

# **Bio-Based Aviation Fuel Market Forecasts to 2034 – Global Analysis By Fuel Type (HEFA (Hydroprocessed Esters & Fatty Acids), Fischer-Tropsch Synthetic Fuel, Alcohol-to-Jet Fuel, Sugar-to-Jet Fuel, Power-to-Liquid (PtL) Fuels, Other Fuel Types), By Feedstock, By Production Technology, By Application, By End User and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Bio-Based Aviation Fuel Market is accounted for \$12 billion in 2026 and is expected to reach \$65 billion by 2034 growing at a CAGR of 23% during the forecast period. Bio-Based Aviation Fuel, also known as sustainable aviation fuel (SAF), is produced from renewable biological sources such as plant oils, agricultural residues, or waste materials. It serves as a low-carbon alternative to conventional jet fuel and can significantly reduce lifecycle greenhouse gas emissions. SAF is compatible with existing aircraft and fueling infrastructure, enabling gradual adoption. Increasing regulatory mandates, airline commitments, and environmental concerns are driving demand. Advancements in production technologies are improving scalability and cost competitiveness, supporting decarbonization of the aviation industry.

### **Market Dynamics:**

#### **Driver:**

Increasing airline commitments to sustainability

Carriers worldwide are pledging to reduce carbon emissions and align with net-zero targets. Bio-based aviation fuels provide a viable pathway to decarbonize air travel.

Regulatory mandates and international agreements are reinforcing adoption. Partnerships between airlines and biofuel producers are accelerating commercialization. Rising consumer awareness of sustainable travel is further boosting demand. Collectively, these commitments are fueling growth in the bio-based aviation fuel sector.

**Restraint:**

Limited feedstock availability

Biofuel production depends on raw materials such as used cooking oil, agricultural residues, and waste fats. Supply constraints and seasonal variability hinder consistent production. High competition for feedstock across industries adds further challenges. Smaller producers struggle to secure reliable supply chains. Regional disparities in feedstock availability slow global scalability. These limitations continue to restrict large-scale adoption of bio-based aviation fuels.

**Opportunity:**

Development of advanced biofuel technologies

Innovations in hydroprocessed esters, fatty acids, and synthetic pathways are improving efficiency and scalability. Next-generation biofuels offer higher energy density and compatibility with existing aviation infrastructure. Governments and private firms are investing heavily in R&D to accelerate commercialization. Partnerships between technology providers and airlines are driving innovation. Integration with carbon capture and renewable energy systems enhances sustainability. This technological progress is expected to strengthen competitiveness and expand applications in the sector.

**Threat:**

Competition from synthetic aviation fuels

Synthetic fuels produced from renewable electricity and captured carbon are gaining traction as alternatives. Governments and airlines are exploring synthetic pathways alongside biofuels. High investment in synthetic fuel infrastructure may divert resources from bio-based solutions. Consumer preference for advanced low-carbon technologies adds further pressure. Price competitiveness between synthetic and bio-based fuels remains uncertain.

**Covid-19 Impact:**

The Covid-19 pandemic had mixed effects on the bio-based aviation fuel market. Global air travel disruptions slowed demand and delayed infrastructure projects. However, recovery programs emphasized sustainability, boosting investment in clean aviation fuels. Airlines accelerated commitments to decarbonization during recovery phases. Governments introduced green stimulus packages supporting biofuel development. Remote collaboration and digital platforms reinforced innovation in fuel technologies. Consumer awareness of climate issues strengthened post-pandemic.

The used cooking oil segment is expected to be the largest during the forecast period

The used cooking oil segment is expected to account for the largest market share during the forecast period as it is widely available and cost-effective compared to other feedstocks. Cooking oil waste offers a sustainable raw material for biofuel production. Governments are supporting collection and recycling initiatives to strengthen supply chains. Airlines prefer fuels derived from used cooking oil due to their compatibility with existing infrastructure. Continuous innovation in refining technologies enhances efficiency. Rising demand for circular economy solutions reinforces this segment's dominance.

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

Over the forecast period, the fuel distributors segment is predicted to witness the highest growth rate due to rising demand for efficient supply chain management. Distributors play a critical role in scaling biofuel adoption across airports and airlines. Partnerships between distributors and producers are driving commercialization. Government-backed mandates for sustainable aviation fuel blending are accelerating demand. Digital platforms are enhancing transparency and efficiency in distribution networks. Growing airline commitments to sustainability reinforce adoption.

