

Global Biogas Upgrading Technology Market Size Study, by Technology (Absorption, Vacuum Pressure Swing Adsorption (VPSA), Membrane Separation, Others), by End-Use (Thermal Application, Power Generation, Biomethane Bottling), and Regional Forecasts 2022-2032

<https://marketpublishers.com/r/G861D1673695EN.html>

Date: August 2024

Pages: 200

Price: US\$ 4,950.00 (Single User License)

ID: G861D1673695EN

Abstracts

Global Biogas Upgrading Technology Market is valued at approximately USD 1.60 billion in 2023 and is anticipated to grow with a healthy growth rate of more than 14.4% over the forecast period 2024-2032. Biogas upgrading technology is a critical innovation that optimizes the anaerobic digestion process to convert biogas, produced from organic materials, into a high-purity methane product. This advanced process ensures the efficient transformation of biogas into renewable natural gas (RNG), which can be utilized as a sustainable energy source. Moreover, the residual organic material post-digestion, known as digestate, is repurposed as soil amendments or fertilizers, contributing to sustainable agricultural practices. Presently, there are around 2,200 active biogas systems in the U.S., with potential for an additional 13,500 installations. These systems play a vital role in harnessing biogas for heat and power generation, reducing dependence on fossil fuels and mitigating methane emissions. Similarly, the European Union has set ambitious targets to significantly increase biomethane production by 2030 and 2050, leveraging biogas upgrading technology. In South Africa, waste management strategies aimed at diverting organic waste from landfills to biogas digesters are fostering the development of this technology. This growing interest from consumers and governmental bodies in sustainable waste management and renewable energy utilization presents significant growth opportunities for the biogas upgrading technology market.

Biogas upgrading technology offers numerous applications and benefits, enhancing its prominence in the global energy landscape. One major advantage is the conversion of raw biogas into biomethane, also known as renewable natural gas (RNG). This highly pure biomethane can be used as a clean vehicle fuel or injected directly into natural gas pipelines, offering a versatile energy solution that can replace or supplement conventional fossil fuels. Additionally, the reduction in methane emissions through biogas capture and utilization aligns with global climate goals, reinforcing the importance of this technology. However, high initial investment costs and limited refueling infrastructure are the key factors that are substantially halting the growth of the market globally. The economic benefits of biogas upgrading technology are also substantial. It supports job creation and economic growth in sectors such as agriculture, waste management, and renewable energy. By investing in biogas upgrading technology, countries can enhance their energy security by reducing reliance on imported fossil fuels, thereby fostering sustainable economic development. The concept of a circular economy further elevates the importance of biogas upgrading technology. By diverting organic waste from landfills and converting it into valuable energy resources, this technology addresses waste management challenges while contributing to global sustainability goals of waste reduction and resource efficiency.

The key regions considered for the global biogas upgrading technology market study include Asia Pacific, North America, Europe, Latin America, and Rest of the World. Europe is a dominating region in the biogas upgrading technology market in terms of revenue. The market growth in the region is being attributed to factors including stringent environmental regulations targeting greenhouse gas emissions, ambitious renewable energy targets, abundant agricultural and organic waste resources, well-established biogas production infrastructure, and government policies supporting renewable gas production and utilization. Whereas, the market in Asia Pacific is anticipated to grow at the fastest rate over the forecast period fueled by stringent environmental regulations to reduce methane emissions, growing emphasis on renewable energy sources, substantial agricultural and livestock waste generation, increasing energy demand, and government incentives promoting biogas utilization.

Major market players included in this report are:

Air Liquide

Evonik Industries AG

Pentair Plc

Atmos Power Pvt. Ltd.

Bright Renewables B.V.

DMT Environmental Technology

Malmberg Bioerdgastech GmbH

Metener Oy

Greenlane Renewables Inc.

Wartsila Oyj Abp

The detailed segments and sub-segment of the market are explained below:

By Technology:

Absorption

Vacuum Pressure Swing Adsorption (VPSA)

Membrane Separation

Others

By End-Use:

Thermal Application

Power Generation

Biomethane Bottling

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy

ROE

Asia Pacific

China

India

Japan

Australia

South Korea

RoAPAC

Latin America

Brazil

Mexico

RoLA

Middle East & Africa

Saudi Arabia

South Africa

RoMEA

Years considered for the study are as follows:

Historical year – 2022

Base year – 2023

Forecast period – 2024 to 2032

Key Takeaways:

Market Estimates & Forecast for 10 years from 2022 to 2032.

Annualized revenues and regional level analysis for each market segment.

Detailed analysis of geographical landscape with Country level analysis of major regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approach.

Analysis of competitive structure of the market.

Demand side and supply side analysis of the market.

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