

## ANMD-MRS35-350 · Waste-to-Energy Technologies

# Industrial Heat-Recovery Boilers from Waste Streams

*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

Industrial heat-recovery boilers capture waste heat from high-temperature process streams, turning otherwise-lost thermal energy into steam, power and process heat across heavy industry. Purpose-built systems — waste-heat recovery boilers, heat-recovery steam generators (HRSG), organic Rankine cycle (ORC) systems, economizers & recuperators and integrated heat-recovery — are engineered so that exhaust and flue-gas heat is recovered and reused. The pay-off is measurable: fuel and energy savings, lower process emissions, on-site power and improved energy intensity. This report is a comprehensive, decision-grade study of that market across system type, component, application, end user, deployment 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 cost, industrial heat recovery delivers measurable fuel and energy savings, reduced process emissions, and improved energy intensity, while on-site power strengthens the industrial-decarbonisation story.

### Mapped Sustainable Development Goals:

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

- Waste-heat recovery and primary-energy displacement
- Avoided emissions from captured industrial heat streams
- Plant energy-efficiency and fuel-cost reduction
- Fouling, corrosion and feed-stream variability 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

<b>53</b> Chapters	<b>9</b> Report Parts	<b>7</b> Regions Covered	<b>40+</b> Country Markets
<b>2025–32</b> Forecast Horizon	<b>4</b> Forward Scenarios	<b>25+</b> Companies Profiled	<b>5</b> 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 wasted heat to captured energy — where recovery boilers turn industrial waste streams into usable power and heat.

Industrial heat recovery is moving from selective retrofits to systematic decarbonisation infrastructure. Demand is driven by the convergence of energy-cost pressure, industrial-decarbonisation targets and carbon pricing, supported by maturing efficiency policy across Asia Pacific, Europe and North America. The market is read three ways — value, units shipped and installed MWth — 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.

- Asia Pacific is the scale engine, anchored by China, India and Japan, where large cement, steel and chemical bases and waste-heat-recovery mandates are most advanced.
- Europe leads on decarbonisation, with Germany, France and the Nordics combining carbon pricing with strong industrial-efficiency policy.
- North America is accelerating, supported by the United States and Canada, where energy-cost savings and decarbonisation funding drive adoption.
- System type and application segment the value, across waste-heat boilers, HRSG and ORC systems, and across cement, steel, chemicals and glass use cases, 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"> <li>• Energy-cost &amp; fuel-savings pressure</li> <li>• Industrial-decarbonisation &amp; efficiency targets</li> <li>• Carbon pricing &amp; emissions reduction</li> <li>• On-site power &amp; process-heat value</li> <li>• ORC, HRSG &amp; heat-exchanger advances</li> </ul>	<ul style="list-style-type: none"> <li>• Retrofit-integration &amp; downtime cost</li> <li>• Variable, fouling &amp; corrosive heat sources</li> <li>• Capital cost &amp; payback-period sensitivity</li> <li>• Low-grade-heat conversion-efficiency limits</li> <li>• Process-specific engineering complexity</li> </ul>

## SEGMENTATION SNAPSHOT

<b>By System Type</b>	Waste-heat boilers · HRSG · organic Rankine cycle (ORC) · economizers & recuperators · integrated heat-recovery
<b>By Component</b>	Boilers · HRSGs · ORC modules · economizers · heat exchangers
<b>By Application</b>	Cement & steel · chemicals · glass & ceramics · food & general industry
<b>By End User</b>	Cement & steel · chemicals · glass & ceramics · food & general industry
<b>By Business Model</b>	Equipment sale · EPC / turnkey · BOT / concession · O&M; contract
<b>By Scale</b>	Heavy industry · process plants · power / CHP

## 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

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- › Chapter 3. Executive Intelligence and Decision Dashboard
- › Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

### Part II — Market Intelligence, Sizing, Forecasting and Segmentation

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- › Chapter 53. Reference Annexes

## COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans boiler and HRSG manufacturers, established power-equipment suppliers, and ORC specialists.

### Representative players profiled in the full report:

Thermax Limited · Babcock & Wilcox Enterprises, Inc. · Mitsubishi Heavy Industries, Ltd. · Siemens Energy AG · GE Vernova 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 Industrial Heat-Recovery Boilers from Waste Streams 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](http://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](http://www.anewmarketdynamics.com). The full detailed table of contents will be sent directly to your registered company email address.