**Region with largest share:**

During the forecast period, the North America region is expected to hold the largest market share owing to advanced aviation infrastructure and strong sustainability mandates. The U.S. leads in biofuel adoption across airlines and airports. Government-backed initiatives and funding programs are reinforcing innovation. Established producers and distributors are driving commercialization of bio-based fuels. Strong

consumer and corporate demand for sustainable travel ensures steady growth. Expansion of renewable feedstock collection further strengthens visibility.

### **Region with highest CAGR:**

Over the forecast period, the Asia Pacific region is anticipated to exhibit the highest CAGR driven by rapid aviation growth and rising sustainability awareness. Countries such as China, India, and Japan are investing heavily in biofuel technologies. Government-backed clean energy initiatives are boosting adoption. Local startups are entering the market with cost-effective solutions, expanding accessibility. Expansion of aviation infrastructure and renewable energy projects is further supporting growth. Rising demand for sustainable travel in emerging economies reinforces adoption.

### **Key players in the market**

Some of the key players in Bio-Based Aviation Fuel Market include Neste Oyj, World Energy LLC, Fulcrum BioEnergy, LanzaJet Inc., TotalEnergies SE, Shell plc, BP plc, ExxonMobil Corporation, Chevron Corporation, Honeywell UOP, Gevo Inc., Velocys plc, SkyNRG, Repsol SA, ENI SpA, Airbus SE and Boeing Company.

### **Key Developments:**

In February 2026, Neste extended its relationship with World Fuel Services through a five-year agreement to expand the availability of Neste-supplied SAF at more than 100 airports across World Fuel's UK and European network . The collaboration combines Neste's SAF production capabilities including its Rotterdam refinery currently capable of producing up to 500,000 tons of SAF annually with World Fuel's established distribution infrastructure to help customers comply with ReFuelEU Aviation Regulation requirements.

In October 2024, World Energy partnered with RMI (Rocky Mountain Institute) to enable corporate clients to lower the impact of business travel through the purchase of sustainable aviation fuel certificates. The collaboration aims to scale the SAF certificate market and accelerate aviation decarbonization through transparent book-and-claim accounting.

### **Fuel Types Covered:**

HEFA (Hydroprocessed Esters & Fatty Acids)

Fischer-Tropsch Synthetic Fuel

Alcohol-to-Jet Fuel

Sugar-to-Jet Fuel

Power-to-Liquid (PtL) Fuels

Other Fuel Types

Feedstocks Covered:

Used Cooking Oil

Agricultural Residues

Algae-Based Feedstock

Industrial Waste Gases

Other Feedstocks

Technologies Covered:

Hydroprocessing Technology

Gasification & Fischer-Tropsch

Fermentation Technology

Pyrolysis Technology

Biochemical Conversion

Other Technologies

### Applications Covered:

Commercial Aviation

Military Aviation

Cargo Aviation

Business Aviation

Urban Air Mobility

Other Applications

### End Users Covered:

Airlines

Airport Operators

Fuel Distributors

Government Agencies

Other End Users

### Regions Covered:

North America

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

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

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:**

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

## Contents

### **1 EXECUTIVE SUMMARY**

- 1.1 Market Snapshot and Key Highlights
- 1.2 Growth Drivers, Challenges, and Opportunities
- 1.3 Competitive Landscape Overview
- 1.4 Strategic Insights and Recommendations

### **2 RESEARCH FRAMEWORK**

- 2.1 Study Objectives and Scope
- 2.2 Stakeholder Analysis
- 2.3 Research Assumptions and Limitations
- 2.4 Research Methodology
  - 2.4.1 Data Collection (Primary and Secondary)
  - 2.4.2 Data Modeling and Estimation Techniques
  - 2.4.3 Data Validation and Triangulation
  - 2.4.4 Analytical and Forecasting Approach

### **3 MARKET DYNAMICS AND TREND ANALYSIS**

- 3.1 Market Definition and Structure
- 3.2 Key Market Drivers
- 3.3 Market Restraints and Challenges
- 3.4 Growth Opportunities and Investment Hotspots
- 3.5 Industry Threats and Risk Assessment
- 3.6 Technology and Innovation Landscape
- 3.7 Emerging and High-Growth Markets
- 3.8 Regulatory and Policy Environment
- 3.9 Impact of COVID-19 and Recovery Outlook

### **4 COMPETITIVE AND STRATEGIC ASSESSMENT**

- 4.1 Porter's Five Forces Analysis
  - 4.1.1 Supplier Bargaining Power
  - 4.1.2 Buyer Bargaining Power
  - 4.1.3 Threat of Substitutes
  - 4.1.4 Threat of New Entrants

