

Second Generation Biofuels Market Outlook 2025-2034: Market Share, and Growth Analysis By Type (Cellulosic Ethanol, Biodiesel, Bio Butanol, Bio Dimethylether (DME), Other Types), By Process (Biochemical Process, Thermochemical Process), By Feedstock, By Application

<https://marketpublishers.com/r/SF81E4FA4585EN.html>

Date: October 2025

Pages: 160

Price: US\$ 3,950.00 (Single User License)

ID: SF81E4FA4585EN

Abstracts

The Second Generation Biofuels Market is valued at USD 11.3 billion in 2025 and is projected to grow at a CAGR of 23.1% to reach USD 73.5 billion by 2034. The Second Generation Biofuels market is gaining traction as a sustainable alternative to fossil fuels and conventional first-generation biofuels. Unlike their predecessors, second-generation biofuels are produced from non-food biomass such as agricultural residues, forestry waste, municipal solid waste, and dedicated energy crops like switchgrass and miscanthus. These advanced biofuels offer a more environmentally sound solution by reducing greenhouse gas emissions without competing with food supplies or requiring large-scale arable land. They are used in the transportation sector, particularly in aviation, marine, and heavy-duty road transport, where electrification faces limitations. With growing pressure to decarbonize and transition toward a circular economy, second-generation biofuels have emerged as a vital component of national renewable energy strategies. Supportive policies, technological advancements, and increasing investment in waste-to-energy infrastructure are reinforcing the market's growth trajectory. As governments, oil majors, and clean energy companies seek scalable, low-carbon fuel alternatives, the second-generation biofuels market is poised to become a cornerstone of the global clean energy transition. The second-generation biofuels market witnessed accelerated growth, bolstered by strong policy support and heightened demand for sustainable aviation fuel (SAF). Several nations updated their renewable fuel mandates and introduced incentives to encourage the adoption of cellulosic ethanol, advanced

biodiesel, and hydrotreated vegetable oils (HVO). Major energy companies expanded their investments in biorefineries, including joint ventures with agricultural and waste management firms to secure reliable biomass supply chains. Technological improvements in enzymatic hydrolysis and gasification led to more efficient conversion processes, reducing production costs and improving yield rates. Airlines and shipping companies began long-term offtake agreements with biofuel producers to meet decarbonization targets, creating steady demand and financial stability for suppliers. Additionally, collaborations between academia and industry helped pilot new methods of utilizing lignocellulosic and algae-based feedstocks. These developments signaled not only increased commercialization but also growing confidence in the viability of second-generation biofuels as part of a broader net-zero emissions strategy. The second-generation biofuels market is expected to expand into new geographies and applications. As carbon pricing becomes more widespread and emissions compliance tightens, industries with high transport and energy intensity will increasingly turn to drop-in biofuels. Emerging economies in Latin America, Southeast Asia, and Africa are projected to become growth centers due to favorable climates for biomass cultivation and rising energy demand. The commercialization of algae and municipal solid waste as scalable feedstocks could open new frontiers in feedstock diversification and circular economy integration. Advanced biorefineries will likely adopt integrated bioprocessing platforms, enabling the co-production of biofuels, bioplastics, and biochemicals to improve economic viability. Meanwhile, digital monitoring and blockchain traceability tools will gain prominence to ensure sustainability certification and transparent value chains. With climate goals intensifying and fossil fuel alternatives becoming increasingly necessary, second-generation biofuels will play a pivotal role in decarbonizing hard-to-electrify sectors while contributing to rural development and energy security worldwide.

Key Insights Second Generation Biofuels Market

Rising demand for sustainable aviation fuel (SAF) is pushing innovation and capacity expansion in second-generation biofuels derived from non-edible biomass and waste-based feedstocks.

Public-private partnerships are accelerating the deployment of advanced biorefineries and R&D focused on improving conversion efficiency and feedstock flexibility.

Integration of blockchain and digital traceability is improving sustainability reporting and compliance with international carbon reduction frameworks and fuel certification programs.

