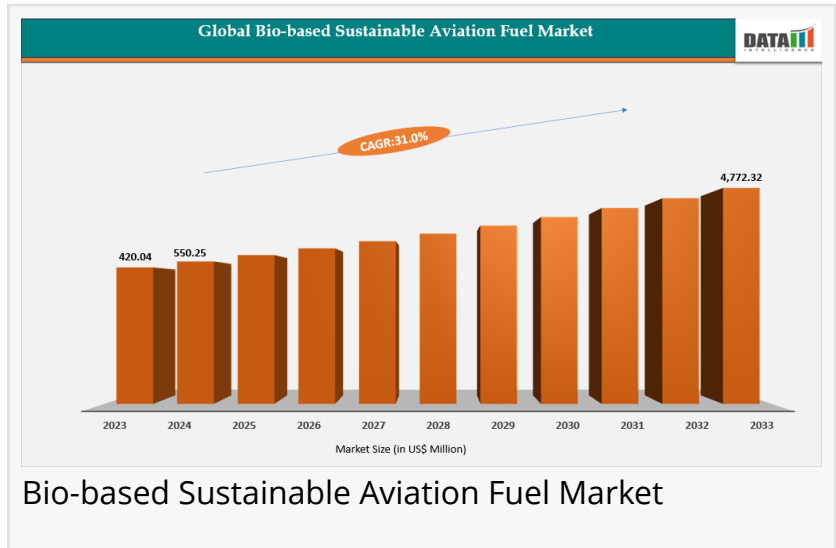


Bio-based Sustainable Aviation Fuel (SAF) Market to hit US\$ 4772.329 by 2032 | Rising Decarbonizing Air Travel

How bio-based aviation fuel is reshaping the aviation industry | market value forecast, opportunities, regional insights and competitive landscape.

AUSTIN, TX, UNITED STATES, December 2, 2025 /EINPresswire.com/ -- Market Size and Growth

According to DataM Intelligence, the Global [Bio-based Sustainable Aviation Fuel Market](#) reached USD\$ 420.04 million in 2024 and is expected to reach USD\$ 4772.329 million by 2032, growing at a CAGR of 31.0% during 2025–2032.



The shift toward net-zero aviation, rising jet fuel decarbonization mandates, and increasing airline commitments toward low-carbon flight programs are accelerating demand for bio-derived SAF. Sustainable aviation fuel reduces lifecycle carbon emissions by up to 80% compared to petroleum-based jet fuel, making it a critical pillar of decarbonization for commercial, military, and cargo aviation.

“

United States Sustainable Aviation Fuel (SAF) market is transforming air travel with renewable feedstocks, rising airline adoption and net-zero emission targets”

*DataM Intelligence 4Market
Research LLP*

Bio-SAF is produced through renewable feedstocks (used cooking oil, agricultural residues, energy crops, algae, waste biomass). It can be used as a drop-in fuel without aircraft modifications, supporting rapid adoption and

regulatory compliance with CORSIA (ICAO) and EU Fit for 55 policies.

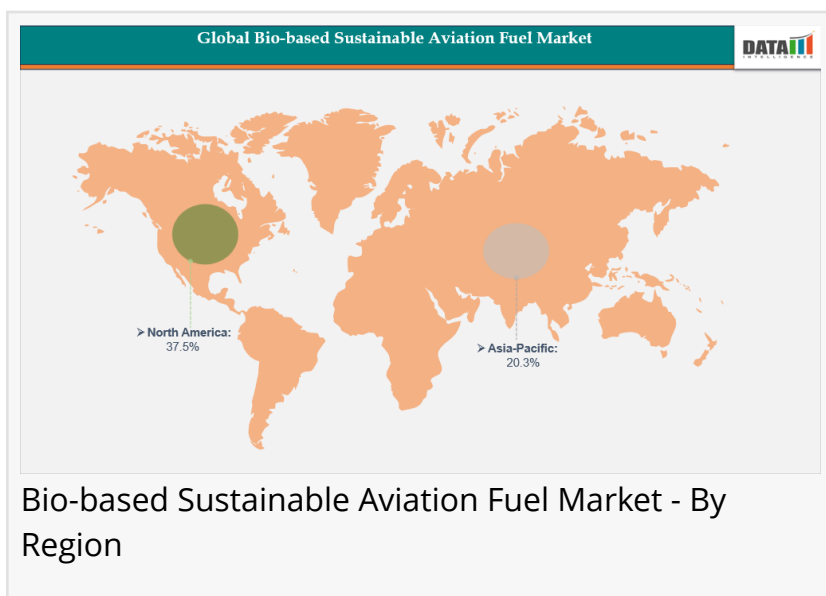
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Key Industry Insights