- 4.1.5 Competitive Rivalry
- 4.2 Market Share Analysis of Key Players
- 4.3 Product Benchmarking and Performance Comparison

## **5 GLOBAL BIO-BASED AVIATION FUEL MARKET, BY FUEL TYPE**

- 5.1 HEFA (Hydroprocessed Esters & Fatty Acids)
- 5.2 Fischer-Tropsch Synthetic Fuel
- 5.3 Alcohol-to-Jet Fuel
- 5.4 Sugar-to-Jet Fuel
- 5.5 Power-to-Liquid (PtL) Fuels
- 5.6 Other Fuel Types

## **6 GLOBAL BIO-BASED AVIATION FUEL MARKET, BY FEEDSTOCK**

- 6.1 Used Cooking Oil
- 6.2 Agricultural Residues
- 6.3 Algae-Based Feedstock
- 6.4 Industrial Waste Gases
- 6.5 Other Feedstocks

## **7 GLOBAL BIO-BASED AVIATION FUEL MARKET, BY TECHNOLOGY**

- 7.1 Hydroprocessing Technology
- 7.2 Gasification & Fischer-Tropsch
- 7.3 Fermentation Technology
- 7.4 Pyrolysis Technology
- 7.5 Biochemical Conversion
- 7.6 Other Technologies

## **8 GLOBAL BIO-BASED AVIATION FUEL MARKET, BY APPLICATION**

- 8.1 Commercial Aviation
- 8.2 Military Aviation
- 8.3 Cargo Aviation
- 8.4 Business Aviation
- 8.5 Urban Air Mobility
- 8.6 Other Applications

## **9 GLOBAL BIO-BASED AVIATION FUEL MARKET, BY END USER**

- 9.1 Airlines
- 9.2 Airport Operators
- 9.3 Fuel Distributors
- 9.4 Government Agencies
- 9.5 Other End Users

## **10 GLOBAL BIO-BASED AVIATION FUEL MARKET, BY GEOGRAPHY**

- 10.1 North America
  - 10.1.1 United States
  - 10.1.2 Canada
  - 10.1.3 Mexico
- 10.2 Europe
  - 10.2.1 United Kingdom
  - 10.2.2 Germany
  - 10.2.3 France
  - 10.2.4 Italy
  - 10.2.5 Spain
  - 10.2.6 Netherlands
  - 10.2.7 Belgium
  - 10.2.8 Sweden
  - 10.2.9 Switzerland
  - 10.2.10 Poland
  - 10.2.11 Rest of Europe
- 10.3 Asia Pacific
  - 10.3.1 China
  - 10.3.2 Japan
  - 10.3.3 India
  - 10.3.4 South Korea
  - 10.3.5 Australia
  - 10.3.6 Indonesia
  - 10.3.7 Thailand
  - 10.3.8 Malaysia
  - 10.3.9 Singapore
  - 10.3.10 Vietnam
  - 10.3.11 Rest of Asia Pacific
- 10.4 South America

- 10.4.1 Brazil
- 10.4.2 Argentina
- 10.4.3 Colombia
- 10.4.4 Chile
- 10.4.5 Peru
- 10.4.6 Rest of South America
- 10.5 Rest of the World (RoW)
  - 10.5.1 Middle East
    - 10.5.1.1 Saudi Arabia
    - 10.5.1.2 United Arab Emirates
    - 10.5.1.3 Qatar
    - 10.5.1.4 Israel
    - 10.5.1.5 Rest of Middle East
  - 10.5.2 Africa
    - 10.5.2.1 South Africa
    - 10.5.2.2 Egypt
    - 10.5.2.3 Morocco
    - 10.5.2.4 Rest of Africa

## **11 STRATEGIC MARKET INTELLIGENCE**

- 11.1 Industry Value Network and Supply Chain Assessment
- 11.2 White-Space and Opportunity Mapping
- 11.3 Product Evolution and Market Life Cycle Analysis
- 11.4 Channel, Distributor, and Go-to-Market Assessment

## **12 INDUSTRY DEVELOPMENTS AND STRATEGIC INITIATIVES**

- 12.1 Mergers and Acquisitions
- 12.2 Partnerships, Alliances, and Joint Ventures
- 12.3 New Product Launches and Certifications
- 12.4 Capacity Expansion and Investments
- 12.5 Other Strategic Initiatives

