

Thermal Storage Solutions

ANMD-MRS17-165 · Energy Storage & Grid Flexibility Technologies

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

Thermal storage solutions store energy as heat or cold for power, industry and buildings — the molten-salt, sensible-heat (rock/concrete), phase-change (PCM), thermochemical and water/ice systems that decouple energy supply from demand. With industrial heat decarbonisation and long-duration needs rising, thermal storage offers low-cost, long-life storage using abundant materials. This report is a comprehensive, decision-grade study of that thermal-storage market across storage type, temperature range, 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. This decision-grade study sizes the global market three ways — value, capacity (MWh-thermal) and installed power (MW) — 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. Thermal storage decarbonises industrial heat, enables long-duration storage and uses abundant, low-impact materials. The analysis applies double materiality, maps outcomes to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, and Material sourcing and footprint, heat-to-power efficiency claims, and integration safety are treated as material risks — with greenwashing and SDG-washing screens applied throughout.

Mapped Sustainable Development Goals:

SDG 7 Affordable & Clean Energy	SDG 9 Industry & Infrastructure	SDG 11 Sustainable Cities	SDG 12 Responsible Consumption	SDG 13 Climate Action
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Measurable sustainability outcomes assessed:

- Decarbonised industrial process heat
- Long-duration storage from abundant, low-impact materials
- Higher renewable utilisation and demand flexibility
- Material sourcing and lifetime reliability 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. Europe and North America lead industrial-heat decarbonisation; Asia Pacific scales manufacturing; the Middle East invests in solar-thermal; other regions assessed on their own merits.

MARKET OVERVIEW

From pilot installations to industrial-decarbonisation heat storage at scale.

Thermal storage is gaining momentum for heat and long duration. Demand is driven by industrial-heat decarbonisation, long-duration storage needs, and low-cost abundant materials — with charge/discharge efficiency and temperature range central to value. The market is read three ways — value, capacity (MWh-thermal) and installed power (MW) — and forecast under four scenarios (conservative, base, accelerated and disruption), each region reported separately.

- **North America leads industrial-heat storage** — anchored by Malta, Rondo, Antora and Storworks targeting industrial decarbonisation.
- **Europe drives thermal and PCM innovation** — with EnergyNest, Azelio, SaltX, Kraftblock and Echogen.
- **Israel and emerging players add depth** — with Brenmiller Energy and MGA Thermal (Australia) scaling heat storage.
- **Industrial heat is the differentiator** — decarbonising the large, hard-to-abate industrial-heat sector is thermal storage's standout opportunity.

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	Industrial-heat leader	United States — Malta, Rondo, Antora, Storworks
Europe	Thermal & PCM hub	Norway, Sweden, Germany — EnergyNest, Azelio, SaltX, Kraftblock
Asia Pacific	Emerging	Australia, China — MGA Thermal, industrial-heat storage
Latin America	Frontier	Chile — CSP & thermal storage
Africa	Frontier	South Africa — industrial-heat & CSP
Middle East	Innovation	Israel, UAE — Brenmiller, solar-thermal storage

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> • Industrial-heat decarbonisation • Long-duration storage needs • Low-cost abundant materials • Renewable heat & power-to-heat • Round-trip & discharge-efficiency gains 	<ul style="list-style-type: none"> • Round-trip-efficiency limits (power) • Heat-to-power conversion losses • Early commercial maturity • Project-scale capex • Integration with industrial processes

SEGMENTATION SNAPSHOT

By Storage Type	Molten-salt · sensible-heat (rock/concrete) · phase-change (PCM) · thermochemical · hot/cold water & ice
By Temperature Range	Low-temperature · medium-temperature · high-temperature
By Application	Front-of-meter · commercial & industrial · residential
By End User	Utilities · IPPs · developers · C&I; · residential
By Business Model	Equipment sales · integration · storage-as-a-service
By Output	Heat · power · combined heat & power

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 — Thermal Storage Solutions
- › 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

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- › Chapter 12. North America Market Intelligence
- › Chapter 13. Europe Market 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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Part VIII — Scenario, Future Intelligence and Final Due Diligence Verdict

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- › Chapter 48. Corporate Directory and Company Intelligence Annex
- › Chapter 49. Patent Directory and Patent Intelligence Annex
- › Chapter 50. Project Intelligence Annex
- › Chapter 51. Forecast Annex
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- › Chapter 53. Reference Annexes

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans industrial-heat-storage scale-ups and thermal-technology specialists.

Representative players profiled in the full report:

Malta Inc. · Rondo Energy, Inc. · Antora Energy, Inc. · Brenmiller Energy Ltd · EnergyNest AS · and 20+ further profiled players across industrial-heat-storage scale-ups and thermal-technology specialists.

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 thermal storage solutions market, and how fast will it grow to 2032?
- ? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- ? How does abundant-material, high-temperature storage change industrial-heat value versus combustion?
- ? 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, capacity (MWh-thermal) and installed power (MW)) 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 climate / PE funds, industrial heat users and utilities, EPCs and technology developers, procurement and sustainability leaders, policymakers and 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.