

ANMD-MRS35-349 · Waste-to-Energy Technologies

Sewage-to-Energy Systems

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

Sewage-to-energy systems recover energy and resources from wastewater sludge, turning a costly disposal liability into biogas, heat, biochar and recovered nutrients. Purpose-built systems — sludge anaerobic digestion, mono-combustion / incineration, gasification / pyrolysis, thermal-hydrolysis pre-treatment and sludge-to-biochar — are engineered so that sludge volume is reduced while energy and phosphorus are recovered. The pay-off is measurable: energy-neutral wastewater treatment, sludge-volume reduction, nutrient recovery and reduced disposal cost. This report is a comprehensive, decision-grade study of that market across system type, process, component, application, end user and business model, spanning history 2020–2024, a 2025 base year, a 2025–2032 forecast and long-term outlooks to 2035, 2040 and 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

The sustainability case is the report's backbone. Beyond energy, sewage-to-energy delivers measurable energy-neutral treatment, sludge-volume reduction, and phosphorus recovery, while resource recovery strengthens the circular-economy story.

Mapped Sustainable Development Goals:

SDG 2 Zero Hunger	SDG 6 Clean Water	SDG 7 Affordable Energy	SDG 13 Climate Action	SDG 15 Life on Land
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Measurable sustainability outcomes assessed:

- Sludge-to-energy conversion and biosolids reduction
- Biogas and nutrient recovery from wastewater streams
- Avoided disposal emissions and circular nutrient loops
- Pathogen control and biosolids-quality integrity 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	5 SDGs Mapped

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. Across the seven reporting regions, the report separates early commercialisation leaders from high-growth and emerging markets, profiling named country sub-markets, policy regimes and project pipelines in each. Europe and Asia Pacific anchor near-term volume; North America scales on RNG and diversion incentives; while Latin America, Africa and the Middle East are assessed on their own merits — for waste infrastructure, energy access and emissions mitigation — rather than aggregated away.

MARKET OVERVIEW

From sludge to energy and nutrients — where sewage-to-energy turns a disposal cost into recovered resource.

Sewage-to-energy is moving from digestion-only to integrated energy-and-resource recovery. Demand is driven by the convergence of energy-neutral-utility goals, sludge-disposal restrictions and phosphorus recovery, supported by maturing regulation across Europe, North America and Asia Pacific. The market is read three ways — value, systems and sludge capacity (tDS/yr) — and forecast under conservative, base, accelerated and disruption scenarios, with every projection resolved to the 2025 base year and each region reported separately rather than folded into Rest of World.

- Europe leads early commercialisation, anchored by Germany, Switzerland and the Nordics, where thermal hydrolysis, mono-incineration and phosphorus-recovery mandates are most advanced.
- North America is the growth engine, with the United States and Canada combining energy-neutral-utility programmes with biosolids-management pressure.
- Asia Pacific is accelerating, supported by China, Japan and South Korea, where large WWTP build-out and sludge-management drivers are strongest.
- System type and process segment the value, across digestion, incineration and gasification / pyrolysis routes, and across pre-treatment and biochar pathways, each with distinct economics.

REGIONAL OUTLOOK

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

Region	Stage	Lead Markets & Drivers
Europe	Commercial leader	Germany, France, Netherlands, Nordics — landfill bans, circular-economy targets, district heating
Asia Pacific	Scale engine	China, Japan, India, South Korea — urban waste growth, new-build programmes, industrial demand
North America	Accelerating	United States, Canada — RNG incentives, landfill diversion, plant modernisation
Latin America	Emerging	Brazil, Mexico — waste-management investment, methane-mitigation projects
Africa	Frontier	South Africa, Morocco, Egypt — waste infrastructure build-out, blended finance
Middle East	Frontier	Saudi Arabia, UAE, Israel — waste-management investment, circular-economy strategies

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> • Energy-neutral wastewater-utility goals • Sludge-disposal & land-application restrictions • Phosphorus & nutrient-recovery mandates • Biogas, heat & RNG revenue • Thermal-hydrolysis & gasification advances 	<ul style="list-style-type: none"> • Capital intensity & utility-budget limits • Sludge variability & contaminant (PFAS) concerns • Process-complexity & operator-skill needs • Ash & residue-disposal regulation • Policy & funding-cycle dependence

