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

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

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Report description:

The Canadian HVDC transmission systems market is expected to register a CAGR of more than 2% during the forecast period, 2022-2027. The COVID-19 pandemic did not alter the country's medium- to long-term plans for power transmission. Power transmission, which was categorized as an essential service by the Ministry of Power during the COVID-19 period, continued as a usual business in the country, with the projects for renewable energy capacity increasing by 8% in the 2019-2020 period. Factors such as the growing renewable energy sector, rapid urbanization, and increasing rural electrification are expected to drive the market during the forecast period. On the other hand, the country's growing distributed and remote power systems are likely to hinder the market growth.

Key Highlights
The HVDC underground transmission system is likely to maintain its larger market share during the forecast period, making it a dominating segment in the Canadian HVDC market.
The country's plan to deploy 30 GW of offshore wind energy installations by 2030 is expected to create several opportunities for HVDC transmission systems, which are more efficient for offshore environments.
The increasing expansion of the transmission electricity grid in Canada is expected to drive the country's HVDC transmission systems market during the forecast period.

Canada HVDC Transmission Systems Market Trends

HVDC Underground Transmission Systems are Expected to Dominate the Market

HVDC underground transmission systems have more complex construction requirements than HVAC overhead transmission lines. Also, HVDC underground transmission systems have higher per-unit costs, including cost per km of line and per MV of transmitted power. This hinders the market's growth, but the long-term safety and maintenance requirements are much lower, which is why many richer countries choose this method.
However, 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.
In comparison between HVDC and HVAC, the cost of HVDC transmission depends on the terminal station's cost and the cost of the transmission line. However, in the case of the 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, making HVDC a more cost-efficient option for long transmissions.
The primary energy consumption of Canada was 13.63 Exajoules in 2020, which increased significantly from 14.19 Exajoules in 2014. This trend is expected to change and grow in the coming years.
Hence, HVDC underground transmission systems are expected to dominate the market due to their varied role and lower maintenance.

The Increasing Expansion of Transmission Electricity Grid is Expected to Drive the Market

For HVDC transmission lines, the transmission losses are inversely related to the voltage ratings of electricity, i.e., the higher the voltage rating of electricity transmitted, the lower the transmission losses will be.
Furthermore, the HVDC transmission lines can transmit higher voltage currents than HVAC lines. In places with limited availability of land, HVDC transmission lines are preferred over HVAC, as they have higher power transmission capacity and can transmit more electricity per unit of land usage.
In May 2021, a controversial USD 1 billion electric transmission corridor that would channel Quebec hydroelectric power into the New England grid and beyond won a key legal victory. A federal appeals court lifted a temporary injunction sought by environmental groups and other opponents to halt the start of construction on a 53-mile segment of the line that runs across rural western Maine from the Canadian border to Lewiston, where it would connect with the regional grid. It ramps up toward completion, set for the spring of 2023. Work had started in February in the existing corridor.
In 2021, the Canadian and Manitoba governments started the Birtle transmission line project, which is expected to provide renewable energy to the region. The federal funding helped Manitoba Hydro build a 230kV transmission line spanning 46km between Birtle South Station in the municipality of Prairie View and the Manitoba-Saskatchewan border.
Electricity generation in the country decreased slightly in the 2014-2020 period to 647.3 terawatt-hours in 2020 from 643.9 terawatt-hours in 2014. This trend is likely to change slightly, especially as the growth picks up in the post-pandemic years.
Hence, the increasing expansion of the transmission electricity grid is expected to drive the market due to increasing investments and rising electricity consumption.

Canada HVDC Transmission Systems Market Competitor Analysis

The Canadian high-voltage direct current (HVDC) transmission systems market is moderately fragmented. Some of the key players in this market include Hitachi Energy Ltd, Siemens Energy AG, Toshiba Corporation, General Electric Company, and Nexans SA.

Additional Benefits:

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

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