

## **United States Biomass Power Market Forecast 2024-2032**

Market Report | 2024-12-23 | 145 pages | Inkwood Research

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### **Report description:**

#### **KEY FINDINGS**

The United States biomass power market is anticipated to rise with a CAGR of 5.79% over the forecasting years of 2024 to 2032, reaching a revenue of \$22650.20 million by 2032. In terms of volume, the market was valued at 161.98 million MWh in 2023 and is projected to reach 294.53 million MWh by 2032, growing with a CAGR of 6.96% during the forecasted period.

#### **MARKET INSIGHTS**

The country's market's growth is attributed to increasing demand for renewable energy sources, supportive federal and state policies, advancements in biomass conversion technologies, and growing environmental awareness. Improved energy infrastructure and the availability of abundant biomass feedstocks-such as agricultural residues, forestry by-products, and organic waste-also contribute to market expansion. However, the United States biomass power market is likely to be hindered by competition from other renewable energy sources, fluctuating biomass feedstock prices, and stringent environmental regulations. Further, the market growth in the United States is propelled by federal and state policies that encourage renewable energy adoption, such as tax incentives, renewable portfolio standards, and grants for biomass projects. According to the US Energy Information Administration's (EIA) latest Short-Term Energy Outlook, renewable energy is projected to supply 25% of US electricity generation by 2025, up from 22% in 2023. In 2022, renewables also contributed 22% to the nation's electricity production, with a significant portion derived from biomass power.

Biomass electricity generation is projected to reach 23.5 billion kilowatt-hours (kWh), with an expected increase to 24.6 billion kWh in 2024. The EIA highlights that biomass is a critical renewable resource due to its ability to provide continuous, reliable baseload power, unlike intermittent renewables such as solar or wind. This reliability makes biomass a valuable asset in maintaining grid stability.

#### **SEGMENTATION ANALYSIS**

The United States biomass power market is segmented into feedstock, technology, and application. The technology segment is further classified into combustion, anaerobic digestion, gasification, co-firing and (CHP), and landfill gas (LFG). Combustion is a crucial technology segment in the United States biomass power market. This process involves the direct burning of biomass materials-such as wood chips, agricultural residues, and organic waste-in boilers to produce high-pressure steam. The steam drives turbines connected to generators, producing electricity. Combustion is the most established and widely used method for biomass power generation due to its simplicity and ability to handle a variety of biomass feedstocks. Advancements in combustion technology have led to improved efficiency and reduced emissions. Modern biomass combustion

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systems incorporate technologies like fluidized bed combustion and advanced emission control systems to enhance performance and environmental compliance. Fluidized bed combustion allows for better mixing of biomass fuel and air, resulting in more efficient combustion and lower emission levels. The integration of emission control technologies, such as electrostatic precipitators and scrubbers, helps reduce pollutants like particulate matter, nitrogen oxides, and sulfur dioxide.

#### COMPETITIVE INSIGHTS

Some of the top players operating in the United States biomass power market include Ameresco Inc, Babcock & Wilcox Enterprises Inc, Cemex, etc.

Ameresco Inc, headquartered in the United States, is a leading cleantech integrator and renewable energy asset developer, owner, and operator. The company specializes in energy efficiency, infrastructure upgrades, asset sustainability, and renewable energy solutions for businesses and organizations across North America and Europe.

In the biomass power sector, Ameresco develops, builds, owns, and operates biomass-to-energy plants that utilize various feedstocks, including wood waste, agricultural residues, and landfill gas. The company provides comprehensive services encompassing project design, engineering, construction, and operation of biomass facilities. Ameresco's biomass projects contribute to reducing greenhouse gas emissions by converting waste materials into renewable energy, thereby supporting environmental sustainability.

Notable projects by Ameresco include the Savannah River Site Biomass Cogeneration Facility in South Carolina, which replaced a coal-powered plant to provide clean steam and electricity for the US Department of Energy, and the Fort Detrick Biomass Plant in Maryland, supplying renewable energy to a US Army installation.