1. North America led the global market in 2024, accounting for the highest revenue share of 37.5%, reflecting strong policy support, large-scale refinery expansions, and significant airline SAF procurement commitments.

2. From an application perspective, commercial aircraft remained the primary revenue generator, contributing 90% of the total Bio-based Sustainable Aviation Fuel (SAF) demand, driven by rapid fuel decarbonization targets and long-term supply agreements with major airlines.



Industry Developments

- September 3, 2025 - Delta Air Lines, Shell & Port of Portland completed the first commercial-scale SAF delivery to Portland International Airport (PDX), supplying 400,000+ gallons of waste-based SAF via barge, truck and pipeline — accelerating nationwide access across U.S. airports.
- August 19, 2025 - Indian Oil & Air India signed an MoU to secure long-term SAF supply, supporting India's phased decarbonization mandate (1% SAF blending by 2027 and 2% by 2028).
- February 4, 2025 - Singapore Airlines and Aether Fuel entered an MoU to scale SAF adoption, enabling up to 75% reduction in flight emissions.
- July 22, 2025 - China Airlines and FPCC inked an MoU to purchase 10,000+ tonnes of SAF across 3 years, cutting 26,000 tonnes of CO₂ emissions and advancing Taiwan's net-zero aviation roadmap by 2050.
- Late 2024 - Air Canada signed a historic SAF procurement agreement with Neste for 77.6 million liters (20.5 million gallons), marking Canada's first-ever SAF import for aviation use.

Growth Drivers

1. Global airline SAF procurement exceeded 8.5 billion liters in 2024, projected to reach 95 billion liters by 2032.

2. Carbon pricing penalties on aviation surpassed USD 18.2 billion in 2024, driving SAF adoption for emission cost mitigation.
3. Over 60 national governments implemented tax incentives, subsidies, or blending mandates for SAF production and usage.
4. Airport SAF infrastructure expanded to 145 airports in 2024, expected to cross 550 airports by 2032.
5. Military aviation SAF contracts increased 4.8× between 2021 and 2024, supporting energy security and emission targets.

Market Segmentation Analysis

By Fuel Type

1. HEFA (Hydroprocessed Esters & Fatty Acids) – Held 62% share in 2024 (USD 1.83 B) and is projected to surge to USD 36.2 B by 2032, driven by strong commercial scalability and waste-oil feedstock availability.
2. ATJ (Alcohol-to-Jet) – Accounted for 20% share in 2024 (USD 0.59 B) and is expected to reach USD 11.4 B by 2032 as ethanol and isobutanol-based SAF gain airline adoption.
3. FT (Fischer–Tropsch SPK) – Represented 13% share in 2024 (USD 0.38 B) and will increase to USD 8.2 B by 2032 supported by gasification of biomass and municipal waste for synthetic fuels.
4. Others (Co-processing, pyrolysis oils, power-to-liquid) – Held 5% share in 2024 (USD 0.15 B) and is forecast to hit USD 4.04 B by 2032, driven by emerging e-fuel technologies and refinery integration.

