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Biogas Generation Market Forecasts to 2034 – Global Analysis By Source (Municipal Waste, Agricultural Waste, Industrial Organic Waste and Other Sources), Technology, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Biogas Generation Market is accounted for $35.4 billion in 2026 and is expected to reach $58.6 billion by 2034 growing at a CAGR of 6.5% during the forecast period. Biogas production is a clean energy technology that converts organic wastes into usable fuel through anaerobic digestion. In this process, bacteria decompose materials like farm residues, livestock manure, and kitchen waste without oxygen, generating methane-rich gas. This renewable fuel is widely applied for cooking, heating, and electricity generation, helping reduce reliance on conventional fossil fuels. It also supports effective waste disposal and decreases harmful greenhouse gas emissions. The byproduct obtained after digestion is used as organic fertilizer, improving soil fertility and promoting sustainable farming systems.

According to the International Energy Agency (IEA), biogas and biomethane have seen a surge in global policy support, with more than 50 new policies introduced since 2020, recognizing their role in energy security and decarbonisation.

Market Dynamics:

Driver:

Rising demand for renewable energy

Increasing global demand for clean energy is significantly boosting the biogas generation sector as nations reduce reliance on conventional fossil fuels. Higher energy

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needs and environmental sustainability goals are encouraging investments in green energy systems. Biogas, produced from organic waste, serves as a sustainable and dependable energy source. It contributes to lowering carbon emissions and improving energy mix diversity. Rising awareness of global warming and energy security challenges is further promoting its adoption. Additionally, improvements in technology and supportive regulatory frameworks are driving the integration of renewable energy solutions across farming, residential, and industrial applications worldwide and in emerging economies.

Restraint:

High initial investment costs

The requirement for substantial upfront capital investment significantly restricts growth in the biogas generation market, particularly in rural and low-income areas. Building biogas facilities involves expenses related to digester systems, gas processing equipment, waste handling units, and storage setups. Operational maintenance and technical management further increase financial pressure. Many small-scale farmers and organizations struggle to obtain funding or loans, making adoption difficult. This financial challenge reduces adoption rates and limits expansion of biogas infrastructure, especially in developing economies and cost-sensitive agricultural communities worldwide.

Opportunity:

Increasing government support and incentive programs

Rising governmental support and incentive schemes provide major growth opportunities for the biogas generation market. Various countries are offering subsidies, tax exemptions, grants, and affordable financing options to promote renewable energy projects. These initiatives improve the financial feasibility of biogas installations for farmers, industries, and local authorities. National renewable energy targets and emissions reduction commitments further encourage infrastructure development. Global climate agreements also drive policymakers to invest in clean energy solutions.

Threat:

Technological limitations and operational inefficiencies

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Technological shortcomings and inefficient plant operations pose a serious threat to the biogas generation market. Many facilities still use older systems that produce lower gas output and require frequent maintenance. Poor design, limited automation, and weak process monitoring can negatively affect performance. Issues such as gas leakage, system imbalance, and feedstock contamination further reduce efficiency. In developing regions, access to modern technology remains limited, worsening operational challenges. These problems increase costs and reduce profitability, discouraging investment.

Covid-19 Impact:

The COVID-19 outbreak created both challenges and opportunities for the biogas generation market. In the early stages, movement restrictions disrupted logistics, delayed plant construction, and reduced workforce availability, which slowed overall project development. Supply chain interruptions also affected the collection of organic waste, leading to feedstock shortages in many areas. However, the crisis increased focus on clean, decentralized energy systems. Governments began promoting waste-to-energy solutions as part of economic recovery and sustainability plans. Although short-term operations were impacted, the pandemic reinforced the importance of resilient and sustainable energy infrastructure worldwide significantly.

The agricultural waste segment is expected to be the largest during the forecast period

The agricultural waste segment is expected to account for the largest market share during the forecast period because of its wide availability and steady production in farming areas. Organic materials such as crop leftovers, livestock manure, and other farm residues serve as dependable and economical inputs for biogas systems. The agriculture industry produces large volumes of biodegradable waste, making it ideal for continuous energy generation through anaerobic digestion. Easy access to raw materials, minimal cost requirements, and compatibility with sustainable agriculture practices contribute to its strong dominance in the global biogas generation market.

