

Data Center Generator - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2026 - 2031)

Market Report | 2026-02-09 | 180 pages | Mordor Intelligence

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Report description:

Data Center Generator Market Analysis

The data center generator market size in 2026 is estimated at USD 7.92 billion, growing from 2025 value of USD 7.57 billion with 2031 projections showing USD 9.89 billion, growing at 4.56% CAGR over 2026-2031. This steady climb is rooted in the surge of hyperscale facilities and the new wave of artificial-intelligence clusters that now push rack densities into the megawatt range, fundamentally transforming backup-power design. Diesel units still anchor most installations, but carbon-reduction policies, volatile fuel prices, and stricter Tier 4 rules accelerate interest in natural-gas, hydrogen, and HVO-ready platforms. Supply-chain shortages for large-bore engines lengthen delivery cycles, prompting operators to lock in multi-year framework agreements or pivot toward modular blocks shipped from regional assembly hubs. Meanwhile, copper prices at record highs squeeze alternator manufacturing costs, driving OEMs to intensify vertical-integration moves and to substitute aluminum windings where technical requirements allow. Competitive pressure is therefore shifting from pure horsepower to a broader mix of fuel flexibility, emissions compliance, and digital service offerings that guarantee a generator's readiness with predictive maintenance analytics.

Global Data Center Generator Market Trends and Insights

Surging Hyperscale and Colocation Build-out

Hyperscale projects now regularly exceed 100 MW, forcing operators to aggregate dozens of 2.5 MW units into N+2 rings that guarantee uptime during grid loss. In 2024, Google earmarked USD 5 billion to lift Singapore capacity by 35%, translating into

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more than 150 MW of incremental standby generation Colocation specialists mirror that scale, exemplified by a 150 MW campus under Princeton Digital Group in Malaysia designed with parallel switchgear lineups to streamline load-shed sequencing. Contract structures increasingly bundle genset supply, commissioning, and long-term service to curb lead-time risk and price volatility. As hyperscale pipelines swell, OEMs strengthen local assembly bases in Southeast Asia and the U.S. Midwest to reduce logistics bottlenecks and to align with domestic-content incentives.

Rising Rack-Power Densities from AI Workloads

GPU-rich racks that consume up to 1 MW each compress the safety margin of legacy generator fleets, prompting capacity re-rating or wholesale replacement. Cummins posted a 19% jump in Power Systems revenue in Q1-2025, attributing the rise to AI-driven data center orders. Operators now specify tighter voltage-regulation bands and dynamic-response times below 10 seconds to protect thousands of interconnected accelerators that cannot tolerate brownouts. Generator skids therefore integrate larger alternators, active harmonic filters, and liquid-cooling circuits that dissipate elevated stator heat. Firmware upgrades also enable real-time synchronization with flywheel UPS buffers, ensuring seamless transition when grid events occur.

Carbon-Emission Regulations Targeting Diesel Gensets

California's Air Resources Board limits non-emergency runtime and enforces real-time monitoring, compelling operators to fit costly SCR and particulate-filter stacks. In the European Union, the Industrial Emissions Directive intensifies permitting scrutiny, delaying approvals by up to 14 months for diesel-heavy campuses. Compliance lifts lifecycle ownership costs as exhaust-after-treatment parts must be replaced every 15,000 engine hours. Some campuses respond by relocating backup yards to less-regulated jurisdictions, yet that strategy collides with latency-sensitive user demands, keeping pressure on OEMs to innovate cleaner combustion or hybrid solutions.

Other drivers and restraints analyzed in the detailed report include:

Expansion of Edge Data Centers in Emerging Markets
Transition to Natural-Gas and HVO Gensets for Sustainability
Shift Toward Battery and Fuel-Cell Alternatives

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Diesel sets anchored 81.25% of 2025 demand, yet their headroom is capped as operators quantify carbon liabilities in financial terms. The data center generator market size for diesel solutions is projected to expand marginally before plateauing post-2028 once stricter quotas lock in. Hydrogen and HVO-ready platforms, though starting from a small base, exhibit outlier growth, propelled by immediate drop-in compatibility and government tax credits. The data center generator market share for hydrogen-ready units is forecast to climb steadily as 1% blends become commonplace in European gas grids.