#### Table of Contents:

##### TABLE OF CONTENTS

##### 1. RESEARCH SCOPE & METHODOLOGY

###### 1.1. STUDY OBJECTIVES

###### 1.2. METHODOLOGY

###### 1.3. ASSUMPTIONS & LIMITATIONS

##### 2. EXECUTIVE SUMMARY

###### 2.1. MARKET SIZE & ESTIMATES

###### 2.2. COUNTRY SNAPSHOT

###### 2.3. COUNTRY ANALYSIS

###### 2.4. SCOPE OF STUDY

###### 2.5. CRISIS SCENARIO ANALYSIS

###### 2.6. MAJOR MARKET FINDINGS

###### 2.6.1. SOLID BIOMASS WAS FOUND TO BE THE MOST WIDELY USED FEEDSTOCK

###### 2.6.2. COMBUSTION IS THE LEADING TECHNOLOGY IN THE BIOMASS MARKET

###### 2.6.3. INDUSTRIAL APPLICATIONS ARE BOOSTING BIOMASS UTILIZATION

###### 2.6.4. ENVIRONMENTAL CONCERNS ARE FUELING MARKET EXPANSION

##### 3. MARKET DYNAMICS

###### 3.1. KEY DRIVERS

###### 3.1.1. IMPLEMENTATION OF ADVANCED BIOMASS CONVERSION TECHNOLOGIES

###### 3.1.2. REGULATORY AND POLICY REFORMS ARE ENCOURAGING MARKET GROWTH

###### 3.1.3. SUSTAINABILITY INITIATIVES ARE PROPELLING INCREASED DEMAND FOR BIOMASS POWER

###### 3.2. KEY RESTRAINTS

###### 3.2.1. COMPETITION FROM OTHER SECTORS IN SECURING FEEDSTOCK SUPPLY

###### 3.2.2. REQUIREMENT OF SUBSTANTIAL INITIAL CAPITAL INVESTMENT FOR BIOMASS ENERGY PLANTS

##### 4. KEY ANALYTICS

###### 4.1. PARENT MARKET ANALYSIS

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- 4.2. KEY TECHNOLOGY TRENDS
  - 4.2.1. UPGRADATION OF EXISTING POWER PLANTS BY INCORPORATING BIOENERGY WITH CARBON CAPTURE AND STORAGE
  - 4.2.2. COMBINING BIOENERGY WITH OTHER RENEWABLE ENERGY SYSTEMS
- 4.3. PESTLE ANALYSIS
  - 4.3.1. POLITICAL
  - 4.3.2. ECONOMICAL
  - 4.3.3. SOCIAL
  - 4.3.4. TECHNOLOGICAL
  - 4.3.5. LEGAL
  - 4.3.6. ENVIRONMENTAL
- 4.4. PORTER'S FIVE FORCES ANALYSIS
  - 4.4.1. BUYERS POWER
  - 4.4.2. SUPPLIERS POWER
  - 4.4.3. SUBSTITUTION
  - 4.4.4. NEW ENTRANTS
  - 4.4.5. INDUSTRY RIVALRY
- 4.5. GROWTH PROSPECT MAPPING
  - 4.5.1. GROWTH PROSPECT MAPPING FOR UNITED STATES
- 4.6. MARKET MATURITY ANALYSIS
- 4.7. MARKET CONCENTRATION ANALYSIS
- 4.8. VALUE CHAIN ANALYSIS
  - 4.8.1. FEEDSTOCK PROCUREMENT
  - 4.8.2. FEEDSTOCK PROCESSING AND PREPARATION
  - 4.8.3. POWER GENERATION THROUGH CONVERSION TECHNOLOGIES
  - 4.8.4. TRANSMISSION AND DISTRIBUTION TO END-USER
- 4.9. KEY BUYING CRITERIA
  - 4.9.1. FEEDSTOCK AVAILABILITY
  - 4.9.2. CAPITAL INVESTMENT AND RELATED COSTS
  - 4.9.3. TECHNOLOGICAL FEASIBILITY
  - 4.9.4. REGULATORY AND FINANCIAL SUPPORT
- 4.10. UNITED STATES BIOMASS POWER MARKET REGULATORY FRAMEWORK
- 5. MARKET BY FEEDSTOCK (IN TERMS OF REVENUE: \$ MILLION & IN TERMS OF VOLUME: MILLION MWH)
  - 5.1. SOLID BIOMASS
    - 5.1.1. MARKET FORECAST FIGURE
    - 5.1.2. SEGMENT ANALYSIS
  - 5.2. LIQUID BIOMASS
    - 5.2.1. MARKET FORECAST FIGURE
    - 5.2.2. SEGMENT ANALYSIS
  - 5.3. BIOGAS
    - 5.3.1. MARKET FORECAST FIGURE
    - 5.3.2. SEGMENT ANALYSIS
  - 5.4. MUNICIPAL SOLID WASTE
    - 5.4.1. MARKET FORECAST FIGURE
    - 5.4.2. SEGMENT ANALYSIS
- 6. MARKET BY TECHNOLOGY
  - 6.1. COMBUSTION
    - 6.1.1. MARKET FORECAST FIGURE

