

Biogas Plant Market Report by Biogas Plant Type (Small-Scale Digesters, Medium-To-Large-Scale Digesters), Feedstock (Agricultural Waste, Industrial Waste, Sewage Sludge, and Others), Digester Type (Wet Anaerobic Digestion, Dry Anaerobic Digestion), Application (Electricity Generation, Biofuel Generation, Heat Generation), and Region 2024-2032

Market Report | 2024-03-02 | 148 pages | IMARC Group

AVAILABLE LICENSES:

- Electronic (PDF) Single User \$3899.00
- Five User Licence \$4899.00
- Enterprisewide License \$5899.00

Report description:

The global biogas plant market size reached 21.9 GW in 2023. Looking forward, IMARC Group expects the market to reach 37.5 GW by 2032, exhibiting a growth rate (CAGR) of 6.1% during 2024-2032. The increasing government initiatives to encourage the adoption of alternative, sustainable energy sources, the rising problem of waste management, and the widespread adoption of integrated supply chains are some of the major factors propelling the market.

A biogas plant is a specialized facility designed to harness the natural process of anaerobic digestion to produce biogas. It primarily consists of methane and carbon dioxide, formed by the decomposition of organic materials such as agricultural waste, food scraps, and sewage. Through controlled fermentation, microorganisms break down these organic materials in an oxygen-free environment, resulting in the release of biogas. This renewable energy source holds significant potential for reducing greenhouse gas emissions and providing sustainable energy. Biogas can be utilized for various purposes, including generating electricity, heating, and cooking. Its production not only mitigates organic waste disposal issues but also contributes to a cleaner environment and reduced reliance on non-renewable fossil fuels. As a result, biogas plants play a crucial role in advancing eco-friendly practices and fostering a more sustainable energy landscape.

The escalating global demand for energy majorly drives the market. This can be supported by population growth, urbanization, and industrialization. Traditional fossil fuels, such as coal and natural gas are becoming increasingly scarce and expensive. This

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

has encouraged both consumers and governments to adopt alternative, sustainable energy sources, including biogas. Along with this, the growing problem of waste management, especially in urban areas and among large-scale industries, including agriculture and food production, has created a pressing need for innovative solutions. As a result, municipalities and companies that adopt biogas technology can reduce the costs associated with waste disposal and landfills, providing a significant market growth driver for the market. In addition, utilizing local waste materials to produce biogas ensures a more reliable and less geopolitically sensitive energy supply, thereby driving market growth for biogas plants. Apart from this, the wide range of applicability makes biogas plants an attractive investment, driving market growth as industries and municipalities recognize the various ways biogas can meet their energy needs. Moreover, the widespread adoption of integrated supply chain that benefits local agriculture and waste management services is creating a positive market outlook.

Biogas Plant Market Trends/Drivers:

Regulatory Support and Incentives for Renewable Energy

Governments across the globe are increasingly focusing on reducing greenhouse gas emissions and promoting sustainable energy sources. The biogas plant industry stands to benefit significantly from this trend, as biogas is considered a renewable source of energy. Numerous countries have implemented policies and incentives to encourage the development and adoption of renewable energy technologies, including biogas. For instance, feed-in tariffs and tax incentives are often offered to make biogas production financially viable. Grants and subsidies are also available for research and development activities in this sector. Along with this, the accelerating government initiatives aim to reduce various country's dependency on fossil fuels. These regulatory frameworks offer direct financial benefits and create a conducive environment for investors. In addition, stricter regulations concerning waste management, particularly in agriculture and food processing sectors, have propelled businesses to consider alternative methods of waste disposal. Biogas plants offer a solution by converting waste into energy, thereby contributing to a circular economy. Moreover, the increasing regulatory support and incentives are driving growth and innovation in the biogas plant industry.

Continuous Advancements in Technology

Technological advancements have had a profound impact on the efficiency and viability of biogas production. Newer technologies offer better waste-to-energy conversion rates, making the biogas production process more cost-effective. For instance, innovations in anaerobic digestion methods and biogas upgrading techniques have significantly enhanced the quality of the biogas produced. In confluence with this, recent developments in sensor technologies and data analytics further enable plant operators to monitor real-time performance and make necessary adjustments to optimize output. Advancements in storage and transportation technology have also improved the practicality of biogas as a renewable energy source. In confluence with this, lowered operational costs and increased output serve as a significant market driver for the industry.