Regulatory incentives further tilt momentum. Germany's funding line 494 directs EUR 550 million toward green backup power retrofits, funneling orders toward dual-fuel engines that self-calibrate to methane-hydrogen blends. Simultaneously, hyperscalers sign offtake agreements for renewable diesel to lock price visibility through 2030. Manufacturers respond with over-the-air firmware updates that retune injection maps when fuel properties shift, prolonging engine life and protecting warranties against biodiesel contamination. Diesel therefore remains critical for its energy density and universal availability, but alternative fuels capture the innovation spotlight.

Less than 1 MW units retain dominance because thousands of small edge sites must guarantee local content delivery. However,

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hyperscale rationalization accelerates demand for single-block ratings beyond 2 MW. Greater than 2 MW slice of the data center generator market is forecast to compound at 13.78% annually, and by 2031 it will nearly equal the long-time less than 1 MW leader. Operators favor these larger frames because fewer engines simplify fuel logistics, reduce spares inventory, and shrink the real-estate footprint-an important consideration on high-cost plots near coastal fiber landings.

OEMs tackle supply-chain congestions with modular factory-acceptance testing booths that pre-wire switchgear and controllers so that field commissioning falls below 10 days. Rental-fleet providers simultaneously grow their 1-2 MW portfolio to bridge delivery gaps; contracts often include a purchase option once permanent gear ships. Such flex models keep capital budgets predictable and guard against late penalties in colocation contracts that promise rack readiness by preset dates.

Data Center Generator Market is Segmented by Product Type (Diesel, Natural Gas, Hydrogen and HVO-Ready, Other Product Types), Capacity (Less Than 1 MW, 1-2 MW, Greater Than 2 MW), Tier Type (Tier I and II, Tier III, Tier IV), Data Center Type (Hyperscale, Enterprise, Colocation), and Geography. The Market Forecasts are Provided in Terms of Value (USD).

Geography Analysis

North America claimed 40.55% of 2025 revenue on the strength of dense data center corridors in Northern Virginia, Dallas, and Phoenix. Investment now centers on power-density upgrades rather than new land acquisition; operators swap aging 2 MW diesels for 3.5 MW Tier 4-Final models to unlock white-space without expanding walls. Federal production tax credits for hydrogen and biogas further sweeten the switch to low-carbon gensets.

Asia-Pacific showcases the strongest momentum with a 10.42% CAGR through 2031. Singapore lifts its moratorium on data center permits in return for efficiency pledges, unlocking a pipeline of 300 MW across five projects. India's Digital Personal Data Protection Act fuels domestic cloud builds, with Mumbai alone planning 700 MW of fresh IT load. In Japan, SoftBank's 300 MW Hokkaido campus integrates hydro-backed grids but still specifies dual-fuel backup to counter seismic-related outages. Meanwhile, Malaysia and Indonesia emerge as cost-competitive hubs by offering land concessions and renewable-energy certificates tailored to hyperscalers. Europe ranks third in absolute value but leads in sustainability mandates. Amsterdam's municipality now caps diesel runtime and levies CO₂ fees above 500 t/year, nudging operators toward gas engines and battery hybrids. Dublin's grid-capacity crunch pushes developers to Spain and Portugal, thereby redistributing generator demand southward. The Middle East leverages abundant natural gas and solar resources; Dubai's Digital Park installs gas-fired gensets with absorption chillers that recycle waste heat into district-cooling loops. Africa remains early-stage yet promising, with Nairobi and Lagos deploying micro-modular data centers backed by 400 kVA diesels to overcome unreliable grids.

List of Companies Covered in this Report:

Caterpillar Inc. Cummins Inc. Generac Power Systems Inc. Rolls-Royce plc (mtu Solutions) Kohler Co. Mitsubishi Heavy Industries Group Atlas Copco AB Himinsa SL Aksa Power Generation HITEC Power Protection BV INNIO Group (Jenbacher/Waukesha) Aggreko Ltd. Wartsila Corp. ABB Ltd. Doosan Enerbility Co., Ltd. FG Wilson Yanmar Holdings Co., Ltd. Perkins Engines Co. Ltd. Briggs & Stratton LLC Baudouin (Weichai) HIPOWER SYSTEMS GE Vernova

Additional Benefits:

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

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