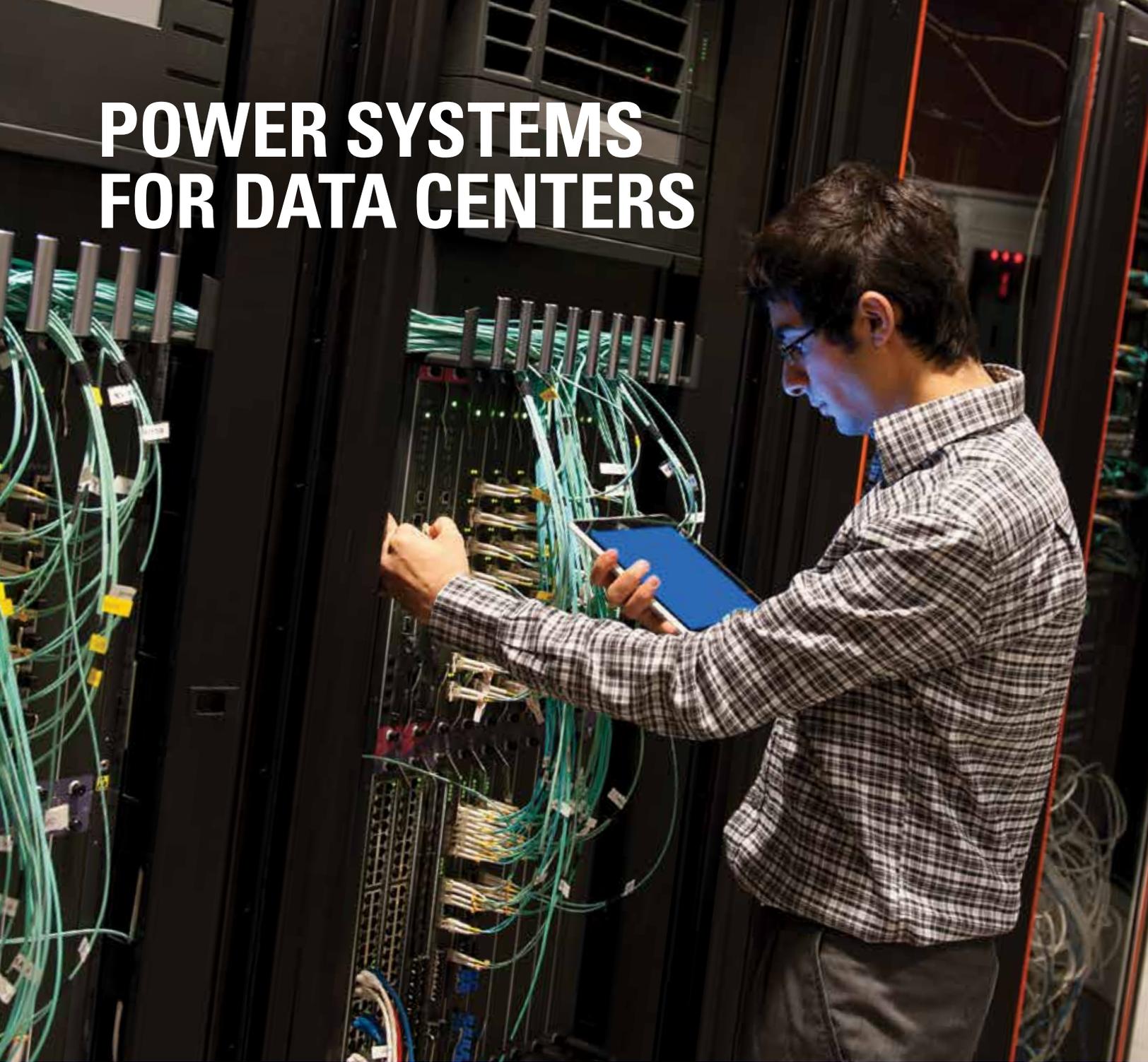


POWER SYSTEMS FOR DATA CENTERS



PROTECTING YOUR DATA.

The phrase “mission critical” says it all. Your data cannot be compromised – and that requires a power system delivered by people who never compromise either. Every day, the people at Caterpillar work tirelessly to design, manufacture, and support the products that give you 100 percent uptime.

As the world evolves into a more digital economy, the need for critical, conditioned power is increasing by the day. We serve hundreds of data centers across the globe but, like fingerprints, no two are the same. That’s why your unique challenges and every critical item on your checklist drive the design of your power system.

Cat® dealer experts have the knowledge, focus, and global presence to come through for you without fail. We will work with you to develop a fully integrated power system designed to operate and work seamlessly together.

