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Biofuel Production Market Forecasts to 2034 – Global Analysis By Biofuel Type (Ethanol, Biodiesel, Biogas and Advanced Biofuels), Production Process, Feedstock, Form, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global Biofuel Production Market is accounted for $137.2 billion in 2026 and is expected to reach $323.1 billion by 2034 growing at a CAGR of 11.3% during the forecast period. Biofuel production is the transformation of biological materials such as crops, plant residues, algae, and organic waste into renewable fuels including ethanol, biodiesel, and biogas. This process helps lower carbon emissions and reduces reliance on conventional fossil fuels. Different techniques like fermentation, transesterification, and anaerobic digestion are applied based on raw materials. Biofuels are viewed as eco-friendly energy options that enhance energy security and promote rural economic growth. Many countries are encouraging biofuel development to support clean energy transitions, decrease pollution levels, and improve sustainable use of biomass resources within a circular and long-lasting energy system framework worldwide.

According to the World Bioenergy Association (WBA), biofuels are the largest renewable energy source in transport, contributing 3.94 EJ globally in 2022, with 64 countries implementing mandates to promote their use.

Market Dynamics:

Driver:

Rising energy demand

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Increasing global energy consumption strongly drives the growth of the biofuel production market. Expanding populations, rapid urban development, and industrial growth have raised the demand for efficient and sustainable energy sources. Conventional fossil fuels are struggling to satisfy long-term requirements, encouraging a transition toward renewable alternatives such as biofuels. These fuels offer scalable and dependable energy for transport, electricity generation, and industrial use. Developing nations, in particular, are contributing significantly to rising energy needs. This surge in demand promotes greater investment in biofuel production plants and accelerates the development of renewable energy systems across global markets today steadily.

Restraint:

High production costs

Expensive production processes significantly restrict the growth of the biofuel production market. Manufacturing biofuels requires costly raw materials, advanced conversion technologies, and heavy investment in processing facilities. In addition, expenses related to collecting, transporting, and handling biomass further increase total production costs. Compared to traditional fossil fuels, biofuels are often less economically competitive without financial support from governments. These financial challenges reduce participation from smaller companies and slow market expansion, particularly in developing economies where funding limitations and inadequate infrastructure hinder biofuel development and adoption today significantly.

Opportunity:

Advancements in second and third-generation biofuels

Technological progress in second- and third-generation biofuels provides a major growth opportunity for the biofuel production market. These advanced fuels are produced from non-edible sources like agricultural residues, algae, and lignocellulosic materials, reducing pressure on food resources. Continuous innovation is enhancing production efficiency, output quality, and cost reduction. Increased research funding is supporting large-scale commercialization of these sustainable fuels. As technology continues to improve, their adoption is expected to expand rapidly, creating new business opportunities across aviation, transport, and industrial energy applications worldwide today effectively.

Threat:

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Competition from electric vehicles

The fast adoption of electric vehicles presents a major challenge to the biofuel production market. Growing EV usage, supported by improved battery performance, expanding charging networks, and strong policy incentives, is reducing reliance on liquid fuels. As more consumers and manufacturers shift toward electric mobility, demand for ethanol and biodiesel in passenger transport is expected to decline. Leading automotive companies are increasingly focusing on electrification strategies, accelerating this transition. This shift limits long-term opportunities for biofuels in road transportation.

Covid-19 Impact:

The COVID-19 outbreak severely affected the biofuel production market worldwide. Movement restrictions and lockdown measures caused a major drop in transportation fuel usage, leading to reduced demand for ethanol and biodiesel. Many production plants experienced shutdowns or operated at limited capacity due to workforce shortages and disrupted supply chains. Additionally, the sharp decline in crude oil prices made conventional fuels more economically attractive, further weakening biofuel demand. Investments in renewable energy projects also slowed due to economic uncertainty.

The ethanol segment is expected to be the largest during the forecast period

The ethanol segment is expected to account for the largest market share during the forecast period because it is extensively used as a transport fuel and mixed with gasoline. It is mainly derived from agricultural sources like corn, sugarcane, and other carbohydrate-rich crops. Ethanol is preferred as it helps lower carbon emissions and can be utilized in conventional engines with little or no modification. Government policies promoting fuel blending and renewable energy adoption further strengthen its leading position. Its mature production systems and broad availability contribute to its dominance; making it the most commonly used biofuel across global markets.