Growing interest in co-products such as bioplastics and green chemicals is encouraging integrated biorefinery models to enhance economic viability and value extraction.

Algae-based and municipal solid waste feedstocks are gaining momentum as next-generation inputs for scalable, sustainable, and circular biofuel production systems.

Stringent carbon reduction mandates and global net-zero commitments are driving investments in low-emission fuels, especially for sectors like aviation and marine where electrification is limited.

Abundant availability of agricultural and forestry residues provides a cost-effective and sustainable feedstock base for second-generation biofuel production.

Government incentives, subsidies, and renewable fuel standards are fostering favorable regulatory environments for the development and commercialization of advanced biofuels.

Technological advancements in enzymatic and thermochemical conversion processes are improving efficiency, reducing costs, and making second-generation biofuels commercially viable.

High capital investment and infrastructure requirements for advanced biorefineries, along with complex logistics for biomass collection and transport, pose major hurdles to widespread scalability and cost competitiveness.

Second Generation Biofuels Market Segmentation

By Type

Cellulosic Ethanol

Biodiesel

Bio Butanol

Bio Dimethylether (DME)

Other Types

By Process

Biochemical Process

Thermochemical Process

By Feedstock

Simple Lignocellulose

Complex Lignocellulose

Syngas

Algae

Other Feedstocks

By Application

Transportation

Power Generation

Other Applications

Key Companies Analysed

TotalEnergies SE

Reliance Industries Limited

INEOS Group Limited

The Andersons Inc.

International Flavors & Fragrances Inc.

Darling Ingredients Inc

DuPont Nutrition Biosciences ApS

Green Plains Inc

Flint Hills Resources LLC

Gevo Inc.

Abengoa S.A.

POET LLC

ICM Inc.

Enerkem Inc.

Advanced Enzyme Technologies Limited

Fulcrum BioEnergy Inc.

LanzaTech Inc

Virent Energy Systems Inc.

GranBio LLC

Algenol Biofuels Inc.

Novamont S.p.A.

Edeniq Inc.

Mascoma Corporation

BlueFire Renewables Inc

Fiberight LLC.

Clariant AG

Raizen S.A.

Copersucar SA

Beta Renewables S.p.A.

EcoCeres Inc.

Second Generation Biofuels Market Analytics

The report employs rigorous tools, including Porter's Five Forces, value chain mapping, and scenario-based modeling, to assess supply–demand dynamics. Cross-sector influences from parent, derived, and substitute markets are evaluated to identify risks and opportunities. Trade and pricing analytics provide an up-to-date view of international flows, including leading exporters, importers, and regional price trends.

Macroeconomic indicators, policy frameworks such as carbon pricing and energy security strategies, and evolving consumer behavior are considered in forecasting scenarios. Recent deal flows, partnerships, and technology innovations are incorporated to assess their impact on future market performance.

Second Generation Biofuels Market Competitive Intelligence

The competitive landscape is mapped through OG Analysis' proprietary frameworks, profiling leading companies with details on business models, product portfolios, financial performance, and strategic initiatives. Key developments such as mergers & acquisitions, technology collaborations, investment inflows, and regional expansions are

analyzed for their competitive impact. The report also identifies emerging players and innovative startups contributing to market disruption.

Regional insights highlight the most promising investment destinations, regulatory landscapes, and evolving partnerships across energy and industrial corridors.

Countries Covered

North America — Second Generation Biofuels market data and outlook to 2034

United States

Canada

Mexico

Europe — Second Generation Biofuels market data and outlook to 2034

Germany

United Kingdom

France

Italy

Spain

BeNeLux

Russia

Sweden

Asia-Pacific — Second Generation Biofuels market data and outlook to 2034

China

Japan

India

South Korea

Australia

Indonesia

Malaysia

Vietnam

Middle East and Africa — Second Generation Biofuels market data and outlook to 2034

Saudi Arabia

South Africa

Iran

UAE

Egypt

South and Central America — Second Generation Biofuels market data and outlook to 2034

Brazil

Argentina

Chile

Peru

** We can include data and analysis of additional countries on demand.*

Research Methodology

This study combines primary inputs from industry experts across the Second Generation Biofuels value chain with secondary data from associations, government publications, trade databases, and company disclosures. Proprietary modeling techniques, including data triangulation, statistical correlation, and scenario planning, are applied to deliver reliable market sizing and forecasting.

