Thermal Energy Storage Market to Reach $56.4 Billion, Globally, by 2033 at 8.4% CAGR: AMR

The rise of renewables and focus on efficiency drive thermal energy storage demand, balancing supply as solar & wind adoption grows despite their intermittency.

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WILMINGTON, DE, UNITED STATES, February 11, 2025 /EINPresswire.com/ -- Allied Market Research published a report, titled, "Thermal Energy Storage Market by Technology (Latent Heat Storage, Sensible Heat Storage and Others), Storage Material (Water, Molten Salt and Phase Change Material (PCM), Others), Application (Power Generation, Heating and Cooling), and End Use (Residential, Commercial and Industrial and Utilities): Global Opportunity Analysis and Industry Forecast, 2024-2033". According to the report, the thermal energy storage market was valued at $25.6 billion in 2023, and is estimated to reach $56.4 billion by 2033, growing at a CAGR of 8.4% from 2024 to 2033.

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Prime determinants of growth

The global thermal energy storage market is experiencing growth due to surge in renewable energy integration and increase in focus on energy efficiency and sustainability. However, competition from other storage solutions hinders market growth. Moreover, government initiatives and regulations present additional opportunities for the thermal energy storage market. Financial incentives such as subsidies, tax credits, and grants are pivotal in lowering the initial capital costs associated with TES technologies. Governments frequently offer funding programs to support research and development, which accelerates the commercialization of new thermal storage solutions. For instance, incentives are directed towards large-scale projects or pilot programs that demonstrate the effectiveness of TES in various applications, from industrial processes to residential heating and cooling systems. By reducing the financial burden

on developers and early adopters, these incentives make TES more accessible and attractive.

Sensible heat storage segment to maintain its dominance by 2033
By technology, the sensible heat storage segment held the highest market share in 2023 and is estimated to maintain its leadership status during the forecast period. Sensible heat storage systems are highly scalable and versatile, which contributes to their widespread use. They are designed to accommodate a wide range of capacities, from small-scale residential systems to large-scale industrial and utility applications. This flexibility allows for customization based on specific energy needs and spatial constraints. For instance, large thermal storage tanks are used in industrial processes or district heating systems, while smaller tanks are suitable for residential hot water storage. The ability to scale and adapt to various applications enhances the appeal of sensible heat storage technologies.

Molten salt segment is expected to lead the market by 2033
By storage material, the molten salt segment held the highest market share in 2023 and is estimated to dominate during the forecast period. Molten salts efficiently store and transfer large amounts of thermal energy that makes them ideal for use in concentrated solar power (CSP) plants, where temperatures exceed 500°C. The ability of molten salts to remain stable and effective at such high temperatures enhances the overall efficiency and output of CSP systems, contributing to more reliable and consistent energy production.

Heating segment to maintain its dominance by 2033
By application, the heating segment held the highest market share in 2023 and is estimated to maintain its leadership status during the forecast period. As energy consumption continues to rise, there is a growing need to optimize energy use, particularly in the heating sector. TES systems help in balancing the energy supply and demand by storing surplus heat generated during low-demand periods and releasing it during peak demand times, thereby reducing energy waste and enhancing overall efficiency.

Utilities segment is expected to lead the market by 2033
By end use, the utilities segment held the highest market share in 2023 and is estimated to dominate during the forecast period. Utilities face the challenge of balancing supply and demand, particularly with the growing penetration of renewable energy sources, which are inherently intermittent. TES systems help to stabilize the grid by storing excess energy during periods of low demand or high renewable generation and releasing it during peak demand times. This ensures a reliable energy supply and reduces the strain on the grid infrastructure.

Asia-Pacific is expected to experience fastest growth during the forecast period
By region, Asia-Pacific was the fastest growing region in terms of revenue in 2023. The Asia-Pacific region is experiencing rapid urbanization and industrialization, particularly in countries such as China and India. This rapid development increases the demand for reliable and efficient energy systems to support growing cities and industrial operations. TES systems are increasingly seen as a solution to manage energy supply and demand fluctuations, providing a means to store excess energy generated during off-peak periods and release it during peak times. This is particularly valuable in industrial settings where consistent energy availability is crucial for operations.

Leading Market Players:
- Aalborg CSP
- Abengoa
- Cartesian
- Enel Spa
- EVAPCO, Inc
- Kraftblock GmbH
- Lumenion GmbH
- Magaldi Green Energy
- Man Energy Solutions
- PCM Products Ltd.
- Phelas GmbH
- Spirax Sarco limited.
- Sunamp Ltd.
- Thermofin

The report provides a detailed analysis of these key players in the global thermal energy storage market. These players have adopted different strategies such as new product launches, collaborations, expansion, joint ventures, agreements, and others to increase their market share and maintain dominant shares in different regions. The report is valuable in highlighting business performance, operating segments, product portfolio, and strategic moves of market players to showcase the competitive scenario.

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