

North America DC Distribution Network - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The North America DC Distribution Network Market is expected to register a CAGR of 7.83% during the forecast period.

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

Key Highlights

- Over the long term, factors such as growth in the renewable energy sector and its compatibility with battery storage devices and advantages over AC distribution, like power sharing between systems with different frequencies, are expected to drive the market in North America during the forecast period.
- Conversely, high initial costs and complexity compared to generic distribution networks are expected to hinder the market's growth.
- The DC distribution network is considered an essential factor concerning the future aspects of smart grids, thereby increasing DC distribution, as solar energy generates a direct current.
- The United States is expected to dominate North America's DC distribution network market during the forecast period.

North America DC Distribution Network Market Trends

Low and Medium Voltage Segment to Dominate the Market

- Low and medium-voltage DC distribution networks (up to 750 Volt DC) operate on voltage levels that can be utilized without

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further voltage reduction. It is also known as low tension (LT) or secondary distribution network. The low and medium-voltage distribution network carries electrical power from the distribution transformer to the consumer's energy meter.

- A typical low and medium-voltage distribution network requires several devices that distribute, convert voltages, and protect electrical circuits within the electrical system. The voltage level of low-voltage and medium-voltage distribution networks is typically equal to the primary voltage of electrical appliances. The LV distribution network is a 3-phase 4-wire distribution network.

- One of the primary end-user industries utilizing a low and medium DC distribution network is the electric vehicle (EV) charging infrastructure, as EVs only accept DC power. The low and medium DC distribution network helps it bypass the AC-to-DC conversion process altogether, and the charge can go directly into the battery.

- The data center end user is estimated to be one of the largest and fastest-growing segments during the forecast period, as it is the main component utilized in cloud storage applications, which are an essential part of the digitalized operations of every task, including smart grid and smart transport. Low and medium-voltage DC distribution networks are used in modern data centers to convert the AC power obtained from the utilities into DC power and require less space and equipment installation than an AC distribution network.

- As of January 2022, the United States was the largest market in terms of data centers (with 2,701 units), followed by Germany (487) and the United Kingdom (456). For instance, Google, as of April 2022, is building a new data center in Nebraska as part of its strategy to invest USD 9.5 billion in data centers and offices. Also, companies such as Amazon, Microsoft, and Cisco have announced plans to increase their data center infrastructure in the United States. Such a situation is likely to result in significant development in data centers, creating a high demand for UPS during the study period. Therefore, the increasing adoption of big data and IoT technology across various industries has led to high regional data generation. Thus, the expanding data centers will likely increase low and medium DC distribution networks during the forecast period.

- Therefore, based on the above-mentioned factors, the low and medium voltage segment is expected to dominate the North American DC distribution network market during the forecast period.

United States to Dominate the Market

- The United States has one of the largest installed capacities of renewable energy globally, especially solar energy. Distributed solar photovoltaic (PV) is expected to account for the most extensive annual capacity additions for renewables, above wind and hydro, for the next five years. As of 2021, the country's solar energy installed capacity totaled 95.20 GW, i.e., an increase of about 25% when compared to the previous year's value (75.56 GW).

- The cost of solar PV dropped by more than 80% between 2010 and 2021 on a global scale, and similar trends were observed in North America, particularly in the United States, during the same period. The continuous technology cost reductions and the increasing growth in the United States, owing to favorable policies and a growing focus on achieving various capacity targets, are expected to contribute to the increasing adoption of solar PV among residential and commercial consumers.

- Factors such as declining prices of solar PV panels and associated systems are leading to the increasing adoption of solar PV systems in the region. Since solar PV generates electricity in DC, this is expected to provide a significant opportunity for the DC distribution network market in the country as there would be no need to convert solar-generated DC to AC.

- Another major end-user segment utilizing DC distribution networks is the energy storage segment. The deployment of energy storage systems is anticipated to increase in the coming years on account of the changes associated with the power sector. The increasing development of renewable power infrastructure, coupled with the surging need for ancillary services in the power sector, is expected to drive the demand for DC distribution networks from the energy storage industry during the forecast period.

- Energy storage is a high-priority segment for governments across North America and a vital component of their push toward a net-zero carbon emission economy. In 2021, 1,359 energy storage projects were operational globally, with 13 projects under construction, of which 40% of active projects are located in the United States. California leads the United States in energy storage with 215 operational projects (4.2 GW), followed by Hawaii, New York, and Texas.

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North America DC Distribution Network Industry Overview

The North American DC distribution network market is moderately consolidated in nature. Some of the major players in the market (in no particular order) include ABB Ltd., Siemens AG, Vertiv Group Corp., Eaton Corporation PLC, and Secheron SA.

Additional Benefits:

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

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