Environmental Consciousness and Sustainability

Public awareness concerning environmental sustainability has been growing, creating a shift towards renewable energy sources. This form of energy is particularly appealing as it often makes use of waste materials, such as agricultural residues, manure, and food waste, thereby contributing to waste management as well. In addition, the dual benefit of waste reduction and energy production positions biogas as a particularly attractive option for organizations seeking to improve their sustainability credentials. Furthermore, the ability of biogas to contribute to a circular economy-where waste is converted into valuable resources-adds to its appeal. This growing environmental consciousness among consumers, corporations, and governments serves as a powerful driver for the biogas plant industry, promoting its expansion and technological advancement.

Biogas Plant Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global biogas plant market report, along with forecasts at the global, regional and country levels from 2024-2032. Our report has categorized the market based on biogas plant

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

type, feedstock, digester type and application.

Breakup by Biogas Plant Type:

Small-scale Digesters

Medium-to-Large-scale Digesters

Medium-to-large-scale digesters dominate the market

The report has provided a detailed breakup and analysis of the market based on the biogas plant type. This includes small-scale digesters and medium-to-large-scale digesters. According to the report, medium-to-large-scale digesters represented the largest segment.

The market for medium-to-large-scale digesters in the biogas plant industry is experiencing notable growth, driven by the increasing need for industrial waste management solutions. Large-scale operations in agriculture, food processing, and wastewater treatment generate significant amounts of organic waste. Medium-to-large-scale digesters are ideally suited to handle this volume, converting waste into renewable energy and reducing the burden on landfills. Additionally, these larger plants are more economically viable, offering a quicker return on investment (ROI) due to their higher energy output and efficiency. As governments and organizations continue to prioritize sustainable energy solutions, the regulatory landscape is also becoming more favorable for large-scale biogas installations. Tax incentives, grants, and subsidies are increasingly available for these projects, making them financially attractive options. Moreover, the scale of these digesters allows for more advanced technologies to be employed, further enhancing efficiency and output.

Breakup by Feedstock:

Agricultural Waste

Industrial Waste

Sewage Sludge

Others

Agricultural waste holds the largest share in the market

A detailed breakup and analysis of the market based on the feedstock has also been provided in the report. These include agricultural waste, industrial waste, sewage sludge, and others. According to the report, agricultural waste accounted for the largest market share.

The utilization of agricultural waste as a feedstock in the biogas plant industry is gaining momentum due to agricultural waste being abundant and a disposal problem for farmers. Transforming this "waste" into a valuable energy resource not only solves a logistical issue but also adds an additional revenue stream for agricultural operations. This process is further supported by governmental policies aimed at reducing carbon emissions and encouraging renewable energy production. In many regions, farmers can access subsidies or tax incentives for supplying agricultural waste for biogas production, making it financially advantageous. Additionally, the use of agricultural waste in biogas plants aligns with the growing societal focus on sustainable and circular economies, where waste is minimized, and resources are efficiently utilized. The ecological benefit of converting methane-emitting waste into a cleaner fuel further adds to its market appeal.

Breakup by Digester Type:

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Wet Anaerobic Digestion
Dry Anaerobic Digestion

Wet anaerobic digestion dominates the market

The report has provided a detailed breakup and analysis of the market based on the digester type. This includes wet anaerobic digestion and dry anaerobic digestion. According to the report, wet anaerobic digestion represented the largest segment.

The wet anaerobic digestion method is emerging as a strong player in the biogas plant industry, propelled by its effectiveness in handling liquid and semi-liquid feedstocks, such as wastewater sludge and certain types of agricultural waste, making them versatile in application. This adaptability to various feedstocks opens up new avenues for biogas production, including collaborations with wastewater treatment plants and agribusinesses. Additionally, wet anaerobic systems generally require less pre-processing of input materials compared to dry systems, which can result in lower operational costs. From a regulatory standpoint, governments are encouraging sustainable waste management practices and renewable energy production through various incentives and grants, making wet anaerobic digestion an attractive option for investors and operators. Moreover, these systems are proven and well-established, offering a lower risk profile and higher efficiency in methane production.

Breakup by Application:

Electricity Generation
Biofuel Generation
Heat Generation

Electricity generation holds the largest share in the market

A detailed breakup and analysis of the market based on the application has also been provided in the report. These include electricity generation, biofuel generation, and heat generation. According to the report, electricity generation accounted for the largest market share.

