Germany High-Voltage Direct Current (Hvdc) Transmission Systems Market - Growth, Trends, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 90 pages | Mordor Intelligence

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Report description:

The German High-Voltage Direct Current (HVDC) Transmission Systems market is expected to record a CAGR of 10.05% during the forecast period.

The COVID-19 pandemic negatively impacted the market in 2020. However, the market has now reached pre-pandemic levels.

The increasing demand for cost-effective solutions for long-distance power transmission, ease in controlling the active power link, the possibility of bulk power transmission, and low loss in transfer of power (over HVAC) are some of the significant factors that drive the growth of the market studied during the forecast period.

However, the growing demand for distributed and remote power plants that provide electricity in rural areas without significant transmission and distribution infrastructure is expected to hinder the growth of the HVDC transmission systems market during the forecast period.

Nevertheless, technological advancement in HVDC transmission systems is expected to help mitigate operational issues with wind and solar-based electricity transmission systems, as the phase difference does not matter in the HVDC transmission line. While conventional HVAC does not work on this principle, it requires transformers to match the phase generated from a different source. Hence, this is expected to provide a better opportunity for the growth of the HVDC transmission system market in the country.

Germany HVDC Transmission Systems Market Trends

Submarine HVDC Transmission System to Dominate the Market

HVDC links are mainly employed to transmit large amounts of power over a long distance with low losses, especially for offshore generation sites that are far from shore (>70km). HVDC submarine cables are typically single-core cables with extruded insulation and metallic radial water barrier.?

The submarine transmission of electricity is gaining importance on account of the increasing focus on power trading between countries. The submarine direct current transmission requires a converter station at each end to make the DC current interact with the AC grid network. In an HVDC transmission system, the submarine power cables can be less costly, especially on a long link where the cable's capacitance requires too much additional charging current.?

In the HVDC transmission system, the submarine power cables can be less costly, especially on a long link where the capacitance of the wire requires too much additional charging current. In 2021, the European country's generation stood at 588 terawatt hours, up from 574 terawatt hours in 2020. In the same year, Germany's gross electricity consumption amounted to 569 terawatt hours. In November 2022, Sumitomo Electric Industries Ltd was awarded a contract from the Prysmian Group to supply 150 km of HVDC submarine cable for NeuConnect Interconnector, a 1.4 GW power interconnection project between the United Kingdom and Germany. This is a private project financed and developed by a group of international investors, including Meridiam, Allianz Capital Partners, and Kansai Electric Power.

Factors such as the increasing number of offshore wind farms and interconnections between countries through submarine cables are expected to increase the demand for submarine transmission systems over the forecast period. This, in turn, is expected to propel the growth of the market studied.

Increased Penetration of Renewable Energy to Drive the Market

Given the increase in renewable generation in recent years, it has become increasingly important to deploy direct high-voltage current (HVDC) transmission lines. The HVDC transmission lines have a significant role to play when additional renewable generation sources become integrated into electrical grids.

The German government has been promoting the deployment of HVDC lines to transfer large amounts of power over long distances. They are now being proposed as a way to move electricity generated from wind in high-quality wind resource regions to other parts of the country.

The offshore wind installation is expected to create an opportunity for an increase in demand for the HVDC transmission lines during the forecast period.

However, Germany imports its power from the neighboring countries, owing to the increasing power demand, which is likely to grow by 30% until 2050, given the economically less attractive renewable sites and nuclear phase-out. Thus, the grid connecting Germany to other countries is expected to increase fivefold.

In February 2022, McDermott International was awarded the largest renewable energy contract from German transmission grid operator TenneT for the BorWin6, an innovative 980-MW High-Voltage, Direct Current (HVDC) converter project in the North Sea.?

The refurbishment of the aging infrastructure of transmission lines in the country, and increasing renewable power generation, which requires a new installation of the HVDC transmission system, is expected to drive the demand for the HVDC transmission system in the country during the forecast period.

Germany HVDC Transmission Systems Market Competitor Analysis

The German high-voltage direct current (HVDC) transmission systems market report is consolidated. The key players in this market (in no particular order) include ABB Ltd, Siemens AG, Mitsubishi Electric Corporation, Toshiba Corporation, and General Electric Company.

Additional Benefits:

The market estimate (ME) sheet in Excel format
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