Key Questions Addressed

What is the current and forecast market size of the Second Generation Biofuels industry at global, regional, and country levels?

Which types, applications, and technologies present the highest growth potential?

How are supply chains adapting to geopolitical and economic shocks?

What role do policy frameworks, trade flows, and sustainability targets play in shaping demand?

Who are the leading players, and how are their strategies evolving in the face of global uncertainty?

Which regional “hotspots” and customer segments will outpace the market, and what go-to-market and partnership models best support entry and expansion?

Where are the most investable opportunities—across technology roadmaps, sustainability-linked innovation, and M&A—and what is the best segment to invest over the next 3–5 years?

Your Key Takeaways from the Second Generation Biofuels Market Report

Global Second Generation Biofuels market size and growth projections (CAGR), 2024-2034

Impact of Russia-Ukraine, Israel-Palestine, and Hamas conflicts on Second

Generation Biofuels trade, costs, and supply chains

Second Generation Biofuels market size, share, and outlook across 5 regions and 27 countries, 2023-2034

Second Generation Biofuels market size, CAGR, and market share of key products, applications, and end-user verticals, 2023-2034

Short- and long-term Second Generation Biofuels market trends, drivers, restraints, and opportunities

Porter's Five Forces analysis, technological developments, and Second Generation Biofuels supply chain analysis

Second Generation Biofuels trade analysis, Second Generation Biofuels market price analysis, and Second Generation Biofuels supply/demand dynamics

Profiles of 5 leading companies—overview, key strategies, financials, and products

Latest Second Generation Biofuels market news and developments

Additional Support

With the purchase of this report, you will receive

An updated PDF report and an MS Excel data workbook containing all market tables and figures for easy analysis.

7-day post-sale analyst support for clarifications and in-scope supplementary data, ensuring the deliverable aligns precisely with your requirements.

Complimentary report update to incorporate the latest available data and the impact of recent market developments.

** The updated report will be delivered within 3 working days*

Contents

1. TABLE OF CONTENTS

- 1.1 List of Tables
- 1.2 List of Figures

2. GLOBAL SECOND GENERATION BIOFUELS MARKET SUMMARY, 2025

- 2.1 Second Generation Biofuels Industry Overview
 - 2.1.1 Global Second Generation Biofuels Market Revenues (In US\$ billion)
- 2.2 Second Generation Biofuels Market Scope
- 2.3 Research Methodology

3. SECOND GENERATION BIOFUELS MARKET INSIGHTS, 2024-2034

- 3.1 Second Generation Biofuels Market Drivers
- 3.2 Second Generation Biofuels Market Restraints
- 3.3 Second Generation Biofuels Market Opportunities
- 3.4 Second Generation Biofuels Market Challenges
- 3.5 Tariff Impact on Global Second Generation Biofuels Supply Chain Patterns

4. SECOND GENERATION BIOFUELS MARKET ANALYTICS

- 4.1 Second Generation Biofuels Market Size and Share, Key Products, 2025 Vs 2034
- 4.2 Second Generation Biofuels Market Size and Share, Dominant Applications, 2025 Vs 2034
- 4.3 Second Generation Biofuels Market Size and Share, Leading End Uses, 2025 Vs 2034
- 4.4 Second Generation Biofuels Market Size and Share, High Growth Countries, 2025 Vs 2034
- 4.5 Five Forces Analysis for Global Second Generation Biofuels Market
 - 4.5.1 Second Generation Biofuels Industry Attractiveness Index, 2025
 - 4.5.2 Second Generation Biofuels Supplier Intelligence
 - 4.5.3 Second Generation Biofuels Buyer Intelligence
 - 4.5.4 Second Generation Biofuels Competition Intelligence
 - 4.5.5 Second Generation Biofuels Product Alternatives and Substitutes Intelligence
 - 4.5.6 Second Generation Biofuels Market Entry Intelligence