SEGMENTATION SNAPSHOT

By System Type	Sludge anaerobic digestion · incineration / mono-combustion · gasification / pyrolysis · thermal-hydrolysis pre-treatment · sludge-to-biochar
By Component	THP units · digesters · incinerators · dewatering · nutrient recovery
By Application	Wastewater utilities · municipalities · industrial WWTPs · engineering firms
By End User	Wastewater utilities · municipalities · industrial WWTPs · engineering firms
By Business Model	Equipment sale · EPC / turnkey · BOT / concession · O&M; contract
By Scale	Small WWTP · mid · large · regional

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.

Part I — Report Foundation, Discovery and Strategic Intelligence

- › Chapter 1. Scope, Methodology and Report Architecture
- › Chapter 2. Industry Discovery Summary — Sewage-to-Energy Systems
- › Chapter 3. Executive Intelligence and Decision Dashboard
- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

Part II — Market Intelligence, Sizing, Forecasting and Segmentation

- › Chapter 5. Industry Overview and Market Evolution
- › Chapter 6. Market Dynamics
- › Chapter 7. Global Market Size and Forecast, 2020–2032
- › Chapter 8. Market Segmentation Analysis
- › Chapter 9. End-User and Demand-Side Intelligence
- › Chapter 10. Pricing, Cost and Commercial Model Intelligence

Part III — Regional and Country Intelligence

- › Chapter 11. Global Regional Intelligence Framework
- › Chapter 12. North America Market Intelligence
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Part IV — Technology, Innovation and Category-Specific Intelligence

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- › Chapter 20. Emerging and Next-Generation Technology Intelligence
- › Chapter 21. Category-Specific Intelligence Module
- › Chapter 22. Research, Innovation and Funding Landscape

Part V — Company, Competition, Patent and Project Intelligence

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- › Chapter 24. Company Profiles
- › Chapter 25. Mergers, Acquisitions, Partnerships and Ecosystem Intelligence
- › Chapter 26. Patent Landscape and Intellectual Property Intelligence
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Part VI — Sustainability, ESG, SDG, Climate and Natural-Capital Intelligence

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- › Chapter 29. ESG Intelligence and Double Materiality
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- › Chapter 38. Policy, Regulation and Incentive Intelligence
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Part VIII — Scenario, Future Intelligence and Final Due Diligence Verdict

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- › Chapter 44. Risk Register, RAG Rating and Anti-Greenwashing Screen
- › Chapter 45. Bottom-Line Verdict and Strategic Recommendations
- › Chapter 46. Implementation Roadmap and Stakeholder Playbooks

Part IX — Annexes, Directories and Reference Material

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- › Chapter 48. Corporate Directory and Company Intelligence Annex
- › Chapter 49. Patent Directory and Patent Intelligence Annex
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- › Chapter 51. Forecast Annex
- › Chapter 52. Sustainability KPI Annex
- › Chapter 53. Reference Annexes

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans water-utility technology specialists, established treatment-equipment manufacturers, and resource-recovery innovators.

Representative players profiled in the full report:

Veolia Environnement SA · SUEZ SA · Cambi ASA · ANDRITZ AG · Ostara Nutrient Recovery Technologies Inc. · and further profiled players across the value chain.

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

KEY QUESTIONS THIS REPORT ANSWERS

- ? How large is the global Sewage-to-Energy Systems market, and how fast will it grow to 2032?
- ? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- ? How do the category economics change returns versus incumbent approaches?
- ? Who leads, and where is the competitive and patent white space?
- ? Is the investment case bankable — and under what conditions?
- ? How does the technology align with the SDGs and emerging 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 multiple ways so value, volume and physical-unit 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, structured investment recommendation.

WHO SHOULD BUY THIS REPORT

Investors and infrastructure / PE funds, EPC contractors, technology licensors, waste and utility operators, municipalities, policymakers, lenders, and corporate strategy and ESG teams.

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.