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- 6.1.2. SEGMENT ANALYSIS
- 6.2. ANAEROBIC DIGESTION
  - 6.2.1. MARKET FORECAST FIGURE
  - 6.2.2. SEGMENT ANALYSIS
- 6.3. GASIFICATION
  - 6.3.1. MARKET FORECAST FIGURE
  - 6.3.2. SEGMENT ANALYSIS
- 6.4. CO-FIRING AND CHP
  - 6.4.1. MARKET FORECAST FIGURE
  - 6.4.2. SEGMENT ANALYSIS
- 6.5. LANDFILL GAS (LFG)
  - 6.5.1. MARKET FORECAST FIGURE
  - 6.5.2. SEGMENT ANALYSIS
- 7. MARKET BY APPLICATION
  - 7.1. INDUSTRIAL
    - 7.1.1. MARKET FORECAST FIGURE
    - 7.1.2. SEGMENT ANALYSIS
  - 7.2. COMMERCIAL
    - 7.2.1. MARKET FORECAST FIGURE
    - 7.2.2. SEGMENT ANALYSIS
  - 7.3. RESIDENTIAL
    - 7.3.1. MARKET FORECAST FIGURE
    - 7.3.2. SEGMENT ANALYSIS
- 8. COMPETITIVE LANDSCAPE
  - 8.1. KEY STRATEGIC DEVELOPMENTS
    - 8.1.1. MERGERS & ACQUISITIONS
    - 8.1.2. PRODUCT LAUNCHES & DEVELOPMENTS
    - 8.1.3. PARTNERSHIPS & AGREEMENTS
    - 8.1.4. BUSINESS EXPANSIONS AND DIVESTITURES
  - 8.2. COMPANY PROFILES
    - 8.2.1. ACCIONA SA
      - 8.2.1.1. COMPANY OVERVIEW
      - 8.2.1.2. PRODUCTS
      - 8.2.1.3. STRENGTHS & CHALLENGES
    - 8.2.2. AMERESCO INC
      - 8.2.2.1. COMPANY OVERVIEW
      - 8.2.2.2. PRODUCTS
      - 8.2.2.3. STRENGTHS & CHALLENGES
    - 8.2.3. BABCOCK & WILCOX ENTERPRISES INC
      - 8.2.3.1. COMPANY OVERVIEW
      - 8.2.3.2. PRODUCTS
      - 8.2.3.3. STRENGTHS & CHALLENGES
    - 8.2.4. CEMEX
      - 8.2.4.1. COMPANY OVERVIEW
      - 8.2.4.2. PRODUCTS
      - 8.2.4.3. STRENGTHS & CHALLENGES
    - 8.2.5. ENEL GREEN POWER

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- 8.2.5.1. COMPANY OVERVIEW
- 8.2.5.2. PRODUCTS
- 8.2.5.3. STRENGTHS & CHALLENGES
- 8.2.6. ENVIVA PARTNERS LP
  - 8.2.6.1. COMPANY OVERVIEW
  - 8.2.6.2. PRODUCTS
  - 8.2.6.3. STRENGTHS & CHALLENGES
- 8.2.7. GENERAL ELECTRIC COMPANY
  - 8.2.7.1. COMPANY OVERVIEW
  - 8.2.7.2. PRODUCTS
  - 8.2.7.3. STRENGTHS & CHALLENGES
- 8.2.8. ORSTED A/S
  - 8.2.8.1. COMPANY OVERVIEW
  - 8.2.8.2. PRODUCTS
  - 8.2.8.3. STRENGTHS & CHALLENGES
- 8.2.9. SIEMENS ENERGY AG
  - 8.2.9.1. COMPANY OVERVIEW
  - 8.2.9.2. PRODUCTS
  - 8.2.9.3. STRENGTHS & CHALLENGES

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