THE LIFELINE FOR YOUR DATA.

Digitized information has reshaped commerce in every way, bringing new efficiencies and unprecedented access. Cat customized single-sourced systems are trusted by data centers worldwide. Here are examples of data centers powered by Cat systems.



DATASPACE – MOSCOW, RUSSIA

Working together, Zeppelin Power Systems Russland and DataSpace designed an infrastructure featuring six Cat 3516B diesel gensets, each capable of delivering 2 MW of backup power. The unique system provides flexibility to service any generator set with no disruption of power supply.

Each generator set meets ISO 8528-5 transient response requirements and accepts 100 percent rated load in one step. Featuring an EMCP 4.2 control panel, the Cat 3516B generator sets also offer expanded engine and generator protection and monitoring.

The Cat backup power solution has worked flawlessly to provide critical backup power. Zeppelin Power Systems Russland provides the service and maintenance to keep the generator sets run-ready.



SUBURBAN PROPANE – WHIPPANY, NEW JERSEY, U.S.A.

Suburban Propane distributes propane, fuel oil, and refined fuels to residential homes and businesses, with 710 locations in 41 states. “If we lost power completely, our 475 service centers around the country would be impacted because everything comes in through our data center,” said Al Pierce, senior facility manager.

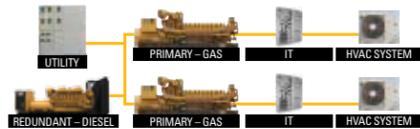
Suburban Propane purchased a Cat G3412 genset from local Cat dealer, Foley Power Systems. The genset can accept full load in seconds and runs continuously during an outage. In addition, it is fueled by propane stored in large onsite tanks, reducing operating expenses.

“One thing we wanted was a reputable brand name, and Caterpillar certainly fits the bill,” Pierce said.

CUSTOMIZED POWER SYSTEMS

With diesel- and gas-powered gensets, ATS, and switchgear, Caterpillar has everything you need to maintain clean, uninterrupted power for your business. All Cat products are designed to work together, with all elements relating to genset production, control, and monitoring functions integrated into a single-source package.

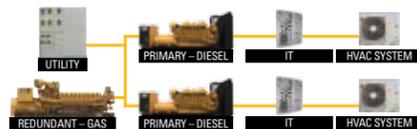
60 MW REDUNDANT DIESEL DESIGN ARCHITECTURE



50 MW (ALMOST THE ENTIRE DATA CENTER) HAVE BEEN SHED OFF OF THE UTILITY by having our primary source of generation as gas with redundant diesel swing units.

Possible application: A greenfield site where there is significant incentive to shed load from the grid.

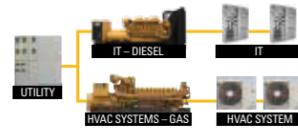
60 MW REDUNDANT GAS DESIGN ARCHITECTURE



30 MW HAVE BEEN SHED OFF OF THE UTILITY by having redundant gas gensets picking up both Information Technology and HVAC System loads in each POD.

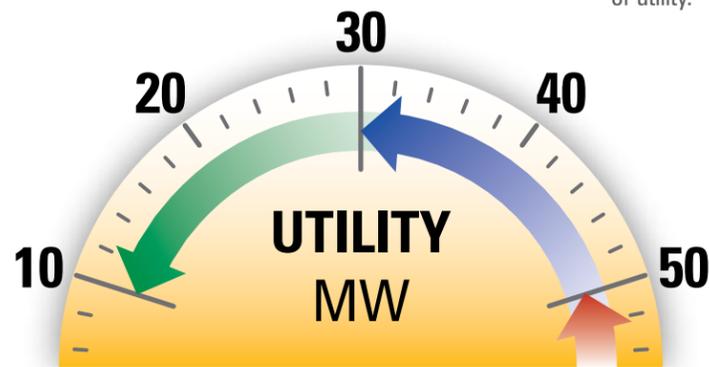
Possible application: A retrofit opportunity for an existing data center where gas units can operate as swing units shedding both Information Technology and HVAC System loads off the grid.

60 MW POD DESIGN ARCHITECTURE USING GAS



10 MW HAVE BEEN SHED OFF OF THE UTILITY by having gas units pick up 10 MW of HVAC System load while the diesel units cover the Information Technology load in an emergency.

Possible application: A greenfield site where there is a small incentive for demand response from the RTO or utility.



PACKAGING SOLUTIONS

No matter how remote your location, a custom package containing Cat electric power equipment can meet your project specific needs in any environment. We have dedicated resources to help provide solutions for your most complex design issues. Caterpillar can provide the flexible resources to design and procure custom parts not available in our standard price list, so that you can meet and exceed your project goals.

