

Biomass-Based Bio-Refinery Feedstocks

ANMD-MRS21-209 · Industrial & Environmental Biotechnology

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

WHY THIS REPORT

Biomass-based bio-refinery feedstocks — agricultural residues, energy crops and forestry residues — are the renewable carbon that feeds bio-refineries producing fuels, chemicals and materials through biochemical, thermochemical and hybrid conversion routes. Feedstock cost, availability and carbon intensity determine bio-refinery viability, making feedstock strategy the decisive variable. This decision-grade study sizes the global market three ways — value, volume (tonnes) and feedstock supply — across segmentation, seven regions and four scenarios to 2032, with outlooks to 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

The sustainability case is the report's backbone. Beyond fossil substitution, biomass feedstocks deliver measurable life-cycle-carbon reduction, residue valorisation and rural-economy value, strengthening the circular-bioeconomy story. The analysis applies double materiality, maps outcomes to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, and Land-use change, residue-removal soil impact, biodiversity and carbon-accounting substantiation are treated as material risks — with greenwashing and SDG-washing screens applied throughout.

Mapped Sustainable Development Goals:

| | | |
|---|--|---------------------------------|
| SDG 7 Affordable & Clean Energy | SDG 12 Responsible Consumption | SDG 13 Climate Action |
|---|--|---------------------------------|

Measurable sustainability outcomes assessed:

- Lower-carbon feedstocks displacing fossil inputs
- Valorised agricultural and forestry residues
- Circular, waste-to-value supply chains
- Land-use, ILUC and feedstock sustainability as material risks

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

| | | | |
|------------------------------------|-------------------------------|----------------------------------|-------------------------------|
| 53 Chapters | 9 Report Parts | 7 Regions Covered | 40+ Country Markets |
| 2025–32 Forecast Horizon | 4 Forward Scenarios | 25+ Companies Profiled | 3 SDGs Mapped |

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. Latin America (Brazil) leads sugarcane and residue feedstock; Europe drives advanced-biofuel policy; North America scales corn-stover and forestry residues; other regions on their own merits.

MARKET OVERVIEW

From agricultural residues to scalable, sustainable bio-refinery feedstocks.

Bio-refinery feedstocks are moving from energy-crop reliance toward residue and waste carbon. Demand is driven by low-carbon-fuel mandates, sustainable-aviation-fuel scale-up, and bio-based-chemical growth. The market is read two ways — value and volume (tonnes), with carbon intensity (gCO₂e/MJ) as a sustainability lens — forecast under conservative, base, accelerated and disruption scenarios, every projection resolved to the 2025 base year and each region reported separately rather than folded into Rest of World. The market is read three ways — value, volume (tonnes) and feedstock supply — and forecast under four scenarios (conservative, base, accelerated and disruption), each region reported separately.

- **North America leads low-carbon fuels** — anchored by U.S. RFS and California LCFS and a strong agricultural-residue base.
- **Europe scales on RED and SAF** — with renewable-energy directives and aviation mandates pulling residue feedstocks.
- **Asia Pacific is the volume engine** — with China and India mobilising agricultural and forestry residues at scale.
- **Feedstock type and route segment the value** — across agricultural residue, energy crops and forestry residue, each with distinct cost-and-carbon profiles.

REGIONAL OUTLOOK

Across seven reporting regions, the report separates commercialisation and supply leaders from high-growth and emerging markets — each profiled in full rather than aggregated into Rest of World.

| Region | Stage | Lead Markets & Drivers |
|---------------|------------------------|---|
| North America | Low-carbon-fuel leader | United States, Canada — RFS, LCFS, agricultural-residue base |
| Europe | RED & SAF-driven | Germany, Netherlands, Finland — renewable directives, aviation mandates |
| Asia Pacific | Volume engine | China, India — agricultural and forestry residue mobilisation |
| Latin America | Emerging | Brazil — sugarcane bagasse, ethanol-integrated refining |
| Africa | Frontier | South Africa — agricultural-residue and forestry feedstock |
| Middle East | Frontier | UAE, Saudi Arabia — waste-to-value and diversification investment |

KEY MARKET DRIVERS & RESTRAINTS

| Drivers | Restraints |
|---|--|
| <ul style="list-style-type: none"> • Low-carbon-fuel & SAF mandates • Bio-based-chemical & material growth • Residue and waste-carbon availability • Carbon-intensity scoring & incentives • Conversion-technology cost-down | <ul style="list-style-type: none"> • Feedstock logistics, collection & seasonality • Pretreatment cost & lignocellulose recalcitrance • Land-use and residue-removal sustainability • Feedstock-price volatility & competition • Supply-security and aggregation challenges |

SEGMENTATION SNAPSHOT

| | |
|----------------------------|--|
| By Feedstock Type | Agricultural residue · energy crops · forestry residue · waste / MSW |
| By Pretreatment | Physical · chemical · biological · hybrid |
| By Conversion Route | Biochemical · thermochemical · hybrid |
| By End User | Bio-refineries · biofuel · bio-chemical · energy producers |
| By Business Model | Feedstock sale · supply / offtake · managed-service · licensing |
| By Deployment Scale | Pilot · demonstration · commercial |

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

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COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans dedicated biotech specialists, established industrial-biotech majors and integrated producers.

Representative players profiled in the full report:

Raizen S.A. · Neste Oyj · Versalis S.p.A. (Eni S.p.A.) · Clariant AG · GranBio Investimentos S.A. · and 20+ further profiled players across feedstock producers, bio-refineries and biomass aggregators.

Investment intelligence: venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a clear, decision-ready investment verdict.

KEY QUESTIONS THIS REPORT ANSWERS

- ? How large is the global biomass-based bio-refinery feedstocks market, and how fast will it grow to 2032?
- ? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- ? How do residue availability and supply-chain logistics change feedstock value versus fossil inputs?
- ? Who leads, and where is the competitive and patent white space?
- ? Is the investment case bankable — and under what conditions?
- ? How does the category align with the SDGs, circular-economy and resource-security and disclosure regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, water and natural-capital intelligence and a decision-ready bankability verdict in a single architecture.

- **Triangulated sizing** — every market read three ways (value, volume (tonnes) and feedstock supply) so value-led and volume-led views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, decision-ready investment verdict.

WHO SHOULD BUY THIS REPORT

Investors and bioeconomy / PE funds, bio-refineries and chemical producers, agribusiness and feedstock aggregators, procurement and sustainability leaders, policymakers and lenders, and strategic corporate planners and decision-makers.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at www.anewmarketdynamics.com · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at www.anewmarketdynamics.com. The full detailed table of contents will be sent directly to your registered company email address.