

Carbon Neutral Data Center Market - A Global and Regional Analysis: Focus on Carbon Neutral Data Center Types & Solutions, End-Use Industry, Government Programs, Trends, Opportunities and Country Analysis

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Abstracts

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Market Report Coverage - Carbon Neutral Data Center

Market Segmentation

Industry – IT and Telecom, BFSI, Government and Public Sector, Healthcare, Manufacturing, Retail, and Others

Data Center Types – Hyperscale Centers, Enterprise Type, Colocation Data Centers, and Others

Solution – Hardware (Servers, Cooling and Power, Storage, and Networking), Software and Platform, and Support Services

Region – North America, Europe, U.K., China, Asia-Pacific and Japan, and Rest-of-the-World

Regional Segmentation

North America – U.S., Canada, and Mexico

Europe –Norway, Finland, Sweden, Denmark, Iceland, Switzerland, Germany, France, Netherlands, and Rest-of-Europe

U.K.

China

Asia-Pacific Japan – Japan, South Korea, Singapore, and Rest-of-Asia-Pacific and Japan

Rest-of-the-World - Middle East and Africa, and South America

Market Growth Drivers

Government Regulations on Carbon Emissions and Rising Emphasis on Renewable Energy

Growing Energy Efficient Alternatives for Data Center Cooling

Sustainable Development Efforts and CSR Activities

Rising Electricity Tariffs Globally

Market Growth Restraints

High Dependence on Non-Renewable Energy for Running Data Center Operations

Higher Costs of Implementation and Compatibility Issues

Market Opportunities

Increasing Research and Development in Energy Storage Technologies

Increased Demand for Data Centers and Mega Data Centers

Transition from Onsite Storage Facility Toward Cloud Connectivity

Key Carbon Neutral Data Center Companies Profiled

3M Company, ABB Group, Cisco Systems Inc., Eaton Corporation plc., Dell Inc., IBM Corporation, Intel Corporation, Digital Realty Trust Inc., Equinix, Alibaba Group, Amazon.com Inc, Alphabet Inc., Microsoft Corporation, Fujitsu Ltd., Hewlett Packard Enterprise (HPE)

Key Questions Answered in this Report:

How will the data center market transition to green data centers and further into carbon neutral data centers? And what will be the factors and dynamics that shall dictate the transition?

What is the market definition and market trends that are leading the carbon neutral data center market?

What is the expected carbon neutral data center market size during the forecast period 2020-2025?

What are the expected future scenario and revenue generated by the different industries, data center types, and solutions?

What are the expected future scenario and revenue generated by different data center types such as hyperscale centers, enterprise, colocation data centers?

What are the expected future scenario and revenue generated by different solutions and subtypes such as hardware (server, cooling, power, storage, networking), software and platform, and support services?

What are the expected future scenario and revenue generated by the industry segments (IT & Telecom, BFSI, Government, Healthcare, Manufacturing, Retail) for which carbon neutral data center services are offered?

Which region is the largest market for the global carbon neutral data center

market?

What are the expected future scenario and revenue generated by different regions and countries such as North America, Europe, Asia-Pacific and Japan, China, the U.K., and Rest-of-the-World in the carbon neutral data center market?

What is the competitive strength of the key players in the carbon neutral data center market on the basis of the analysis of their recent developments, product offerings, and regional presence?

Where do the key carbon neutral data center companies lie in their competitive benchmarking compared to the factors of market coverage and market potential?

How are the adoption scenario, related opportunities, and challenges impacting the carbon neutral data center markets?

How is the government programs and initiatives landscape across different regions such as North America, Europe, Asia-Pacific and Japan, China, and Rest-of-the-World?

Which are the leading consortiums and associations in the carbon neutral data center market, and what is their role in the market?

What are the market dynamics of the carbon neutral data center market, and what is the impact of these dynamics in the market, including market drivers, restraints, and opportunities?

How does the value chain of the carbon neutral data center look like and which are the major segments?

Market Overview

The carbon neutral data center market is projected to grow from \$3.46 billion in 2020 to \$9.42 billion by 2025, at a CAGR of 22.17% from 2020 to 2025. The growth in the carbon neutral data center market is expected to be driven by various government policies and environmental regulations especially which are aligned to reducing carbon

emissions, for example, the International Climate Agreement. Apart from this, the ongoing trend of Industry 4.0 and digital transformation, which has increased the amount of data being produced due to the data intensive nature of the applications, has significantly impacted the market.