5. GLOBAL SECOND GENERATION BIOFUELS MARKET STATISTICS – INDUSTRY REVENUE, MARKET SHARE, GROWTH TRENDS AND FORECAST BY SEGMENTS, TO 2034

5.1 World Second Generation Biofuels Market Size, Potential and Growth Outlook, 2024- 2034 (\$ billion)

5.1 Global Second Generation Biofuels Sales Outlook and CAGR Growth By Type, 2024- 2034 (\$ billion)

5.2 Global Second Generation Biofuels Sales Outlook and CAGR Growth By Process, 2024- 2034 (\$ billion)

5.3 Global Second Generation Biofuels Sales Outlook and CAGR Growth By Feedstock, 2024- 2034 (\$ billion)

5.4 Global Second Generation Biofuels Sales Outlook and CAGR Growth By Application, 2024- 2034 (\$ billion)

5.5 Global Second Generation Biofuels Market Sales Outlook and Growth by Region, 2024- 2034 (\$ billion)

6. ASIA PACIFIC SECOND GENERATION BIOFUELS INDUSTRY STATISTICS – MARKET SIZE, SHARE, COMPETITION AND OUTLOOK

6.1 Asia Pacific Second Generation Biofuels Market Insights, 2025

6.2 Asia Pacific Second Generation Biofuels Market Revenue Forecast By Type, 2024- 2034 (USD billion)

6.3 Asia Pacific Second Generation Biofuels Market Revenue Forecast By Process, 2024- 2034 (USD billion)

6.4 Asia Pacific Second Generation Biofuels Market Revenue Forecast By Feedstock, 2024- 2034 (USD billion)

6.5 Asia Pacific Second Generation Biofuels Market Revenue Forecast By Application, 2024- 2034 (USD billion)

6.6 Asia Pacific Second Generation Biofuels Market Revenue Forecast by Country, 2024- 2034 (USD billion)

6.6.1 China Second Generation Biofuels Market Size, Opportunities, Growth 2024- 2034

6.6.2 India Second Generation Biofuels Market Size, Opportunities, Growth 2024- 2034

6.6.3 Japan Second Generation Biofuels Market Size, Opportunities, Growth 2024- 2034

6.6.4 Australia Second Generation Biofuels Market Size, Opportunities, Growth 2024- 2034

7. EUROPE SECOND GENERATION BIOFUELS MARKET DATA, PENETRATION, AND BUSINESS PROSPECTS TO 2034

7.1 Europe Second Generation Biofuels Market Key Findings, 2025

7.2 Europe Second Generation Biofuels Market Size and Percentage Breakdown By Type, 2024- 2034 (USD billion)

7.3 Europe Second Generation Biofuels Market Size and Percentage Breakdown By Process, 2024- 2034 (USD billion)

7.4 Europe Second Generation Biofuels Market Size and Percentage Breakdown By Feedstock, 2024- 2034 (USD billion)

7.5 Europe Second Generation Biofuels Market Size and Percentage Breakdown By Application, 2024- 2034 (USD billion)

7.6 Europe Second Generation Biofuels Market Size and Percentage Breakdown by Country, 2024- 2034 (USD billion)

7.6.1 Germany Second Generation Biofuels Market Size, Trends, Growth Outlook to 2034

7.6.2 United Kingdom Second Generation Biofuels Market Size, Trends, Growth Outlook to 2034

7.6.2 France Second Generation Biofuels Market Size, Trends, Growth Outlook to 2034

7.6.2 Italy Second Generation Biofuels Market Size, Trends, Growth Outlook to 2034

7.6.2 Spain Second Generation Biofuels Market Size, Trends, Growth Outlook to 2034

8. NORTH AMERICA SECOND GENERATION BIOFUELS MARKET SIZE, GROWTH TRENDS, AND FUTURE PROSPECTS TO 2034

8.1 North America Snapshot, 2025

8.2 North America Second Generation Biofuels Market Analysis and Outlook By Type, 2024- 2034 (\$ billion)

8.3 North America Second Generation Biofuels Market Analysis and Outlook By Process, 2024- 2034 (\$ billion)