Electricity generation through biogas plants is experiencing significant growth, supported by the global push towards renewable energy sources to reduce greenhouse gas emissions and combat climate change. Biogas-generated electricity is considered renewable and can help meet sustainability goals set by governments and organizations. As electricity demand continues to increase worldwide, especially in developing regions, decentralized energy production through biogas plants offers a practical solution. Moreover, biogas electricity can be produced locally, which enhances energy security by reducing dependency on imported fossil fuels. Financial incentives such as feed-in tariffs and tax benefits also bolster the economics of using biogas for electricity generation. Furthermore, the capability to integrate biogas plants into existing energy grids makes it easier for utilities to adopt this technology. As a result, the application of biogas for electricity generation is increasingly recognized as both a sustainable and economically viable energy solution, driving its growth in the market.

Breakup by Region:

North America
United States
Canada
Asia-Pacific
China
Japan
India

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

South Korea
Australia
Indonesia
Others
Europe
Germany
France
United Kingdom
Italy
Spain
Russia
Others
Latin America
Brazil
Mexico
Others
Middle East and Africa

Europe exhibits a clear dominance, accounting for the largest biogas plant market share

The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Europe represents the largest regional market.

The Europe biogas plant market is experiencing robust growth, driven by the region's strong commitment to renewable energy. It is enshrined in policies, such as the Renewable Energy Directive, which sets ambitious targets for renewable energy adoption among Member States. This policy framework provides financial incentives, including grants and feed-in tariffs, specifically tailored to promote biogas production. Additionally, Europe has stringent waste management regulations that encourage the conversion of agricultural and municipal waste into energy, further propelling the biogas industry.

In addition, the focus on transitioning to a circular economy also aligns well with biogas production, as it often involves the conversion of waste materials into energy. Moreover, Europe's advanced technological landscape offers innovative solutions for efficient biogas production, attracting investment and research opportunities. These collective drivers create a conducive environment for the growth and development of the biogas plant industry in Europe, making it a global leader in this renewable energy sector.

Competitive Landscape:

The global market is experiencing significant growth due to the introduction of new technologies in anaerobic digestion, gas purification, and storage developed to enhance yield and reduce costs. Along with this, collaborations with waste management firms, agricultural enterprises, and local municipalities are becoming increasingly common. These partnerships aim to secure a steady supply of feedstock and also to find more applications for the biogas produced. Therefore, this is significantly supporting the market. With biogas having multiple applications, including electricity generation, heating, and transportation, companies are diversifying their product offerings. This includes not just biogas production but also the provision of related services and technologies, such as biogas upgraders and digestate treatment systems. As regulations around renewable energy and waste management become more stringent, companies are working to adhere to industry standards and obtain necessary certifications, further impacting the market. Furthermore, the integration of advanced data analytics tools to monitor plant performance in

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

real-time and to make quick adjustments to optimize output is contributing to the market.

The market report has provided a comprehensive analysis of the competitive landscape in the market. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

AB Holding S.p.a.
Agraferm GmbH
Air Liquide S.A.
Ameresco Inc.
BTS Biogas Srl/GmbH (Bioenergy Devco)
Engie SA
EnviTec Biogas AG
Finn Biogas
IES BIOGAS S.r.l. (Snam SPA)
NASKEO environnement
PlanET Biogas Group GmbH
Scandinavian Biogas Fuels International AB
Wartsila Oyj Abp

Recent Developments:

In February 2023, Engie SA reportedly recruited Kotak Investment Banking to find a joint venture partner to construct roughly 3 GW of solar generating capacity in India and finance \$250 million in equity.

In November 2022, Air Liquide and TotalEnergies announced the news to create and value-add renewable and low-carbon hydrogen. A long-term agreement requires TotalEnergies to buy the hydrogen produced for the platform's needs.

In July 2021, Ameresco Inc. stated that its landfill gas to renewable natural gas facility at Republic Services' McCarty Road Landfill in Houston, Texas, reached commercial operations.

Key Questions Answered in This Report

1. What was the size of the global biogas plant market in 2023?
2. What is the expected growth rate of the global biogas plant market during 2024-2032?
3. What are the key factors driving the global biogas plant market?
4. What has been the impact of COVID-19 on the global biogas plant market?
5. What is the breakup of the global biogas plant market based on the biogas plant type?
6. What is the breakup of the global biogas plant market based on the feedstock?
7. What is the breakup of the global biogas plant market based on digester type?
8. What is the breakup of the global biogas plant market based on the application?
9. What are the key regions in the global biogas plant market?
10. Who are the key players/companies in the global biogas plant market?