Advantages:

- Accountability for entire package and system integration
- Complete set of documentation from single provider
- Reduction of inventory carrying costs and labor resources
- Ability to leverage global Cat parts and service network
- Worldwide warranty



CONTROLS – EMCP 4

The EMCP 4 controllers feature the reliability and durability you have come to expect from your Cat equipment. EMCP 4 is a scalable control platform designed to ensure reliable generator set operation, providing extensive information about power output and engine operation. These systems can be further customized to meet your needs through programming and expansion modules.



Advantages:

- Intuitive navigation and configuration
- Advanced telemetry capabilities for remote communications to ensure safety for operators
- Complete engine and generator monitoring, protection, and control
- Generator protective relays, including over/under voltage, over/under frequency, over current and reverse power
- Communication options over Modbus and ethernet
- Expansion modules, including local annunciators, remote annunciators, input/output, and generator temperature monitoring

CAT® CONNECT

Control costs, improve performance, and reduce risk with hard facts about your equipment. Cat® Connect can tell you how your assets are performing, if they are ready to run, when they need service, and more. Make well-informed and timely business decisions using data from your assets and easy-to-use analysis tools from your Cat dealer.

Advantages:

- Smart technology helps reduce the impact of day-to-day uncertainties
- Keep your equipment in top shape and avoid unplanned downtime
- Determine the most efficient and cost-effective ways to improve your operation
- Run at peak performance by tracking maintenance and service
- Use equipment data to monitor run hours and fuel consumed
- Catch problems early with electronic inspections, performance data, and alerts



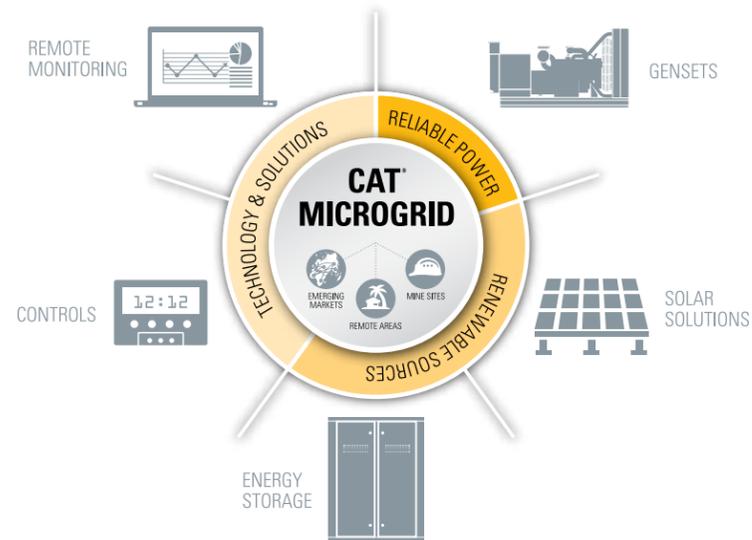
CONSIDERING RENEWABLE ENERGY?

Reducing your impact and your operating costs.

Cat Microgrid technology offers fully integrated power systems with photovoltaic panels, energy storage, monitoring and control systems, Cat generator sets, switchgear, and ATS.

Advantages:

- Customized renewable energy system specifically designed for your application
- Cat thin film high-efficiency modules with proven performance over conventional crystalline silicon solar modules
- Cost-effective power for on- and off-grid installations
- Lower fuel consumption, reduced operating costs, and lower carbon emissions
- Cat MMC integrates traditional and renewable energy sources to monitor and control connected microgrid assets
- Smart energy storage can be added to enable power to be used when sunlight is not present



YOUR CAT DEALER IS HERE WITH THE ANSWER.

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. Combined, Cat dealers have over 140,000 employees and more than 75 percent are engaged in product support to help you get maximum value and reliability from your Cat products.

You can count on technical assistance being just a phone call away 7 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. Cat service, along with unparalleled parts availability, helps us ensure the long-term reliability of your Cat power system. To help you maintain your system simply and affordably, we offer additional support.

EXTENDED SERVICE COVERAGE

This is 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.

CUSTOMER SUPPORT AGREEMENT

This 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.

PARTS AVAILABILITY

Your Cat dealer has a parts inventory and access to the global Cat parts network to fulfill 98 percent of parts orders within 24 hours. Keep your power system running with 24/7 access to information at parts.cat.com. – videos, reference material, specs on parts; and information on repair and maintenance parts, all manufactured to original equipment specifications and recommended by Caterpillar.





Learn more at cat.com/powergeneration

BUILT FOR IT.™

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