

# DATA CENTER POWER SYSTEM SOLUTIONS





# KEEPING YOU CONNECTED SAFEGUARDING YOUR DATA AND YOUR REPUTATION, NOW AND FOR THE FUTURE

The demand for data center services is growing at an incredible rate. The world's populations increasingly rely on the internet for everything from communication to commerce. Data centers need sustainable, quality, conditioned power to meet the requirements of customers for whom downtime is not an option and for whom a lower-carbon future is a priority.

Selecting the right products and integrating them to optimize your power system's performance is crucial. Your unique challenges and every critical item on your checklist, from "five-nines" reliability to your energy goals, drive our design for your data center's power system. Like fingerprints, no two applications are the same. That's why Caterpillar provides customers with the widest portfolio of reliable power products in the industry and the engineering experience to support you during the process.

Together with our global dealer network, we serve hundreds of data centers around the globe from hyperscalers to enterprise, co-location data centers, and beyond. Whether you are planning your architecture, are mid build, or want to enhance and expand existing operations, we can support you in the design, specification, and completion of the right backup power solution.

Should your operations grow and expand across markets and regions, Caterpillar and the Cat® dealer network ensure your requirements, goals, and expectations are quickly and accurately translated and transferred across our network, saving valuable time and effort.

# YOUR GLOBAL SINGLE-SOURCE PARTNER

As a partner in your success, we work with you to understand your business needs, tailoring the design of our power systems, solutions, and support.

## Designed to Meet Your Needs

From concept design to planning and specification, Caterpillar design engineers partner with you to develop a power system that integrates seamlessly into your overall data center infrastructure. Safety and security underpin the provision of reliable power, with laser focus on your project timelines and goals to ensure your customers get connected and stay connected on time and on budget.

Cat power systems are designed and built upon a detailed understanding of your needs, providing and implementing:

- **Project Management Expertise** – Ensuring adherence to deadlines and overall project milestones.
- **Energy Solutions** – Supporting your environmental goals as well as 99.999% uptime and service provision.
- **Certification & Compliance** – Meeting Uptime Institute and ISO certification as well as relevant local and regional legislative requirements, including those for noise and particulate emissions.
- **The Right Power and Redundancy** – Delivering reliability and performance while optimizing total cost of ownership.
- **The Right Technology** – For total control and continuous monitoring of your power system.

## Quality, Efficiency, and Reliability

Caterpillar has the widest portfolio of power products in the industry with service and support throughout the lifetime of your power solution for total peace of mind.

Caterpillar offers:

- **Lifelong Partnership** – Caterpillar is committed to the data center industry. At an enterprise level, we are structured for data center account support, while on the ground, our global dealer network offers unrivaled pre-sales advice and expertise in specification, installation, and commissioning.
- **Pre-Shipment System Witness Testing** – Gives you total peace of mind, seeing your power solution in operation before shipping.
- **Complete Packaged Solutions** – Plug and play systems, arrive on-site ready to perform to your specific requirements.
- **Paralleling Switchgear and Control Systems** – Offer intuitive operation and interface, providing important operational insights with remote asset monitoring and control options that facilitate pre-emptive maintenance, avoiding costly unplanned outages.
- **Optimized for Sustainability** – Our tailored solutions support your sustainability goals now and into the future with low- and no carbon power sources available to meet your needs and support your sustainability goals. When your power equipment reaches the end of its first life, Caterpillar Reman offers the opportunity to realize its second, redirecting components from landfill and ensuring cost-effective extension of product lifetime.

# MEETING YOUR POWER NEEDS

We know that managing environmental, social, and energy goals is an important balancing act. We are contributing to a reduced-carbon future through our continued investment in new products, technologies, and services. Our product range and tailored solutions are designed to go beyond the power requirement, to be the best fit with your wider business objectives.



