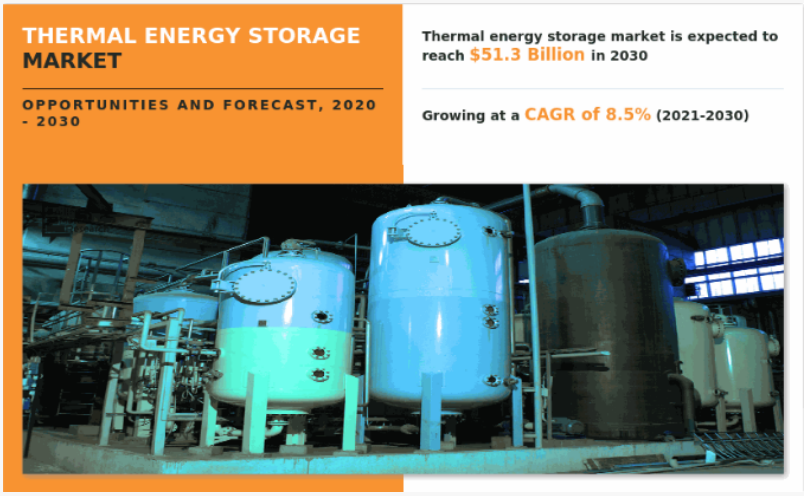
Thermal Energy Storage Market set to Fly High Growth in Years to Come

Thermal Energy Storage Market is anticipated to hit $51.3 billion by 2030



Thermal Energy Storage

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The thermal energy storage market size was valued at $20.8 billion in 2020, and is estimated to reach $51.3 billion by 2030, growing at a CAGR of 8.5% from 2021 to 2030. Thermal energy storage (TES) is a technology that involves the capture and storage of thermal energy for later use. It allows excess energy generated during periods of low demand to be stored and released when demand is higher or when it's needed. Thermal energy storage systems are used in various applications, including heating, cooling, and power generation, to improve energy efficiency, optimize resource use, and enhance system reliability.

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The key players operating and profiled in the report include:

BrightSource

Energy Inc.

Abengoa SA

Baltimore Aircoil Company

Terrafore Technologies LLC

Dunham-Bush Holding Bhd.

Caldwell Energy Company

Evapco Inc.

Goss Engineering

Steffes Corporation

MAN Energy Solutions

Turbine Air Systems

Sunwell Technologies

EnergyNest

DC Pro Engineering

LIME

DN Tanks

Applications of Thermal Energy Storage:

Building Heating and Cooling: Thermal energy storage is used in buildings to store excess heat generated during off-peak hours and release it for space heating during peak demand. Similarly, cooling can be achieved by storing cool air or cold water during off-peak hours for use during hot periods.

Industrial Processes: TES is used in industries to capture waste heat from industrial processes and utilize it for heating or other energy-intensive operations.

Solar Thermal Power Plants: Concentrated solar power plants use TES to store excess heat collected from solar mirrors and use it to generate electricity during non-sunlight hours.

District Heating and Cooling: TES can be employed in district heating and cooling systems to store thermal energy for later distribution to multiple users.

Refrigeration and Cold Storage: TES systems can be used in refrigeration and cold storage applications to maintain a consistent temperature and reduce energy consumption during peak demand periods.

Renewable Energy Integration: TES can enhance the integration of intermittent renewable energy sources like solar and wind into the grid by storing excess energy and releasing it when needed.

The thermal energy storage system market is anticipated to witness considerable growth during the forecast period. This is attributed to factors such as rise in demand for thermal energy storage, owing to surge in need for heating & cooling applications.

Rapid investment in the renewable energy sector in Europe and Asia-Pacific fuels the growth of the thermal energy storage market.

High cost associated with installation of thermal energy storage system and rise in use of other forms of storage including battery and pumped storage restrain the growth of the market globally.

Increase in investment on integration of thermal energy storage with solar power and rapid investment toward renewable energy sector is anticipated to provide potential opportunities in the upcoming years.

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Benefits of Thermal Energy Storage:

Energy Efficiency: TES systems reduce energy waste by allowing excess energy to be stored and utilized efficiently.

Load Shifting: TES helps balance energy demand and supply by shifting energy consumption from high-demand periods to low-demand periods.

Reduced Peak Demand: By utilizing stored energy during peak demand times, TES can reduce strain on the energy grid.

Integration of Renewables: TES can store excess energy generated by renewable sources, addressing the intermittent nature of renewables.

Enhanced System Reliability: TES systems can provide backup heating or cooling during power outages or equipment failures.

Environmental Benefits: Efficient energy use and reduced reliance on fossil fuels contribute to environmental sustainability.

In 2020, Europe dominated the global thermal energy storage market with more than 37.2% of

the share, in terms of revenue, and is expected to grow at the fastest rate, registering a CAGR of 8.4% throughout the forecast period.

In addition, it is one of the most feasible eco-friendly solutions of energy saving, which store cold winter air for air conditioning during summer and stock solar energy for space heating during winter. It is widely used in numerous applications to maintain the supply and demand for energy.

In 2020, the molten salt segment anticipated to grow at a highest rate of 8.9% in terms of revenue during the thermal energy storage market forecast period.

Power generation is the rapidly growing application segment in the global thermal energy storage system market, and is expected to grow at a CAGR of 15.7% during 2021–2030.

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In 2020, the sensible storage segment accounted for about 84.4% of the share in the global thermal energy storage market, and is expected to maintain its dominance till the end of the forecast period.

In 2020, the heating segment exhibited a market share of 59.8%, and is anticipated to grow at a rate of 1.6% in terms of revenue.

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