Sodium-Ion Battery Systems

ANMD-MRS17-166 · 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

Sodium-ion battery systems are the emerging, lithium-free storage alternative — the layered-oxide, polyanionic and Prussian-blue chemistries and containerized systems that store energy using abundant, low-cost sodium instead of lithium. With supply-chain resilience and cost as headline advantages, sodium-ion is moving from labs into early commercial stationary-storage deployment. This report is a comprehensive, decision-grade study of that sodium-ion market across cathode chemistry, form factor, 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) and shipped units — 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. Sodium-ion offers lithium-free, abundant-material storage with supply-resilience and potentially lower footprint. The analysis applies double materiality, maps outcomes to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, and Material sourcing and manufacturing footprint, performance-claim substantiation, and end-of-life recycling are treated as material risks — with greenwashing and SDG-washing screens applied throughout.

Mapped Sustainable Development Goals:

SDG 7	SDG 9	SDG 11	SDG 12	SDG 13
Affordable & Clean Energy	Industry & Infrastructure	Sustainable Cities	Responsible Consumption	Climate Action

Measurable sustainability outcomes assessed:

- Lithium-free storage from abundant sodium
- Supply-chain resilience and reduced critical-mineral dependence
- Safety and cold-temperature performance advantages
- Energy density and cell-manufacturing footprint 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. Asia Pacific (China) leads cell production and scale-up; Europe and North America drive chemistry innovation and supply resilience; other regions assessed on their own merits.

MARKET OVERVIEW

From early-commercial chemistry to cost-competitive, lithium-free storage.

Sodium-ion is an early-commercial, fast-emerging chemistry. Demand is driven by lithium-supply-chain resilience, low material cost, and cold-temperature and safety advantages — with energy density and cost-down central to viability. The market is read three ways — value, capacity (MWh) and shipped units — and forecast under four scenarios (conservative, base, accelerated and disruption), each region reported separately.

- **China leads commercialisation** — anchored by CATL, HiNa, BYD, Zhongke and Sodium Energy scaling sodium-ion production.
- **Europe drives chemistry innovation** — with Faradion (Reliance), Northvolt, Tiamat and Altris advancing cells.
- **North America adds new entrants** — with Natron Energy and Bedrock Materials targeting niche and supply-resilient applications.
- **Supply-chain resilience is the differentiator** — abundant sodium and lithium-free supply chains de-risk storage from critical-mineral constraints.

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
Asia Pacific	Commercialisation leader	China — CATL, HiNa, BYD, Zhongke, Sodium Energy
Europe	Chemistry-innovation hub	UK, Sweden, France — Faradion, Northvolt, Tiamat, Altris
North America	New entrants	United States — Natron Energy, Bedrock Materials
Latin America	Frontier	Brazil — early sodium-ion interest
Africa	Frontier	South Africa — supply-resilient storage interest
Middle East	Emerging	UAE — supply-diversification interest

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
• Lithium-supply-chain resilience • Low, abundant material cost • Cold-temperature & safety advantages • Stationary-storage cost pressure • Geopolitical critical-mineral de-risking	• Lower energy density vs lithium • Early commercial maturity & scale • Manufacturing-ecosystem build-out • Cycle-life & performance proof • Competition from cheap LFP

SEGMENTATION SNAPSHOT

By Cathode Chemistry	Layered-oxide · polyanionic · Prussian-blue · hybrid Na-ion · containerized Na-ion
By Form Factor	Cell / module · rack · containerized
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 Maturity	Pilot · early commercial · scaling

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.

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans Chinese cell leaders and Western chemistry innovators.

Representative players profiled in the full report:

Contemporary Amperex Technology Co., Limited · HiNa Battery Technology Co., Ltd. · Faradion Limited (Reliance Industries Limited) · Natron Energy, Inc. · BYD Company Limited · and 20+ further profiled players across Chinese cell leaders and Western chemistry innovators.

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 sodium-ion battery systems market, and how fast will it grow to 2032?
? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
? How do supply-chain resilience and material cost change value versus lithium-ion incumbents?
? 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) and shipped units) 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 battery / PE funds, cell and pack manufacturers, OEMs and integrators, utilities and storage developers, 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.