

Hvdc Converter Station Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 125 pages | Mordor Intelligence

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Report description:

The HVDC converter station market is expected to record a CAGR of more than 10% during the forecast period of 2022-2027. The COVID-19 pandemic had a moderate impact on the market growth due to the implementation of stringent lockdown protocols by respective governments. High voltage direct current (HVDC) technology is one of the catalysts driving the transformation of the electricity market. Increasing cross-border power transmission activities are expected to pave the way for the development of HVDC systems, which, in turn, is likely to drive the HVDC converter station market. Also, growth in the renewable energy sector is expected to drive the market during the forecast period as there is a significant rise in renewable energy generation capacity (onshore and offshore), supported by governmental objectives. However, the implementation of the distributed and off-grid power systems is reducing the demand for HVDC transmission lines. Therefore, the growing demand for these power plants is expected to restrain the market during the forecast period.

? The HVDC converter segment is likely to witness significant demand for the global HVDC converter station market during the forecast period.

? Growing number of offshore wind farm projects and favorable government policies are expected to create ample opportunities for the market studied.

? Europe is expected to hold maximum market share, with most of the demand coming from major countries, such as the United Kingdom and Germany.

HVDC Converter Station Market Trends

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HVDC Converter Segment to Witness Significant Demand

? HVDC converters are used to convert high voltage alternating current to high voltage direct current. Generally, numerous converters are connected in series and/or parallel to achieve the required ratings.

? For instance, mercury arc valves were used at the beginning of every HVDC system, invariably as a single phase in construction, in contrast to the low voltage polyphase units used for industrial applications. The first converter station using thyristor exclusively was the Eel River scheme in Canada. Commissioned in 1972, it supplies 320 MW at 80 kV DC. The link is zero length and connects two AC systems of the same nominal frequency (60Hz).?

? The growth of the market for the converter segment during the forecast period is expected to be attributed to the growing demand for reliable power supply and increasing investments in power infrastructure.?

? Globally, the requirement for power transportation in bulk quantity has increased. Moreover, the development of power markets has led to an increased requirement for power transmission systems. Factors, such as an increase in bulk transportation of electricity over long distances, i.e., international delivery of power, along with increasing renewable energy penetration into the grid, would lead to an increase in the development of HVDC systems, in turn, driving the demand for HVDC converters.?

? In January 2022, Acradis NV signed a contract with TenneT BV worth USD 5.39 million to design three converter stations in the Netherlands. The converter stations will primarily be used to convert direct current generated from the planned IJmuiden Ver offshore wind farm, located approximately 62 km from the Netherlands' west coast.?

? Furthermore, in March 2021, Siemens AG commissioned India's first HVDC power transmission link featuring voltage source converter technology between Pugalur in Tamil Nadu and Thrissur in Kerala.?

? Therefore, based on the abovementioned factors, the HVDC converters segment is likely to witness significant demand during the forecast period.

North America Expected to Witness Significant Growth

? North America is the second-largest electricity market globally in terms of electricity generation. The region's electricity generation, transmission, distribution, and consumption processes are undergoing profound changes. The electricity markets, particularly the transmission and distribution networks, have experienced significant restructuring, paving the way for increased demand for the HVDC market.

? According to projections by the US Energy Information Administration, the United States is expected to increase its electricity generation from 4,009.22 TWh in 2020 to 4,133.33 TWh in 2022. Similarly, according to Canada Energy Regulator, by 2050, Canada can expect an increase of up to 822 TWh of electricity generation, which represents an increase of over 25% compared to 2020.?

? The United States aims to increase renewable energy's share in its power generation mix to 80% by 2030, followed by 100% of electricity being renewable by 2035. Similarly, Canada aims to generate 90% of its electricity from clean energy sources such as hydro, wind, and solar by 2030. On the other hand, Mexico's General Climate Change Law has set a goal for Mexico to generate 35% of its electricity from clean energy sources by 2024. All of this indicates that the region's electricity generation mix will undergo a significant change over the coming years, hence, requiring subsequent developments in the transmission and distribution systems.?

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? Much of Canada's electrical transmission and distribution grid (including HVDC transmission lines) was developed during the period of high economic growth (the 1950s to 1980s) and is reaching the end of its service life. ?

? The aging infrastructure leads to higher failure rates and increased outages. This creates a massive opportunity for HVDC transmission as the country is not only expected to replace the older HVDC infrastructure, but also build HVAC transmission infrastructure as the HVDC transmission can become more cost-effective with time.??

? Therefore, based on the abovementioned factors, North America is expected to witness significant growth in the global HVDC converter station market during the forecast period.

HVDC Converter Station Market Competitor Analysis

The HVDC converter station market is moderately consolidated. Some of the key companies in the market include Hitachi Energy Ltd, Siemens Energy AG, Bharat Heavy Electricals Limited, GE Grid Solutions LLC, and Mitsubishi Electric Corporation, among others.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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