Table of Contents:

- 1 Preface
- 2 Scope and Methodology
 - 2.1 Objectives of the Study
 - 2.2 Stakeholders
 - 2.3 Data Sources
 - 2.3.1 Primary Sources

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 2.3.2 Secondary Sources
- 2.4 Market Estimation
 - 2.4.1 Bottom-Up Approach
 - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology
- 3 Executive Summary
- 4 Introduction
 - 4.1 Overview
 - 4.2 Key Industry Trends
- 5 Global Biogas Plant Market
 - 5.1 Market Overview
 - 5.2 Market Performance
 - 5.3 Impact of COVID-19
 - 5.4 Market Forecast
- 6 Market Breakup by Biogas Plant Type
 - 6.1 Small-scale Digesters
 - 6.1.1 Market Trends
 - 6.1.2 Market Forecast
 - 6.2 Medium-to-Large-scale Digesters
 - 6.2.1 Market Trends
 - 6.2.2 Market Forecast
- 7 Market Breakup by Feedstock
 - 7.1 Agricultural Waste
 - 7.1.1 Market Trends
 - 7.1.2 Market Forecast
 - 7.2 Industrial Waste
 - 7.2.1 Market Trends
 - 7.2.2 Market Forecast
 - 7.3 Sewage Sludge
 - 7.3.1 Market Trends
 - 7.3.2 Market Forecast
 - 7.4 Others
 - 7.4.1 Market Trends
 - 7.4.2 Market Forecast
- 8 Market Breakup by Digester Type
 - 8.1 Wet Anaerobic Digestion
 - 8.1.1 Market Trends
 - 8.1.2 Market Forecast
 - 8.2 Dry Anaerobic Digestion
 - 8.2.1 Market Trends
 - 8.2.2 Market Forecast
- 9 Market Breakup by Application
 - 9.1 Electricity Generation
 - 9.1.1 Market Trends
 - 9.1.2 Market Forecast
 - 9.2 Biofuel Generation
 - 9.2.1 Market Trends

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 9.2.2 Market Forecast
- 9.3 Heat Generation
 - 9.3.1 Market Trends
 - 9.3.2 Market Forecast
- 10 Market Breakup by Region
 - 10.1 North America
 - 10.1.1 United States
 - 10.1.1.1 Market Trends
 - 10.1.1.2 Market Forecast
 - 10.1.2 Canada
 - 10.1.2.1 Market Trends
 - 10.1.2.2 Market Forecast
 - 10.2 Asia-Pacific
 - 10.2.1 China
 - 10.2.1.1 Market Trends
 - 10.2.1.2 Market Forecast
 - 10.2.2 Japan
 - 10.2.2.1 Market Trends
 - 10.2.2.2 Market Forecast
 - 10.2.3 India
 - 10.2.3.1 Market Trends
 - 10.2.3.2 Market Forecast
 - 10.2.4 South Korea
 - 10.2.4.1 Market Trends
 - 10.2.4.2 Market Forecast
 - 10.2.5 Australia
 - 10.2.5.1 Market Trends
 - 10.2.5.2 Market Forecast
 - 10.2.6 Indonesia
 - 10.2.6.1 Market Trends
 - 10.2.6.2 Market Forecast
 - 10.2.7 Others
 - 10.2.7.1 Market Trends
 - 10.2.7.2 Market Forecast
 - 10.3 Europe
 - 10.3.1 Germany
 - 10.3.1.1 Market Trends
 - 10.3.1.2 Market Forecast
 - 10.3.2 France
 - 10.3.2.1 Market Trends
 - 10.3.2.2 Market Forecast
 - 10.3.3 United Kingdom
 - 10.3.3.1 Market Trends
 - 10.3.3.2 Market Forecast
 - 10.3.4 Italy
 - 10.3.4.1 Market Trends
 - 10.3.4.2 Market Forecast

