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Global Thermal Energy Storage Market Size Study & Forecast, by Product Type (Sensible Heat Storage, Latent Heat Storage, Thermochemical Heat Storage), by Technology (Molten Salt, Ice-based, Chilled Water, PCM, Others), by Storage Material (Water, Molten Salt, Phase Change Material, Others), by Application (Power Generation, Heating & Cooling, Process Heating), by End User (Utilities, Industrial, Commercial & Residential) and Regional Forecasts 2025–2035

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Abstracts

The Global Thermal Energy Storage Market is valued at approximately USD 6.42 billion in 2024 and is poised to expand at a remarkable compound annual growth rate (CAGR) of 9.40% over the forecast period from 2025 to 2035. Thermal Energy Storage (TES) plays a pivotal role in optimizing energy systems by storing surplus thermal energy and redistributing it during periods of peak demand. As governments, utilities, and industries accelerate their shift toward renewable sources and more flexible grid solutions, TES has emerged as a key enabler in decoupling energy generation from consumption. The system enables energy cost reduction, load leveling, improved efficiency, and enhanced sustainability—all critical in the context of transitioning to a net-zero economy. These compelling attributes are intensifying the adoption of TES solutions globally, particularly in power generation and industrial heating applications.

The rising need for reliable energy distribution amid fluctuating renewable supply is amplifying the demand for advanced thermal energy storage technologies. Growing investments in sustainable infrastructure, supported by favorable policy frameworks such as tax credits and renewable portfolio standards, are further propelling market

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expansion. Technologies like molten salt systems, ice-based storage, and phase change materials are making profound strides, offering versatile applications across commercial, industrial, and utility-scale segments. Moreover, the growing focus on waste heat recovery and decarbonizing industrial operations is driving the development of hybrid TES systems that integrate seamlessly with cogeneration and district heating systems. Such innovations are opening new growth frontiers for stakeholders across the value chain.

Regionally, North America currently dominates the thermal energy storage landscape, underpinned by early technology adoption, stringent carbon emission targets, and a mature grid infrastructure. The United States remains a key contributor owing to its aggressive renewable integration goals and government-backed pilot programs across several states. Meanwhile, the Asia Pacific region is projected to experience the fastest growth, fueled by rapid urbanization, a surging middle-class population, and strong government support for clean energy development in countries like China, India, and Japan. Europe also continues to demonstrate significant momentum, leveraging its advanced energy policies, growing district heating networks, and high renewable energy penetration, especially in nations such as Germany, Denmark, and Sweden.

Major market player included in this report are:

BrightSource Energy, Inc.

Abengoa Solar S.A.

Ice Energy

CALMAC Corp.

DN Tanks

Baltimore Aircoil Company, Inc.

SolarReserve, LLC

Steffes Corporation

Siemens AG

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Cryogel Thermal Energy Storage

Burns & McDonnell

EVAPCO, Inc.

EnergyNest AS

Terrafore Technologies LLC

Cristopia Energy Systems

Global Thermal Energy Storage Market Report Scope:

Historical Data – 2023, 2024

Base Year for Estimation – 2024

Forecast period – 2025–2035

Report Coverage – Revenue forecast, Company Ranking, Competitive Landscape, Growth factors, and Trends

Regional Scope – North America; Europe; Asia Pacific; Latin America; Middle East & Africa

Customization Scope – Free report customization (equivalent up to 8 analysts' working hours) with purchase. Addition or alteration to country, regional & segment scope*

The objective of the study is to define market sizes of different segments & countries in recent years and to forecast the values for the coming years. The report is designed to incorporate both qualitative and quantitative aspects of the industry within the countries involved in the study. The report also provides detailed information about crucial aspects, such as driving factors and challenges, which will define the future growth of the market. Additionally, it incorporates potential opportunities in micro-markets for stakeholders to invest, along with a detailed analysis of the competitive landscape and

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product offerings of key players.

The detailed segments and sub-segments of the market are explained below:

By Product Type:

- Sensible Heat Storage
- Latent Heat Storage
- Thermochemical Heat Storage

By Technology:

- Molten Salt
- Ice-based
- Chilled Water
- Phase Change Material (PCM)
- Others

By Storage Material:

- Water
- Molten Salt
- Phase Change Material
- Others

By Application:

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Power Generation

Heating & Cooling

Process Heating

By End User:

Utilities

Industrial

Commercial & Residential

By Region:

North America

U.S.

Canada

Europe

UK

Germany

France

Spain

Italy

Rest of Europe

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Asia Pacific

- China
- India
- Japan
- Australia
- South Korea
- Rest of Asia Pacific

Latin America

- Brazil
- Mexico

Middle East & Africa

- UAE
- Saudi Arabia
- South Africa
- Rest of Middle East & Africa

Key Takeaways:

- Market Estimates & Forecast for 10 years from 2025 to 2035.
- Annualized revenues and regional level analysis for each market segment.

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Detailed analysis of geographical landscape with Country level analysis of major regions.

Competitive landscape with information on major players in the market.

Analysis of key business strategies and recommendations on future market approach.

Analysis of competitive structure of the market.

Demand side and supply side analysis of the market.

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