## **13 COMPANY PROFILES**

- 13.1 Neste Oyj
- 13.2 World Energy LLC
- 13.3 Fulcrum BioEnergy

- 13.4 LanzaJet Inc.
- 13.5 TotalEnergies SE
- 13.6 Shell plc
- 13.7 BP plc
- 13.8 ExxonMobil Corporation
- 13.9 Chevron Corporation
- 13.10 Honeywell UOP
- 13.11 Gevo Inc.
- 13.12 Velocys plc
- 13.13 SkyNRG
- 13.14 Repsol SA
- 13.15 ENI SpA
- 13.16 Airbus SE
- 13.17 Boeing Company

## List Of Tables

### LIST OF TABLES

Table 1 Global Bio-Based Aviation Fuel Market Outlook, By Region (2023-2034) (\$MN)

Table 2 Global Bio-Based Aviation Fuel Market, By Fuel Type (2023–2034) (\$MN)

Table 3 Global Bio-Based Aviation Fuel Market, By HEFA (Hydroprocessed Esters & Fatty Acids) (2023–2034) (\$MN)

Table 4 Global Bio-Based Aviation Fuel Market, By Fischer-Tropsch Synthetic Fuel (2023–2034) (\$MN)

Table 5 Global Bio-Based Aviation Fuel Market, By Alcohol-to-Jet Fuel (2023–2034) (\$MN)

Table 6 Global Bio-Based Aviation Fuel Market, By Sugar-to-Jet Fuel (2023–2034) (\$MN)

Table 7 Global Bio-Based Aviation Fuel Market, By Power-to-Liquid (PtL) Fuels (2023–2034) (\$MN)

Table 8 Global Bio-Based Aviation Fuel Market, By Other Fuel Types (2023–2034) (\$MN)

Table 9 Global Bio-Based Aviation Fuel Market, By Feedstock (2023–2034) (\$MN)

Table 10 Global Bio-Based Aviation Fuel Market, By Used Cooking Oil (2023–2034) (\$MN)

Table 11 Global Bio-Based Aviation Fuel Market, By Agricultural Residues (2023–2034) (\$MN)

Table 12 Global Bio-Based Aviation Fuel Market, By Algae-Based Feedstock (2023–2034) (\$MN)

Table 13 Global Bio-Based Aviation Fuel Market, By Industrial Waste Gases (2023–2034) (\$MN)

Table 14 Global Bio-Based Aviation Fuel Market, By Other Feedstocks (2023–2034) (\$MN)

Table 15 Global Bio-Based Aviation Fuel Market, By Production Technology (2023–2034) (\$MN)

Table 16 Global Bio-Based Aviation Fuel Market, By Hydroprocessing Technology (2023–2034) (\$MN)

Table 17 Global Bio-Based Aviation Fuel Market, By Gasification & Fischer-Tropsch (2023–2034) (\$MN)

Table 18 Global Bio-Based Aviation Fuel Market, By Fermentation Technology (2023–2034) (\$MN)

Table 19 Global Bio-Based Aviation Fuel Market, By Pyrolysis Technology (2023–2034) (\$MN)

Table 20 Global Bio-Based Aviation Fuel Market, By Biochemical Conversion (2023–2034) (\$MN)

Table 21 Global Bio-Based Aviation Fuel Market, By Other Technologies (2023–2034) (\$MN)

Table 22 Global Bio-Based Aviation Fuel Market, By Application (2023–2034) (\$MN)

Table 23 Global Bio-Based Aviation Fuel Market, By Commercial Aviation (2023–2034) (\$MN)

Table 24 Global Bio-Based Aviation Fuel Market, By Military Aviation (2023–2034) (\$MN)

Table 25 Global Bio-Based Aviation Fuel Market, By Cargo Aviation (2023–2034) (\$MN)

Table 26 Global Bio-Based Aviation Fuel Market, By Business Aviation (2023–2034) (\$MN)

Table 27 Global Bio-Based Aviation Fuel Market, By Urban Air Mobility (2023–2034) (\$MN)

Table 28 Global Bio-Based Aviation Fuel Market, By Other Applications (2023–2034) (\$MN)

Table 29 Global Bio-Based Aviation Fuel Market, By End User (2023–2034) (\$MN)

Table 30 Global Bio-Based Aviation Fuel Market, By Airlines (2023–2034) (\$MN)

Table 31 Global Bio-Based Aviation Fuel Market, By Airport Operators (2023–2034) (\$MN)

Table 32 Global Bio-Based Aviation Fuel Market, By Fuel Distributors (2023–2034) (\$MN)

Table 33 Global Bio-Based Aviation Fuel Market, By Government Agencies (2023–2034) (\$MN)

Table 34 Global Bio-Based Aviation Fuel Market, By Other End Users (2023–2034) (\$MN)

Note: Tables for North America, Europe, APAC, South America, and Rest of the World (RoW) are also represented in the same manner as above.

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