Asia-Pacific Pumped Hydro Storage Market - Growth, Trends, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 92 pages | Mordor Intelligence

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Report description:

The Asia-Pacific pumped hydro storage market is expected to register a CAGR of over 2.5% during the forecast period.

The market was negatively impacted by COVID-19 in 2020. Currently, the market has reached pre-pandemic levels.

Key Highlights
Over the short term, the Asia-Pacific pumped hydro storage market is projected to thrive due to the fact that it is the most competitive and reliable way of storing energy and, secondly, the rising energy requirements of the Asia-Pacific region.
On the other hand, the socio-economic barriers, like opposition from the public due to lack of land and loss of biodiversity, are expected to threaten the growth of the pumped hydro storage market in the region.
Nevertheless, the growing inclination toward renewables in almost every country in the region creates ample opportunities for the pumped-hydro storage market. The governments of various Asia-Pacific countries are in continuous efforts to expand the renewables share in their electricity generation portfolio.
China is predicted to capture the largest market share in the coming years due to government initiatives to increase the pumped hydro storage capacity.

APAC Pumped Hydro Storage Market Trends

Closed-loop Segment Expected to Witness Significant Growth

In closed-loop systems, pumped hydro storage plants are created so that one or both the reservoirs are artificially built, and no natural water inflow is involved with either of them. Closed-loop pumped hydro storage offers high flexibility, reliability, and high-power output. Since the closed-loop pumped-hydro systems are not connected to existing river systems, their impact on the environment is less compared to open-loop pumped hydro storage systems. Moreover, they can be positioned where support for the grid is required.
The pure pumped hydro storage installed capacity in Asia was recorded at 71,668 MW in 2021, the highest among all the regions across the world. The capacity grew consistently in the last five years due to the growing demand for closed-loop pumped hydro storage plants in the region.
A research team from Australia has concluded through a research study that the closed-loop pumped hydro storage plants may overshadow the open-loop PSH plants in the near future due to the benefits it provides, like, overcoming the problem of finding suitable sites for pumped hydro storage plant location, and no environmental effects on water resources.
Furthermore, closed-loop pumped hydro storage offers high flexibility, reliability, and power output. The other major factor for their preference is the certainty of gaining an operating license or permit since they do not interfere with the existing river systems or any water streams.
Such factors pave the way for an explicitly visible momentum for the closed-loop pumped hydro storage market during the forecast period.

China Expected to Dominate the Market

China leads the global hydropower market with around 35.45 GW of renewable hydropower capacity as of 2021. The hydro source constitutes about 16% of the total electricity generation mix. The country is also strenuously working on a lucid pumped hydro storage development, particularly with new policies and project goals.
In the year 2021, the country's pure pumped hydro storage installed capacity was around 36.39 GW, the highest among all the Asian countries. The technology is set to bloom even more in China due to the efforts made by the government and private entities.
For example, in June 2022, the Power Construction Corporation of China announced that it had started working on the new 270 GW of pumped hydro storage capacity to be added to the country's electricity mix, with the installation of 200 pumped hydro storage plants by 2025. It is expected to raise China's installed capacity by around 10% and the world's energy storage capacity by about 170%.
Furthermore, in January 2022, the country commissioned the world's largest pumped hydro storage plant in China's Hebei province. The 3.6 GW pumped hydro storage facility consists of 12 reversible pumps generating sets with 300 MW each and possesses a power generation capacity from storage of 6.6 billion kWh.
Such developments are projected to drive the pumped hydro storage market in the country in the near future.

APAC Pumped Hydro Storage Market Competitor Analysis

The Asia-Pacific pumped hydro storage market is fragmented in nature. Some of the key players (in no particular order) include Enel SpA, General Electric Company, Siemens AG, Voith GmBH & Co. KGAa, and Tokyo Electric & Power Company.

Additional Benefits:

The market estimate (ME) sheet in Excel format
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