GENSETS POWERED BY DIESEL,  
GAS & RENEWABLE FUELS

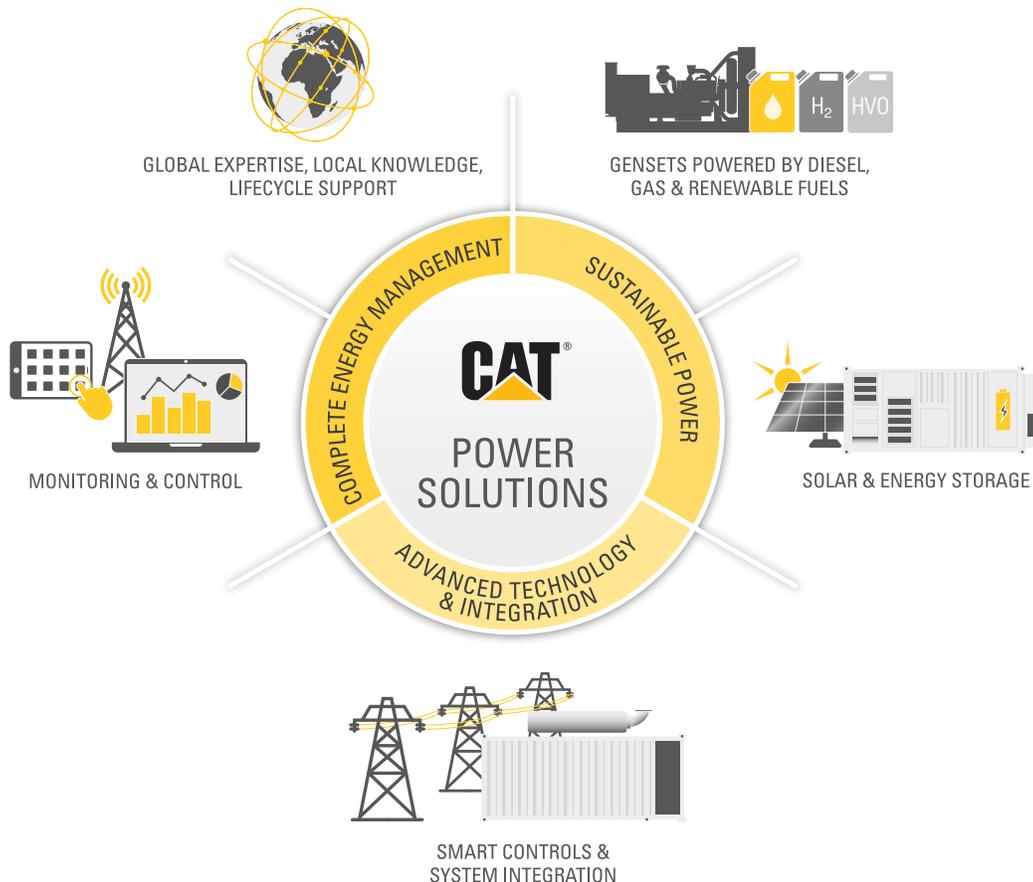


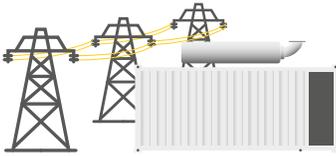
SOLAR & ENERGY STORAGE

## Reliable Power

Our generator range delivers the power and performance you need, from quick start and block load acceptance to fuel efficiency, emissions, and noise reduction. True choice and flexibility are delivered with products fueled by diesel, gas, biogas, biofuel, and hydrogenated vegetable oil (HVO), or blended fuel approaches including hydrogen. Similarly, our portfolio includes power technologies, such as cogeneration and hybrid systems (integrating energy storage and solar power products), offering cost and fuel efficiencies, incremental site resilience, and optimizing the sustainability of your operations.

For more on sustainability visit [www.cat.com/sustainablepower](http://www.cat.com/sustainablepower)





SMART CONTROLS &  
SYSTEM INTEGRATION

## Advanced Technology & Integration

Every aspect of your power solution, from energy generation to control and monitoring functions, is integrated to work seamlessly together.

- **Packaging Solutions** – Caterpillar and your local Cat dealer provide the flexible resources to design and procure custom parts not listed in our standard price list so that you can meet and exceed your project goals. With accountability for entire package and system integration, and covered by Cat Warranty, you have total peace of mind.
- **System Integration** – Whether your system is designed with auto transfer functions, traditional Automatic Transfer Switches (ATS), or complex paralleling switchgear, Caterpillar has products and expertise to provide an optimized solution to meet your needs. We also provide integrated hybrid solutions that utilize our Microgrid Master Controls, along with renewable power technologies and energy storage. An integrated total system where the power production and controls products are designed to work seamlessly together delivers higher efficiency and greater reliability.



