

Asia Pacific Thermal Energy Storage Market Forecast to 2030 – Regional Analysis – by Technology (Sensible Heat Storage, Latent Heat Storage, Thermochemical Storage), Storage Material (Water, Molten Salt, PCM, Others), Application (Power Generation, Process Heating and Cooling, District Heating and Cooling), and End User (Utility, Nonutility)

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Abstracts

The Asia Pacific thermal energy storage market is expected to grow from US\$ 3,953.59 million in 2022 to US\$ 6,357.69 million by 2030. It is estimated to grow at a CAGR of 6.1% from 2022 to 2030.

Application of Thermal Energy Storage Technology in the Defense Sector Fuels Asia Pacific Thermal Energy Storage Market

Defense applications impose a set of challenges on the usage of energy storage infrastructure. A stable, reliable, and steady power supply is important in defense applications. Phase change materials (PCM) are one of the most promising technologies in thermal energy storage. PCMs are being significantly employed and researched for enhancing thermal performance of buildings by stabilizing temperature peaks as well as power-saving functions where heating or cooling is essential. The exclusive features of a PCM-based latent heat storage system can be used in lightweight prefabricated PUF (polyurethane foam) insulated shelters leveraged by security forces to upsurge the system's thermal resistance or used in the process of storing surplus heat from sporadic renewable sources during daytime for usage at night. These features primarily help in maintaining a comfortable temperature inside the shelters. Governments of various countries are launching several research and

development projects in the field of PCM applications to meet the problems of extreme temperatures met by armed forces: for example, high-capacity heat sinks for critical instruments and hot jackets for high-altitude areas. Thus, the rise in the application of thermal energy storage technology in the defense sector is likely to create lucrative opportunities for the thermal energy storage market growth during the forecast period.

Asia Pacific Thermal Energy Storage Market Overview

In Asia Pacific, China, Australia, and India are notable countries in terms of thermal energy storage implementation. The growing number of solar, wind, and concentrated solar power projects in countries such as China, Australia, and India positively impact the thermal energy storage market. The growing investment in overall energy storage infrastructure for facilitating better management of energy utilization, when required, is boosting the thermal energy storage market in Asia Pacific. Energy storage is a rapidly emerging and crucial part of Asia Pacific's progressing clean energy transition. A cost-effective approach and a collaborative drive toward achieving zero carbon emission objectives are creating a need for energy storage across Asia Pacific. Thermal energy storage has high potential applications in different commercial, residential, and industrial applications. China, India, Australia, South Korea, and Japan are major contributors to the thermal energy storage market in the region. The growing number of concentrated solar power plants, growing interest towards combining wind and solar hybrid plants with thermal energy storage facilities, realization of the importance of alternative power generation resources for secure energy supply, and climate concerns are a few of the key factors contributing to the market growth. However, a major share of power generation is still sourced from fossil fuel, but the rise in government policies, incentives, and mandates for encouraging renewable energy is also driving the market. Over the past decade, electrification rates have also improved regarding household products; as a result, the ongoing trend towards a more sustainable lifestyle is anticipated to register substantial growth in the market in the region in the coming years.

Asia Pacific Thermal Energy Storage Market Revenue and Forecast to 2030 (US\$ Million)

Asia Pacific Thermal Energy Storage Market Segmentation

The Asia Pacific thermal energy storage market is segmented into technology, storage material, application, end user, and country.

Based on technology, the Asia Pacific thermal energy storage market is segmented into sensible heat storage, latent heat storage, and thermochemical storage. The sensible heat storage segment held the largest share of the Asia Pacific thermal energy storage market in 2022.

Based on storage material, the Asia Pacific thermal energy storage market is segmented into water, molten salt, PCM, and others. The water segment held the largest share of the Asia Pacific thermal energy storage market in 2022.

Based on application, the Asia Pacific thermal energy storage market is segmented into power generation, process heating and cooling, and district heating and cooling. The district heating and cooling segment held the largest share of the Asia Pacific thermal energy storage market in 2022.

Based on end user, the Asia Pacific thermal energy storage market is segmented into utility and nonutility. The utility segment held a larger share of the Asia Pacific thermal energy storage market in 2022.

Based on country, the Asia Pacific thermal energy storage market is segmented into Australia, Japan, China, India, South Korea, and the Rest of Asia Pacific. China dominated the Asia Pacific thermal energy storage market in 2022.

Baltimore Aircoil Co, Burns & McDonnell Consultants Inc, Evapco Inc, MAN Energy Solutions SE, and Sunamp Ltd are some of the leading companies operating in the Asia Pacific thermal energy storage market.

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