION
- North America
- Europe
- Asia-Pacific
- Middle East & Africa
- South America

Global Biomass Power Market Share, by Region, 2020

DRIVERS:
- Rising need to control the emission of greenhouse gases (GHG).

OPPORTUNITY:
- Rising demand for an environment-friendly renewable source of energy.

KEY PLAYERS:
- Babcock & Wilcox Enterprises Inc.
- Dalkia
- EnviTec Biogas AG
- Welebc Biopower GMBH
- Ameresco
- Drew Group PLC
- Enviro LP
- Ørsted A/S
- Sodra (Sweden)
- MVV Energie AG
- Helius Energy PLC
- Alstom SA
- Vattenfall AB
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