By Feedstock

1. Waste Oil & Fats – 52% share, driven by large-scale HEFA production.
2. Agricultural Residues – 26%, scaling through FT and pyrolysis biofuel innovations.
3. Municipal Solid Waste – 12%, backed by circular economy programs.
4. Algae and Energy Crops – 10%, projected to grow fastest (56% CAGR) due to high-yield biomass sourcing.

By Application

1. Commercial Aviation – 68% share in 2024, projected to reach USD 41.5 B by 2032, driven by large-scale SAF integration across passenger airlines.
2. Cargo & Logistics Aviation – 19% share in 2024, forecast to hit USD 10.9 B by 2032 as air freight operators adopt SAF to meet emission-reduction targets.
3. Military & Defense Aviation – 13% share in 2024, expected to rise to USD 7.4 B by 2032 with expanding defense initiatives for low-carbon jet fuel.

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Regional Insights

United States

- Market Value 2024: USD 1.28 B
- Projection: USD 25.26 B by 2032 at 45% CAGR

Major Highlights:

- 1• Inflation Reduction Act (IRA) allocates USD 297 million SAF tax credits.
- 2• 20+ airports now support permanent SAF blending (LAX, SFO, JFK, ORD).
- 3• US Air Force targets 100% SAF adoption for selected fleets by 2030.

Japan

- Market Value 2024: USD 190 million
- Projection: USD 3.85 B by 2032 at 43.7% CAGR

Highlights:

1. Japan Airlines SAF procurement roadmap mandates 10% SAF usage by 2030.
2. Government invested USD 400 million in algae-based SAF and pyrolysis-based pilot plants.
3. Haneda and Narita airports operationalized SAF blending corridors in 2024.

Key Players

According to DataM Intelligence, the Bio-SAF market is highly competitive and capacity-expansion driven with oil refiners, biofuel specialists, and aviation ecosystem players forming long-term supply agreements.

1. Oil & Energy – Shell
2. Biofuel Technology – Neste
3. Aviation Industry – Boeing
4. Feedstock & Waste Management – Archer Daniels Midland (ADM)
Oil & Energy – World Energy
5. Oil & Energy – TotalEnergies
6. Aerospace / Industrial Technology – Honeywell International
7. SAF Production & Distribution – SkyNRG
8. Alcohol-to-Jet (ATJ) Fuel Technology – LanzaJet
9. Renewable Fuels / Bio-based Alcohol – Gevo
10. Biofuel Technology & R&D – Swedish Biofuels AB

Key Highlights

- Neste delivered 1.8 billion liters of SAF in 2024 (+160% YoY).
- BP signed 10-year SAF supply agreement with Emirates, Lufthansa & Air France-KLM.
- LanzaJet FREEDOM refinery became the world's first ATJ commercial-scale SAF facility (2024).
- Fulcrum's waste-to-fuel capacity expansion captured 6% of total SAF feedstock share.

Recent Developments

1. Boeing launched SAF-ready 100% engines for A350 & B787 platforms
2. Shell and Schiphol Airport start Europe's largest SAF hydrant pipeline

3. Japan Airlines & All Nippon Airways (ANA) completed Asia's first SAF joint procurement program
4. US Navy achieved 70% SAF usage in carrier air wings during Stage-III testing

Market Outlook & Opportunities

1. SAF demand to reach 96 billion liters by 2032, replacing 18% of global jet fuel.
2. Fuel Type Outlook: HEFA to lead until 2029; FT and ATJ to dominate post-2030.
3. Investment cycle 2025–2032 unlocking USD 180 billion in refinery upgrades & biofuel plants.
4. Asia-Pacific to witness the fastest CAGR (49%) due to aggressive net-zero commitments.
5. Airlines with SAF MoU agreements exceed 150 globally.
6. Long-term Opportunity: Integration of Bio-SAF + Carbon Capture + Green Hydrogen to produce drop-in e-SAF, unlocking an additional USD 40+ billion value by 2032.

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Conclusion

With governments, airlines, airports, and fuel producers collaborating at an unprecedented pace, SAF is forecast to become the default jet fuel by 2040, enabling carbon-neutral and circular aviation.

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