MONITORING & CONTROL

## Complete Energy Management

- **Total Control** – All Cat controllers feature the intuitive interface and durability you have come to expect from Cat equipment. Scalable controls ensure reliable system operation while providing extensive information about power output and system health. Customizable controls ensure your needs are met through programming and expansion modules.
- **Remote Monitoring – Cat® Connect** – Control costs, improve performance, and reduce risk with hard facts about your equipment wherever you are. Cat Connect keeps you informed of asset performance, ready to run status, service needs, and more, helping you avoid unplanned downtime. Make well-informed, timely business decisions using data from your assets and easy-to-use analysis tools from your Cat dealer.
- **Caterpillar Global Dealer Network** – From pre-sales advice and support, to installation and throughout the life of your power solution, we are with you. Backed by our regional and global sales and support teams dedicated to the data center industry, your local Cat dealer offers unrivalled expertise and coverage, responding to your needs 24/7/365. Should your operations grow, we support you. Our global dealer network will work with your Cat account manager, a single point of contact who ensures swift and complete understanding of your requirements wherever new projects arise.



GLOBAL EXPERTISE, LOCAL KNOWLEDGE,  
LIFECYCLE SUPPORT

# TRUSTED AROUND THE WORLD

A selection of data centers who trust Caterpillar for reliable backup power.



**ALIGNED DATA CENTERS  
PLANO, TEXAS**

3516E  
Diesel Standby

## Cat Generators Deliver Critical Backup Power for Aligned Data Centers

Aligned is an infrastructure technology company that offers sustainable and adaptable colocation and build-to-scale solutions for cloud, enterprise, and managed service providers. Due to the mission critical nature of data centers, which must guarantee almost 100 percent uptime and reliability to clients 24/7, Aligned's explosive growth as a result of the COVID-19 pandemic necessitated rapid procurement and installation of 56 generator sets within a five-month period at its locations across the United States of America.

Fast growing demand called for additional generators outside of Aligned's original forecast—delivered and installed within a short time frame. The rapid deployment and installation of the generator sets was made possible by the partnership between Aligned and HOLT Power Systems.

The 3516E diesel standby generators provide backup power in the event grid power is lost or during times when transmission reserves on the utility grid are depleted and power sags. Additionally, the company currently matches 100 percent of its IT load with renewable energy across the entire data center portfolio, with a goal of matching 100 percent of its annual energy consumption with zero-carbon renewable energy by 2024.



**SAFE HOST  
GLAND, SWITZERLAND**

C175-20  
Diesel

## Safe Host and Caterpillar Take a Colorful Approach to Safety

For the last 20 years, Safe Host has brought technical and human expertise to their customers while always putting the safety of their staff and vendors first. With over 76 MVA of installed capacity across four Swiss data centers, Safe Host meets the growing demand for companies to host their systems in Switzerland, where they benefit from the country's abundant sustainable hydroelectric power and strong legal framework that supports data protection.

As Safe Host continues to expand, it relies on Cat standby power solutions exclusively at all four data centers. Its state-of-the-art data center in Gland is backed by a 19.2 MVA standby emergency power system. The solution includes six Cat C175-20 diesel generator sets, each of which has been factory-finished with a unique paint color that matches the section of the facility it supports to support Safe Host's comprehensive safety measures. Cat dealer Avesco provides ongoing maintenance and service under a Cat Customer Value Agreement.



**SHANGHAI TENCENT  
CLOUD DATA CENTER  
CHINA**

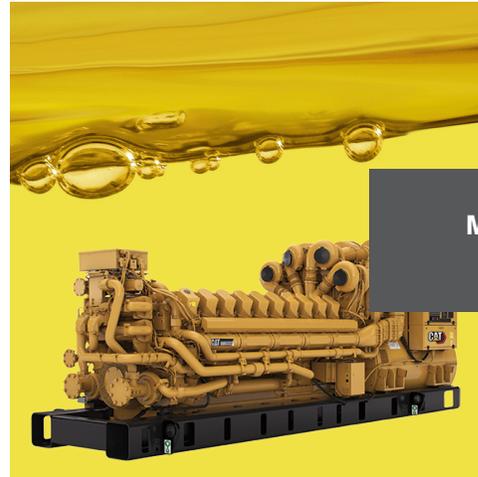
G3520H  
with CCHP

### Meeting Data Center Power & Cooling Needs with CCHP

The Shanghai Tencent Cloud Data Center (TCDC) is an advanced service platform for cloud computing and cloud storage infrastructures for third-party enterprises, domestic Internet users, and e-commerce services for the local government.

