Biogas Upgrading: Technologies and Global Markets

Market Research Report | 2023-01-05 | 206 pages | BCC Research

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Report description:

Description

Report Scope:

The scope of this report covers the global market for biogas upgrading equipment and as well as analysis its various segments. Market figures are based on the revenues derived from equipment sales and are projected in constant 2021 dollars (i.e., inflation is not computed into the projection figures). The revenue figures are derived from estimated revenues of the key players in a particular year.

A discussion of the global market by region includes overviews of North America, Europe, Asia-Pacific and the Rest of the World, with individual profiles for countries most active in each region. Present market status, biogas upgrading plant installations, and policies and incentives that support the industry are given for each country. All market valuations and projections cover the years from 2022 to 2027.

A technology overview, a discussion on the structure of the industry and brief profiles for major participating companies are included. The machinery used to transform the gas to electricity (reciprocating and other types of gas engines, turbine and microturbines, and fuel cells) is not included in the analysis.

Report Includes:

- 58 data tables and 43 additional tables
- Detailed overview and an up-to-date analysis of the global markets for biogas upgrading equipment and related sustainable energy technologies
- Analyses of the global market trends, with historic market revenue data (sales figures) for 2021, estimates for 2022, forecasts

for 2026, and projections of compound annual growth rates (CAGRs) through 2027
- Highlights of the current and future growth potential for biogas upgrading technologies market, and major regions and countries involved in market developments
- Estimation of the actual market size and revenue forecast for global biogas upgrading market, and its corresponding market share analysis based on application, feedstock source, end use, and region
- Discussion of the major market dynamics of the biogas upgrading industry, benefits of biogas energy, production potential, regulatory updates, manufacturing trends, upcoming technologies, and the impact of Russia-Ukraine war on biogas industry
- Market outlook of the biogas upgrading applications and technologies with respect to the plant installations, equipment sales, and their cumulative comparison in units and operational costs
- Review of the biogas value chain analysis a systematic study of key intermediaries involved, with emphasis on manufacturers, suppliers, and major types of end users of these products
- Insight into the recent industry structure for biogas, leading upgrading companies and their installed capacity, along with the country specific policies and incentives supporting the biogas industry
- Identification of the major stakeholders and analysis of the company competitive landscape based on their recent market developments, financial performance, and segmental revenues
- Descriptive company profiles of the leading global players, including Air Liquide, DGE GmbH, Eisenmann Corp., EnviTec Biogas AG, GM Green Methane s.r.l., Pentair Haffmans, and Xebec Adsorption Inc.

Executive Summary

Summary:

Biogas is generated through a microbial fermentation process known as anaerobic digestion (AD), by which various waste streams can be cost-effectively converted into sources of electricity and thermal energy. At the heart of the technology is the anaerobic digester, which in combination with a turbine or gas engine, can serve as a complete power plant. Solid waste landfills also generate a recoverable biological gas through natural AD. Large quantities of gaseous fuel methane can be produced by the process; a valuable by-product in the form of fertilizer is also generated.

While considerable buzz and media attention has focused on a future "hydrogen economy" anticipated to replace the present one based on fossil fuel energy, a genuine biogas economy has been quietly emerging in Europe and Asia. Increasingly, the process is making inroads into the U.S. and other countries as a sustainable energy alternative.

Biogas is defined as a multilateral source of renewable energy that has the ability to replace conventional fuels in the generation of power and heat. It can also be utilized as a gaseous fuel for vehicles. Upgraded biogas or biomethane is an ideal alternative to natural gas.

At present, amid growing environmental concerns pertaining to greenhouse gas emissions (GHG) and energy consumption, key sectors such as industry (which is responsible for REDACTED% of GHG emissions), agriculture (REDACTED% of GHG emissions) and transportation (REDACTED% of emissions) are required to implement innovative solutions dedicated towards reducing their carbon emissions and environmental footprints.

Owing to soaring global demand for carbon neutrality and renewable energy, a significant rise in demand for biomethane has been observed. Biomethane is also referred to as renewable natural gas or RNG. Favorable policies focused on divesting from imported natural gas, alternative fuel standards, diversion of food waste from landfills, as well as tax credits have played a key role in bolstering demand for biomethane.

Legislation and the desire to cut greenhouse gas emissions (GHGs) are the most important drivers for biogas plant construction.

Kyoto Protocol requirements and specifications of the EU Renewable Energy Directive (RED) are two examples of this type of legislation. Energy security, the desire to draw on domestic fuel resources, and elimination of the expense and price volatility of imported fossil fuel also encourage interest in biogas. Worldwide, most countries have targets for renewable energy production, GHG mitigation or laws related to minimizing harmful landfill emissions.

Large-scale AD waste treatment can help reduce GHGs in a number of ways: by directly replacing fossil fuels, minimizing energy use at waste treatment plants, lowering methane emissions from landfill sites, lessening transportation costs related to waste hauling, reducing electrical grid losses and replacing chemical fertilizers with organic products. Unlike liquid biofuels, biogas, for the most part, eliminates the food vs. fuel debate by using waste materials instead of energy crops.

With varying levels of clean-up, also called upgrading, biogas can be used in the same end uses as natural gas, namely, heat and power production, insertion into the pipeline and as vehicle fuel. With improved technologies and market support, biogas might also find application in ships or planes.

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