- 10.3.5 Spain
 - 10.3.5.1 Market Trends
 - 10.3.5.2 Market Forecast
- 10.3.6 Russia
 - 10.3.6.1 Market Trends
 - 10.3.6.2 Market Forecast
- 10.3.7 Others
 - 10.3.7.1 Market Trends
 - 10.3.7.2 Market Forecast
- 10.4 Latin America
 - 10.4.1 Brazil
 - 10.4.1.1 Market Trends
 - 10.4.1.2 Market Forecast
 - 10.4.2 Mexico
 - 10.4.2.1 Market Trends
 - 10.4.2.2 Market Forecast
 - 10.4.3 Others
 - 10.4.3.1 Market Trends
 - 10.4.3.2 Market Forecast
- 10.5 Middle East and Africa
 - 10.5.1 Market Trends
 - 10.5.2 Market Breakup by Country
 - 10.5.3 Market Forecast
- 11 SWOT Analysis
 - 11.1 Overview
 - 11.2 Strengths
 - 11.3 Weaknesses
 - 11.4 Opportunities
 - 11.5 Threats
- 12 Value Chain Analysis
- 13 Porters Five Forces Analysis
 - 13.1 Overview
 - 13.2 Bargaining Power of Buyers
 - 13.3 Bargaining Power of Suppliers
 - 13.4 Degree of Competition
 - 13.5 Threat of New Entrants
 - 13.6 Threat of Substitutes
- 14 Price Analysis
- 15 Competitive Landscape
 - 15.1 Market Structure
 - 15.2 Key Players
 - 15.3 Profiles of Key Players
 - 15.3.1 AB Holding S.p.a.
 - 15.3.1.1 Company Overview
 - 15.3.1.2 Product Portfolio
 - 15.3.2 Agraferm GmbH
 - 15.3.2.1 Company Overview

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 15.3.2.2 Product Portfolio
- 15.3.3 Air Liquide S.A.
 - 15.3.3.1 Company Overview
 - 15.3.3.2 Product Portfolio
 - 15.3.3.3 Financials
 - 15.3.3.4 SWOT Analysis
- 15.3.4 Ameresco Inc.
 - 15.3.4.1 Company Overview
 - 15.3.4.2 Product Portfolio
 - 15.3.4.3 Financials
 - 15.3.4.4 SWOT Analysis
- 15.3.5 BTS Biogas Srl/GmbH (Bioenergy Devco)
 - 15.3.5.1 Company Overview
 - 15.3.5.2 Product Portfolio
- 15.3.6 Engie SA
 - 15.3.6.1 Company Overview
 - 15.3.6.2 Product Portfolio
 - 15.3.6.3 Financials
 - 15.3.6.4 SWOT Analysis
- 15.3.7 EnviTec Biogas AG
 - 15.3.7.1 Company Overview
 - 15.3.7.2 Product Portfolio
 - 15.3.7.3 Financials
 - 15.3.7.4 SWOT Analysis
- 15.3.8 Finn Biogas
 - 15.3.8.1 Company Overview
 - 15.3.8.2 Product Portfolio
- 15.3.9 IES BIOGAS S.r.l. (Snam SPA)
 - 15.3.9.1 Company Overview
 - 15.3.9.2 Product Portfolio
- 15.3.10 NASKEO environnement
 - 15.3.10.1 Company Overview
 - 15.3.10.2 Product Portfolio
- 15.3.11 PlanET Biogas Group GmbH
 - 15.3.11.1 Company Overview
 - 15.3.11.2 Product Portfolio
- 15.3.12 Scandinavian Biogas Fuels International AB
 - 15.3.12.1 Company Overview
 - 15.3.12.2 Product Portfolio
 - 15.3.12.3 Financials
- 15.3.13 Wartsila Oyj Abp
 - 15.3.13.1 Company Overview
 - 15.3.13.2 Product Portfolio
 - 15.3.13.3 Financials
 - 15.3.13.4 SWOT Analysis

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Biogas Plant Market Report by Biogas Plant Type (Small-Scale Digesters, Medium-To-Large-Scale Digesters), Feedstock (Agricultural Waste, Industrial Waste, Sewage Sludge, and Others), Digester Type (Wet Anaerobic Digestion, Dry Anaerobic Digestion), Application (Electricity Generation, Biofuel Generation, Heat Generation), and Region 2024-2032

Market Report | 2024-03-02 | 148 pages | IMARC Group

To place an Order with Scotts International:

- ☐ - Print this form
- ☐ - Complete the relevant blank fields and sign
- ☐ - Send as a scanned email to support@scotts-international.com

ORDER FORM:

Select license	License	Price
	Electronic (PDF) Single User	\$3899.00
	Five User Licence	\$4899.00
	Enterprisewide License	\$5899.00
		VAT
		Total

*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

** VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*	<input type="text"/>	Phone*	<input type="text"/>
First Name*	<input type="text"/>	Last Name*	<input type="text"/>
Job title*	<input type="text"/>		
Company Name*	<input type="text"/>	EU Vat / Tax ID / NIP number*	<input type="text"/>

Scotts International. EU Vat number: PL 6772247784

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

Address*	<input type="text"/>	City*	<input type="text"/>
Zip Code*	<input type="text"/>	Country*	<input type="text"/>
		Date	<input type="text" value="2025-06-22"/>
		Signature	<input type="text"/>