Data Center Generator Market - Global Outlook & Forecast 2024-2029

Market Report | 2024-07-18 | 543 pages | Arizton Advisory & Intelligence

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Report description:

By investment, the global data center generator market is expected to grow at a CAGR of 10.36% from 2023 to 2029.

MARKET TRENDS
Sustainable Generator Innovations

-The growth in power demand from the data center sector and the growing emphasis on sustainability have resulted in substantial advancements in generator fuel technology in the data center generator market. These advancements include developing and using numerous fuel types such as HVO, natural gas, hydrogen fuel cells, and eco-diesel.
-Some colocation providers, such as LCL Data centers, Datum Datacenters, Compass Datacenters, Interxion (Digital Realty), Kao Data, and Ark Data centers, are investing in HVO-fuel generators. Similarly, hyperscale operators such as AWS have announced their plans to use HVO-fuel backup generators to power their data centers, beginning with facilities in Dublin, Ireland. The company has ambitions to expand this move to all European data centers.

Adoption of Fuel-Cell Generators

-In the ever-changing world of data center operations, a noticeable trend toward sustainability is growing, pushing the adoption of novel solutions. One such idea is to integrate fuel-cell generators to meet the high-power demands of facilities in the data center generator market. Equinix, for example, intends to explore the viability of using hydrogen-powered fuel cells to power its Singapore data centers.
-Several infrastructure providers, including Caterpillar, Ballard Power Systems, ABB, AFC Energy, Atos, and HDF Energy, are actively expanding and refining their fuel cell generator product offerings, demonstrating a concerted effort to augment sustainable practices within the industry.

Automation of Infrastructure

-In response to the growing concerns about outages and extended downtime, data center operators are dedicating more resources to infrastructure automation solutions.
-These solutions cover a wide range of technologies, including Software-Defined Data Centers (SDDCs), Artificial Intelligence (AI), Data Center Infrastructure Management (DCIM) systems, and remote facility operations management.

SEGMENTATION INSIGHTS

-In the world of generator sets, there is a widespread preference for units with capacities ranging from 1.5 MW to 3 MW, especially among varied establishments.
-Hyperscale data centers are expected to use generators with capacities exceeding 3 MW. On the other hand, smaller operators and edge facilities are more likely to invest in generators with capacities of up to 1.5 MW in the data center generator market.
-Modular data center deployments mostly rely on generators with a power capacity of less than 1 MW, which are also popular among small-scale operators in underdeveloped countries due to their low cost. Furthermore, the use of portable generators is becoming more frequent.
-Diesel generators are still the most popular procurement choice worldwide, but some facilities are switching to gas generators; for instance, the Tokyo Otemachi data center of Colt Data Center Services has 4,500 kVA gas turbine generators with N+1 redundancy.
-Many data centers aspire to carbon neutrality as part of their environmental goals. Thus, operators are progressively incorporating novel technology into their facilities. These include fuel-cell, HVO-fuel, and eco-diesel generators, which attempt to reduce or eliminate carbon emissions from operations.
-Equinix recently opened its SV11 data center in Silicon Valley. The center uses Bloom Energy's fuel cells as its primary power source and has a total capacity of 20 MW throughout the campus.
-Equinix intends to expand the use of fuel cells in its data centers in New York, Los Angeles, and Silicon Valley.
-Diesel Rotary Uninterruptible Power Supply (DRUPS) systems are widely used in APAC, Europe, and Latin America.
-Market leaders in this field include Rolls Royce, Caterpillar, Piller Group, Hitzinger, and Hitech Power Protection. These systems integrate UPS and generator operations into a single unit, providing over 96% efficiency and considerable space savings in data centers.

SEGMENTATION ANALYSIS

Segmentation by System Capacity
-0-1.5 MW
-1.5-3 MW
->=3 MW
Segmentation by System
-DRUPS systems
-Diesel, Gas & Bi-fuel Generators
-HVO Fuel
-Fuel Cells
Segmentation by Tier Standard
-Tier I & II
-Tier III
-Tier IV
Segmentation by Geography
-North America
-The U.S.
-Canada

-Latin America
-Brazil
-Mexico
-Chile
-Colombia
-Rest of Latin America
-Western Europe
-The U.K.
-Germany
-France
-Netherlands
-Ireland
-Switzerland
-Italy
-Spain
-Belgium
-Other Western European Countries
-Nordics
-Denmark
-Sweden
-Norway
-Finland & Iceland
-Central & Eastern Europe
-Russia
-Poland
-Other Central & Eastern Europe
-Middle East
-UAE
-Saudi Arabia
-Israel
-Other Middle Eastern Countries
-Africa
-South Africa
-Kenya
-Nigeria
-Other African countries
-APAC
-China
-Hong Kong
-Australia
-New Zealand
-India
-Japan
-South Korea
-Taiwan
-Rest of APAC
-Southeast Asia

-Singapore
-Indonesia
-Malaysia
-Thailand
-Philippines
-Vietnam
-Other Southeast Asian Countries

VENDOR LANDSCAPE

-ABB, Caterpillar, Cummins, Generac Power Systems, HITEC Power Protection, KOHLER, Rolls-Royce, INNIO, and Yanmar (HIMOINSA) are the major global data center generator market companies.
-These firms provide generator systems with their own engines, including engines from other manufacturers such as MTU, Perkins, Mitsubishi, Deutz, Volvo, Iveco, FG Wilson, and John Deere.
-The introduction of fuel cell generators, which are expected to achieve commercial momentum by 2025, poses a big threat to diesel generator systems.
-Infrastructure companies, such as Caterpillar, Ballard Power Systems, Rolls Royce, ABB, INNIO, Atos, Plug Power, and HDF Energy, are actively conducting research and development to incorporate fuel cell generators and utilizing eco-diesel inside data centers.
-Numerous manufacturers are anticipated to execute pilot projects over the next two years to evaluate the viability and usefulness of these technologies in data center environments.
-INMESOL and KOHLER have launched new generators that use HVO fuel in the data center generator market. Many vendors prioritize system innovation by lowering carbon dioxide emissions, driven by the global carbon taxation laws governments implement.

Key Vendor Profiles

-ABB
-Business Overview
-Product Offerings
-Caterpillar
-Cummins
-Generac Power Systems
-HITEC Power Protection
-KOHLER
-Rolls-Royce
-Yanmar (HIMOINSA)

Other Prominent Vendors

-Aggreko
-Business Overview
-Product Offerings
-Aksa Power Generation
-Alterra Power Systems (Palmer Johnson)
-Atlas Copco
-Ausonia
-CK Power

-DCS Technology
-Detroit Diesel
-DEUTZ
-Enrogen
-FG Wilson
-Genesal Energy
-HITZINGER Electric Power
-INMESOL
-INNIO
-JCB
-Kirloskar Oil Engines
-Mainspring
-Mitsubishi Heavy Industries
-ONIS VISA
-Perkins Engines
-Plug Power
-Vital Power

KEY QUESTIONS ANSWERED:

1.How big is the global data center generator market?
2.What are the key trends in the data center generator market?
3.What is the growth rate of the global data center generator market?
4.How many MW of power capacity is expected to reach the global data center generator market by 2029?
5.Who are the key players in the global data center generator market?

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