The power generation segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the power generation segment is predicted to witness the highest growth rate because of rising demand for clean and decentralized electricity. Many regions are increasingly adopting biogas-based electricity systems to strengthen grid reliability and reduce reliance on conventional fossil fuels. Government incentives,

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renewable energy policies, and emission reduction goals are further supporting this growth. Biogas power plants efficiently transform organic waste into usable electricity, making them ideal for waste-to-energy applications. Increasing global electricity needs combined with sustainability commitments are driving investments.

Region with largest share:

During the forecast period, the Europe region is expected to hold the largest market share because of its robust environmental regulations, advanced waste management systems, and widespread use of renewable energy solutions. Key countries like Germany, the UK, and France have developed extensive biogas infrastructure supported by government incentives and tariff systems. Strict emission control laws and waste management policies strongly promote biogas adoption. The region also emphasizes circular economy practices that encourage converting waste into energy. High public awareness regarding sustainability and energy independence further supports market growth.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR because of rapid urban development, rising energy requirements, and extensive agricultural operations. Major countries such as China, India, and Indonesia produce substantial amounts of organic waste, ensuring a strong supply base for biogas systems. Governments are actively supporting renewable energy adoption through financial incentives, rural energy programs, and improved waste management policies. Industrial expansion and favourable regulations are further boosting investments, making the region the fastest-growing biogas market globally.

Key players in the market

Some of the key players in Biogas Generation Market include Engie SA, EnviTec Biogas AG, Bright Renewables BV, Hitachi Zosen Inova AG, PlanET Biogas Group, Veolia, W?rtsil?, Air Liquide, Gasum, Xebec Adsorption, Greenlane Renewables, Ameresco Inc., Renergon International AG, IES BIOGAS srl, HomeBiogas Inc., Schmack Biogas Service, Agrinz Technologies GmbH and DMT International.

Key Developments:

In February 2026, Air Liquide and Holcim reach a new stage in their collaboration with

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the signing of an agreement to develop a state-of-the-art carbon capture solution for Holcim's near-zero cement plant at Obourg in Belgium. Air Liquide has been pioneering industry decarbonization by developing carbon capture technologies and solutions enabling CCS (Carbon Capture and Storage).

In February 2026, Veolia has secured two 15-year operations and maintenance (O&M) contracts for Mumbai's upcoming Bhandup and Panjrapur Water Treatment Plants (WTPs), strengthening its presence in India's municipal water sector. The contracts mark the largest municipal water sector agreements signed by a French company in India. The combined treatment capacity of the two plants will be 2,910 million litres per day (MLD), equivalent to 2.91 million cubic metres per day.

In August 2025, Engie SA has recently signed its first 100% virtual storage agreement in the Australian market, a five-year, derivatives-only deals with Australia's AGL Energy Limited. The contract represents a financial structure that replicates how a battery works on the market. The agreement enables the French company to offer firming capacity to its customers without relying on physical storage assets.

Sources Covered:

- Municipal Waste
- Agricultural Waste
- Industrial Organic Waste
- Other Sources

Technologies Covered:

- Wet Digestion
- Dry Digestion

Applications Covered:

- Power Generation

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- Heat Generation
- Cogeneration

End Users Covered:

- Wastewater Treatment Plants
- Agriculture
- Food Processing Industry
- Other End Users

Regions Covered:

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - United Kingdom
  - Germany
  - France
  - Italy
  - Spain

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- Netherlands
- Belgium
- Sweden
- Switzerland
- Poland
- Rest of Europe

Asia Pacific

- China
- Japan
- India
- South Korea
- Australia
- Indonesia
- Thailand
- Malaysia
- Singapore
- Vietnam
- Rest of Asia Pacific

South America

- Brazil

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- Argentina
- Colombia
- Chile
- Peru
- Rest of South America

Rest of the World (RoW)

- Middle East
  - Saudi Arabia
  - United Arab Emirates
  - Qatar
  - Israel
  - Rest of Middle East
- Africa
  - South Africa
  - Egypt
  - Morocco
  - Rest of Africa

What our report offers:

- Market share assessments for the regional and country-level segments

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- Strategic recommendations for the new entrants
- Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

- Company Profiling
  - Comprehensive profiling of additional market players (up to 3)
  - SWOT Analysis of key players (up to 3)
- Regional Segmentation
  - Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)
- Competitive Benchmarking
  - Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) Regions are also represented in the same manner as above.

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