8.4 North America Second Generation Biofuels Market Analysis and Outlook By Feedstock, 2024- 2034 (\$ billion)

8.5 North America Second Generation Biofuels Market Analysis and Outlook By Application, 2024- 2034 (\$ billion)

8.6 North America Second Generation Biofuels Market Analysis and Outlook by Country, 2024- 2034 (\$ billion)

8.6.1 United States Second Generation Biofuels Market Size, Share, Growth Trends

and Forecast, 2024- 2034

8.6.1 Canada Second Generation Biofuels Market Size, Share, Growth Trends and Forecast, 2024- 2034

8.6.1 Mexico Second Generation Biofuels Market Size, Share, Growth Trends and Forecast, 2024- 2034

9. SOUTH AND CENTRAL AMERICA SECOND GENERATION BIOFUELS MARKET DRIVERS, CHALLENGES, AND FUTURE PROSPECTS

9.1 Latin America Second Generation Biofuels Market Data, 2025

9.2 Latin America Second Generation Biofuels Market Future By Type, 2024- 2034 (\$ billion)

9.3 Latin America Second Generation Biofuels Market Future By Process, 2024- 2034 (\$ billion)

9.4 Latin America Second Generation Biofuels Market Future By Feedstock, 2024- 2034 (\$ billion)

9.5 Latin America Second Generation Biofuels Market Future By Application, 2024- 2034 (\$ billion)

9.6 Latin America Second Generation Biofuels Market Future by Country, 2024- 2034 (\$ billion)

9.6.1 Brazil Second Generation Biofuels Market Size, Share and Opportunities to 2034

9.6.2 Argentina Second Generation Biofuels Market Size, Share and Opportunities to 2034

10. MIDDLE EAST AFRICA SECOND GENERATION BIOFUELS MARKET OUTLOOK AND GROWTH PROSPECTS

10.1 Middle East Africa Overview, 2025

10.2 Middle East Africa Second Generation Biofuels Market Statistics By Type, 2024- 2034 (USD billion)

10.3 Middle East Africa Second Generation Biofuels Market Statistics By Process, 2024- 2034 (USD billion)

10.4 Middle East Africa Second Generation Biofuels Market Statistics By Feedstock, 2024- 2034 (USD billion)

10.5 Middle East Africa Second Generation Biofuels Market Statistics By Feedstock, 2024- 2034 (USD billion)

10.6 Middle East Africa Second Generation Biofuels Market Statistics by Country, 2024- 2034 (USD billion)

10.6.1 Middle East Second Generation Biofuels Market Value, Trends, Growth

Forecasts to 2034

10.6.2 Africa Second Generation Biofuels Market Value, Trends, Growth Forecasts to 2034

11. SECOND GENERATION BIOFUELS MARKET STRUCTURE AND COMPETITIVE LANDSCAPE

11.1 Key Companies in Second Generation Biofuels Industry

11.2 Second Generation Biofuels Business Overview

11.3 Second Generation Biofuels Product Portfolio Analysis

11.4 Financial Analysis

11.5 SWOT Analysis

12 APPENDIX

12.1 Global Second Generation Biofuels Market Volume (Tons)

12.1 Global Second Generation Biofuels Trade and Price Analysis

12.2 Second Generation Biofuels Parent Market and Other Relevant Analysis

12.3 Publisher Expertise

12.2 Second Generation Biofuels Industry Report Sources and Methodology

I would like to order

Product name: Second Generation Biofuels Market Outlook 2025-2034: Market Share, and Growth Analysis By Type (Cellulosic Ethanol, Biodiesel, Bio Butanol, Bio Dimethylether (DME), Other Types), By Process (Biochemical Process, Thermochemical Process), By Feedstock, By Application

Product link: <https://marketpublishers.com/r/SF81E4FA4585EN.html>

Price: US\$ 3,950.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/SF81E4FA4585EN.html>