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

Over the forecast period, the pyrolysis segment is predicted to witness the highest growth rate because of its efficiency in converting diverse biomass into bio-oil, syngas, and solid char. It works through thermal decomposition of organic matter without

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oxygen, enabling effective utilization of agricultural residues, forest waste, and other non-edible biomass sources. Rising interest in waste-to-energy technologies and sustainable fuel solutions is boosting its demand. Continuous technological improvements are enhancing production efficiency and reducing costs.

Region with largest share:

During the forecast period, the North America region is expected to hold the largest market share because of its advanced production infrastructure, strong technological base, and supportive regulatory environment. The United States plays a key role as a major producer of ethanol and biodiesel in the region. Government policies such as renewable fuel standards and blending requirements have encouraged widespread adoption of biofuels. Easy access to abundant raw materials like corn and soybeans further supports large-scale production. In addition, significant investment in innovation and active involvement of major industry players strengthen regional leadership, making North America the dominant market for biofuels globally.

Region with highest CAGR:

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR because of rapid economic development, rising energy requirements, and strong policy support for renewable energy. Major countries like China, India, and Indonesia are implementing biofuel blending mandates to reduce reliance on conventional fuels and strengthen energy independence. Increasing population and expansion of transportation systems are driving higher fuel consumption. The region also benefits from abundant agricultural feedstock availability and rising investments in biofuel infrastructure.

Key players in the market

Some of the key players in Biofuel Production Market include POET LLC, Archer Daniels Midland Co. (ADM), Neste Oyj, Valero Energy Corporation, Chevron Renewable Energy Group Inc., BP p.l.c., Shell plc, TotalEnergies SE, Cargill, Incorporated, Cosan S.A., Wilmar International Ltd., Abengoa Bioenergy S.A., Verbio Vereinigte BioEnergie AG, Pacific Ethanol, Gevo, Inc., Petr?leo Brasileiro S.A., Eni S.p.A. and Green Plains Inc.

Key Developments:

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In April 2026, TotalEnergies and Masdar have signed a binding agreement to establish a $2.2 billion joint venture aimed at expanding renewable energy capacity in nine countries across Asia. The joint venture will have a portfolio capacity of 3 GW of operational assets and 6 GW of assets in advanced development, which are expected to be operational by the end of the decade.

In November 2025, POET Technologies Inc. and Quantum Computing Inc. announced a strategic collaboration to develop 400GLane thin-film lithium niobate (TFLN) modulator-based 3.2Tbps engines that will be designed to lead the next era of computing.

In July 2025, Cargill and PepsiCo announced a strategic collaboration to advance regenerative agriculture practices across 240,000 acres from 2025 through 2030. The collaboration will focus on the companies' shared corn supply chain in Iowa, where Cargill sources from local farmers to produce ingredients used in some of PepsiCo's most iconic products.

Biofuel Types Covered:

- Ethanol
- Biodiesel
- Biogas
- Advanced Biofuels

Production Processes Covered:

- Fermentation
- Transesterification
- Gasification
- Pyrolysis

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Feedstocks Covered:

- Corn
- Sugarcane
- Vegetable Oils
- Algae
- Waste Biomass

Forms Covered:

- Liquid
- Gaseous
- Solid

End Users Covered:

- Transportation
- Industrial
- Residential
- Power Generation
- Other End Users

Regions Covered:

- North America

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- United States
- Canada
- Mexico

Europe

- United Kingdom
- Germany
- France
- Italy
- Spain
- Netherlands
- Belgium
- Sweden
- Switzerland
- Poland
- Rest of Europe

Asia Pacific

- China
- Japan
- India
- South Korea

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- Australia
- Indonesia
- Thailand
- Malaysia
- Singapore
- Vietnam
- Rest of Asia Pacific

South America

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

Rest of the World (RoW)

- Middle East
  - Saudi Arabia
  - United Arab Emirates
  - Qatar

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- 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
- 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:

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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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($MN)
Table 30 Global Biofuel Production Market Outlook, By Other End Users (2023-2034) ($MN)
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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