China High-Voltage Direct Current (Hvdc) Transmission Systems Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 95 pages | Mordor Intelligence

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Report description:

The China high-voltage direct current (HVDC) transmission systems market is expected to grow at a CAGR of more than 6% during the forecast period, 2022-2027. The COVID-19 outbreak in Q1 of 2020 had led to the decline of national energy demand by more than 4% compared to 2019 and further delayed transmission and distribution project executions across the country. Factors such as the increasing investments and upcoming transmission and distribution projects, increasing penetration of renewable energy sources, and expansion of electricity infrastructure are likely to drive the Chinese high-voltage direct current (HVDC) transmission systems market during the forecast period. However, the growing adoption of distributed and remote power systems in the country is expected to restrain the China high-voltage direct current (HVDC) transmission systems market during the forecast period.

Key Highlights
The overhead transmission system type is expected to witness significant growth during the forecast period.
The ambitious offshore wind projects in various provinces, such as Guangdong, plan to build 30 GW by 2030, followed by Jiangsu (15 GW), Zhejiang (6.5 GW), and Fujian (5 GW). The offshore wind development plans are expected to provide immense opportunities for the market players in the coming years.
Increasing penetration of renewable energy sources is likely to drive the Chinese high-voltage direct current (HVDC) transmission systems market.

China HVDC Transmission Systems Market Trends

HVDC Overhead Transmission System to Witness Significant Growth

HVDC overhead transmission systems have a simpler line tower construction requirement compared to HVAC transmission lines. Also, HVDC overhead transmission systems have lower per-unit costs, including cost per km of line and per MV of transmitted power.
In the major parts of the world, high-voltage overhead transmission is a popular means of power transmission. DC decreases the total cost for long-distance power transmission with overhead line cables.
Moreover, the high-voltage overhead transmission is much less expensive to build and much quicker to repair than underground transmission. However, it has seen decreasing applications in densely-populated urban and commercial areas.
The cost of HVDC transmission depends on the terminal station's cost and the cost of the transmission line. But in the case of an HVAC transmission network, there are more conductors in comparison to HVDC, which increases the mechanical load. Due to the increased load, the transmission line cost increases with the distance. The cost increase in HVAC is greater than the HVDC line per 100Km of transmission line, thus making HVDC a more cost-efficient option for long transmissions.
In March 2021, Mersen announced the signing of an order worth more than EURO 2 million with China's RongXin HuiKo Electric(RXHK) for the Guangdong-Hong Kong-Macao Greater Bay Area power supply project. Mersen will supply nearly 28,000 cooling plates to protect the power modules integrated with two high voltage flexible HVDC converter stations.
Therefore, owing to the above points, HVDC overhead transmission systems are expected to witness significant growth during the forecast period.

Increasing Penetration of Renewable Energy Sources Driving the Market Demand

China's power supply has been undergoing a significant transition, shifting away from fossil fuels and renewable energy sources. Moreover, wind and solar are on track to become the cheapest sources of electricity, thereby providing new opportunities for decarbonization. As a more significant number of coal plants are decommissioned, renewable generation is expected to play a vital role in fulfilling the increasing energy demand.
The cost of renewable power generation, mainly solar and wind power generation, has been continuously declining. The primary reasons are manufacturing innovations, improvement in wind turbine materials, designs, and economies of scale.
Renewable power generation facilities, such as offshore wind energy in China, are generally located far from the end-users. They require long-distance transmission lines to provide generated electricity to the consumers.
The HVDC has become an integral part of many transmission grids. It can connect remote sources of electrical generation (renewable sources, like hydro or wind) to load centers where it is needed, hundreds or even thousands of kilometers away.
As the HVDC lines are better suited for long-distance power transmission; hence, for power transmission companies, HVDC transmission lines are a more attractive option over HVAC for renewable power plants. They ensure high availability, minimal maintenance, and lower losses (by around 50% more than HVAC).
The country's offshore wind energy sector is expected to witness a gradual growth in total installed capacity. Thus, this is expected to create a significant demand for renewable energy, integrating with the grid in the coming years. Therefore, in addition to solar and onshore wind farms, the offshore wind energy sector is expected to create a considerable demand for HVDC transmission systems in China during the forecast period.
In 2020, China's renewable energy installed capacity accounted for above 894.88 GW. Renewable energy witnessed 17.9% Y-o-Y growth compared to the previous year (2019).
In March 2021, Siemens Energy was planning to install 22 units of distribution transformers at China's first commercial 66 kilovolts (kV) offshore wind farm, Yuhuan Offshore Wind Power Project Phase 1, located in Taizhou, Zhejiang Province, southeastern China.
Therefore, owing to the above points, increasing installations in the renewable energy sector are expected to drive China's high-voltage direct current (HVDC) transmission systems market during the forecast period.

China HVDC Transmission Systems Market Competitor Analysis

The Chinese high-voltage direct current (HVDC) transmission systems market is consolidated. The key players in the market include The State Grid Corporation of China (SGCC), Siemens Energy AG, General Electric Company, ABB Ltd, and Hitachi Energy Ltd.

Additional Benefits:

The market estimate (ME) sheet in Excel format
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