The carbon neutral data center market by industry has the largest share in the IT and telecom industry, followed by the BFSI industry. The IT and telecom industry or the ICT industry is a data-driven industry. Almost all the applications are data intensive and generate a huge amount of data in the entire value chain. The telecom industry is dependent upon data centers as data transmission during internet services requires constant storage and processing, which is a primary criterion for quality services. Thus, in order to maintain quality, the industry has to rely on data center facilities.

The hyperscale data centers have the highest potential in the carbon neutral data center market by data center type. It is expected to be the most impacted type as most of the hyperscale operators and service providers such as Google and Microsoft have pledged to achieve carbon neutrality in their entire value chain by 2030. The companies have shown that lower PUE levels are possible to achieve with the use of efficient technologies utilizing renewable energy in the entirety of data center operations. Apart from this, the ongoing trend of cloud migration has also helped the market for hyperscale data center types. The colocation type data center is accounted for the second-largest share in the market. The ongoing trend of digitization and the development of various technologies such as extended reality, internet of things (IoT), artificial intelligence (AI), and other enabling technologies have helped many start-ups to grow. These start-ups do not have much financial support to own and operate a data center that supports their operations. This is where the colocation data centers become a solution for the needs of various smaller organizations with data center demands.

The hardware segment has the highest share among other solutions and is expected to remain the largest contributor in the market (by carbon neutral solution). Every data center has a set of hardware equipment and devices which form the basis of data center operations. These include servers, power and cooling equipment, storage, and networking devices. All these devices are crucial for a data center. Among these devices, servers consume almost half of the total power consumed by the data centers, followed by the cooling and power equipment. During the forecast period, the power consumed by the cooling and power segment is expected to reduce due to the increase in demand for efficient cooling systems.

Impact of COVID-19 on Carbon Neutral Data Center Market

COVID-19 has restricted the growth of almost every industry globally owing to the measures such as lockdown and travel restrictions undertaken by the governments. Due to this, the entire supply chain of the data center industry has been negatively affected. This has restricted the flow of various equipment and devices, which are essential for data center operations, due to which many data centers were not able to get commissioned, and many projects were stalled. The lockdown also restricted people from traveling, which disallowed many data center architects and engineers to reach onsite for the construction of new facilities and maintenance of existing facilities. The server utilization rate was also affected due to the halt in various computing activities in almost every industry. Many operators have reported that almost half of the servers were online during the pandemic. However, industries such as telecom, which is the largest consumer of data center, operated in their fullest capacity and thus maintained the demand for data transmission and transfer services. This has also helped the industry to maintain a minimum operational return from the online services.

Competitive Landscape

The competitive landscape for the carbon neutral data market demonstrates an inclination toward companies adopting strategies such as business expansions, product launch and development and partnerships, collaborations, and joint ventures. Among all the strategies adopted, partnerships and collaboration business expansions have been the most prominent strategy adopted by the key players in the market. In July 2020, Microsoft announced that it had successfully used hydrogen fuel cells to power a data center for two consecutive days.

The market players also focused on partnerships, collaborations, and joint ventures. In August 2020, Equinix, which is among the largest data center operators globally, announced a strategic partnership with Google, a cloud service provider. The agreement between the companies enables enterprises utilizing Equinix services to more easily connect and migrate priority workloads to Google Cloud.

Regional Market Dynamics

The carbon neutral data center market holds a prominent share in various countries of North America, Europe, and Asia-Pacific and Japan. Europe is estimated to generate the highest revenue in 2020. This is largely attributed to the market friendliness and positive outlook of consumers toward the carbon neutral initiative supported by government policies and various environmental regulations, which are influencing the

market positively. Europe also has some of the coldest regions in the world, especially the Nordic countries such as Sweden, Norway, Finland, Denmark, and Iceland. These countries offer a very environment-friendly solution to the data center industry due to the colder climate. Apart from this, these countries also have very high renewable energy production in the region, which also helps the market for carbon neutral data centers to grow. The naturally cold climate in the region allows the operators to utilize naturally cold air and water to be utilized for cooling operations, reducing the need for cooling systems and decreasing energy consumption in data centers.

Asia-Pacific and Japan, in 2019, held a smaller market share compared to North America and Europe. The market is highly cost-sensitive, which has restricted the adoption of various energy-efficient technologies; however, the market shows a huge potential during the forecast period due to ongoing economic developments aligned with sustainable development. Countries such as Japan and South Korea are already leading the region in market penetration and adoption of green technologies. Other developing countries, such as India and the ASEAN countries, have a huge potential to become important markets for carbon neutral data centers.

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