TCDC was one of the first to use natural gas power gas-powered combined cooling, heating, and power (CCHP) systems for its power and cooling needs. The advanced natural gas-based system provides a clean, efficient, and cost-effective solution for demanding data center requirements. When compared to conventional coal-fired power plants of the same capacity, 3,470 tons of conventional coal burning is saved, with 48 percent reduction in CO<sub>2</sub> emissions and also the reduction of 466 tons of SO<sub>2</sub> and a 60.8 percent reduction in NO<sub>x</sub> emissions.

The Shanghai TCDC natural gas distributed generation project has an installed capacity of 10 MW across its four independent data center blocks. Two Cat G3520H gas engine generator sets with a full load rating of 2,500 kW serve their need for high reliability, efficiency, and low cost of operation and maintenance of two of these blocks. A CCHP system meets all power and cooling needs.



**MICROSOFT HVO  
SWEDEN**

Cat C175-20  
and C18,  
Biodiesel

### Renewable Biodiesel Gensets Provide Backup Power for Microsoft

As part of a complete standby power solution delivered by Caterpillar, generator sets with the capability to operate on renewable biofuel are providing backup power to Microsoft data centers constructed in Sweden in 2020. All generator sets on site can be powered by a co-processed synthetic diesel fuel containing more than 50 percent renewable raw materials. Performance of the generators, from load step to fuel consumption, is consistent with that of our gensets powered by diesel fuel.

The standby power solution at the Gavle, Sandviken, and Staffanstorps data center sites consists of multiple Cat C175-20 generator sets for critical operations and Cat C18 biodiesel, hydrotreated vegetable oil (HVO) generator sets that support administrative functions. Each set is equipped with a sound-attenuating enclosure, limiting noise emissions to 75dBA at 1 meter as well as delivering optimal performance in ambient temperatures that can range from minus 30 degrees to 30 degrees Celsius (minus 22 to more than 104 degrees Fahrenheit). The installations provide complete, vertically integrated solutions backed by a full Caterpillar warranty.

# SERVICE & SUPPORT TAILORED TO YOUR NEEDS

To help you maintain your system simply and affordably, we offer additional support.

Cat dealers are committed to cost-effective, quality-controlled, fast-turnaround service. Their service facilities represent a substantial investment in plant, tooling, diagnostic, and testing equipment—as well as in people.

You can count on technical assistance being just a phone call away, seven days a week, 24 hours a day. Cat dealers are committed to having someone at your facility within two hours of a reported problem. On average, there is a service location within a 35-kilometer (20-mile) radius of every one of our customers' facilities. Our service, along with unparalleled parts availability, helps ensure the long term reliability of your Cat power system.

## CAT CONNECT

Control costs, improve performance, and reduce risk with hard facts about your equipment with remote asset monitoring. Cat Connect keeps you informed of asset performance, ready to run status, service needs, and more. Make well-informed, timely business decisions using data from your assets and easy-to-use analysis tools from your Cat dealer.

[READ MORE](#)

## CUSTOMER VALUE AGREEMENT

An individualized arrangement between you and your Cat dealer helps you maintain your products while lowering your cost per unit of production, regardless of the size or age of your product. Agreements are tailored to fit your business needs and can range from preventive maintenance kits to total cost performance guarantees.

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## EXTENDED SERVICE COVERAGE

Transferable coverage beyond the standard warranty period for all Cat branded electric power equipment. It protects against unexpected repair bills and provides 100 percent parts and labor reimbursement for covered components, less any applicable deductible. A broad range of coverage options can be customized to suit your individual needs with simple pricing terms.

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## PARTS AVAILABILITY

Your Cat dealer has parts inventory and access to the global Cat parts distribution network to fulfill 98 percent of parts orders within 24 hours. We also offer a self-service option on parts.cat.com where you can access parts information and ordering 24 hours a day, seven days a week.

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