# **RELIABLE POWER** WHEREVER YOU ARE



**Electric Power Generation from Caterpillar** 



# FULLY INTEGRATED SYSTEMS

- Powered by Cat<sup>®</sup> engines for reliability
- Easy to specify, permit, install, and test
- Meet most worldwide emission standards
- Supported by the Cat dealer network

Caterpillar has decades of experience and unmatched expertise. Whatever your business, our experts are ready to help you design a system to your specifications and stand by your side for the life of your equipment.

You'll have the support of the global Cat dealer network and all the products, coverage, financing options, parts, maintenance, and anything else vou need.









EMCP 4.4 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. • The Supervisory Control Panel (SCP) provides supervisory level control and monitoring for generators equipped with EMCP 4.4 controllers, allowing system level monitoring and control of up to 16 generator sets.

# **CAT SYSTEM PRODUCTS**

## AUTOMATIC TRANSFER SWITCH (ATS)

- Caterpillar offers a broad range of transfer systems and ATS products,
- which can be arranged to suit any application from simple to highly complex
- multiple ATS/generator set switchgear systems.
- Available in sizes from 40 to 5000 amps in 2-, 3- and 4-pole configurations
- Contactor and circuit breaker-based solutions for flexible coordination • Open, closed, and delayed transition designs available
- ATS and bypass mechanisms rack in/out with door closed
- Load is not interrupted during bypass operation
- Full automatic mode functionality is maintained with ATS in bypass

## UNINTERRUPTIBLE POWER SUPPLY (UPS)

- Your business can't tolerate surges, sags, spikes, or failures. Cat UPS with flywheel energy storage provides immediately available power to ride
- through disturbances and condition power from the source.
- Lower operating, maintenance, and replacement costs Smallest available footprint
- Complete system capable of operating at 40°C; no need to up-size HVAC systems
- Industry-leading total cost of ownership

## **EMCP 4.4 FOR EMERGENCY POWER SYSTEMS**

 The Master Control Panel serves as a system level controller for generators equipped with EMCP 4.4 controllers, allowing system level monitoring and control of up to 8 generator sets and adds utility paralleling capability to the EMCP 4.4 control system.

## PARALLELING SWITCHGEAR

Cat switchgear provides paralleling capability for multiple generator sets, with single or multiple points of utility connection. It also provides a single point of monitoring and control of your complete system, including ATS and UPS to give you get an integrated solution that meets your unique requirements.

- EXL emergency load transfer manager is standard paralleling controls in a controls-only panel-mounted configuration and can be integrated into existing switchgear to provide a fully automated system lineup. It allows for operating generator sets in pre-configured emergency standby, prime power, and parallel with utility configurations for single generator/ single utility applications. It is a wall mounted, cost effective alternative to switchgear mounted controls.
- Engine Paralleling and Integration Control (EPIC) provides standard paralleling controls in a remote cabinet separate from the engine generator set and switchgear. It allows for operating generator sets in pre-configured emergency standby, prime power, and parallel with utility configurations. It replaces traditional hardwired components with dedicated controller and color touchscreen interface, and is an alternative to switchgear-mounted controls.
- Engine Generator Integrated Switchgear (EGIS) allows for operating generator sets in pre-configured emergency standby, prime power, and parallel with utility configurations. The modular EGIS system uses a dedicated controller to perform synchronization, power factor control, load sharing, and system monitoring. The system can be monitored and controlled the through an industrial touchscreen HMI.



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# **DIESEL GENERATORS**



#### **DIESEL GENERATORS** 50-60 Hz

| and the second s | <b>CM43</b><br>6-9, 12, 16 cyl    |            |         |       |                        |                    | 5       | <b>470-821</b><br>6, 7, 8 | <b>0 kW</b><br>, 9 cyl |        |        |                      |                       |      |      |        |      |      | <b>11000</b> -<br>12, 16 c |            |
|--|-----------------------------------|------------|---------|-------|------------------------|--------------------|---------|---------------------------|------------------------|--------|--------|----------------------|-----------------------|------|------|--------|------|------|----------------------------|------------|
|  | <b>CM32</b><br>6, 8-9, 12, 16 cyl |            |         | 276   | <b>0-4540</b><br>6, 8, | <b>kW</b><br>9 cyl |         |                           |                        |        |        | <b>5850</b><br>12, 1 | <b>-7800</b><br>6 cyl | kW   |      |        |      |      |                            |            |
| Server Server  | <b>3600</b><br>8, 12, 16 cyl      |            |         |       |                        |                    |         |                           |                        | 1375-5 | 320 kW |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C175</b><br>16, 20 cyl         |            |         |       |                        |                    |         | 2500                      | -4000                  | kW     |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>CM25</b><br>6, 8, 9, cyl       |            |         |       |                        |                    | 1730-25 | 590 kW                    |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>CM20</b><br>6, 8, 9, cyl       |            |         |       | 98                     | 80-164             | 0 kW    |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>3500</b><br>12, 16 cyl         |            |         |       |                        |                    | 890-27  | 750 kW                    |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C32</b><br>12 cyl              |            |         |       | 830                    | -1200              | kW      |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C27 / 3412C</b><br>12 cyl      |            |         | 5     | 91-800                 | kW                 |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C18</b><br>6 cyl               |            |         | 500-  | 600 kV                 | /                  |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
| <b>Mat</b>   | <b>C15</b><br>6 cyl               |            | 40      | 00-50 | 00 kW                  |                    |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C13</b><br>6 cyl               |            | 320-40  | 0 kV  | v                      |                    |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C9</b><br>6 cyl                | 180        | -300 kV | v     |                        |                    |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C7.1</b><br>6 cyl              | 125-200    | kW      |       |                        |                    |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C4.4</b><br>4 cyl              | 40-100 kW  |         |       |                        |                    |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            | _          |
|  | <b>C2.2 / C3.3</b><br>3 cyl       | 10-40 kW   |         |       |                        |                    |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  | <b>C1.1 / C1.5</b><br>3 cyl       | 5.4-8.8 kW |         |       |                        |                    |         |                           |                        |        |        |                      |                       |      |      |        |      |      |                            |            |
|  |                                   | D          | 0.5     | 1     | .0 2                   | 2.0                | 3.0     | 4.0                       | 5.0                    | 6.0    | 7.0    | 8.0                  | 9.0                   | 10.0 | 11.0 | ) 12.0 | 13.0 | 14.0 | 15.0                       | 16.0<br>MW |



#### GAS GENERATORS 50-60 Hz Continuous Gas Ratings GCM34 6518-9700 kW 16, 20 cyl CG260 3000-4500 kW 12, 16 cyl CG170 1000-2000 kW 12, 16, 20 cyl G3500 615-2519 kW 12, 16, 20 cyl CG132 400-800 kW 8, 12, 16 cyl **G3400** 6, 12 cyl 107-453 kW G3300 68-143 kW 6 cyl 0.5 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 MW Ω **GAS GENERATORS** 60 Hz Standby Gas Ratings **G3500** 12, 16, 20 cyl 750-2000 kW G3400 150-500 kW 6, 12 cyl **DG30** 4 cyl 30-150 kW 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 MW 0.5 GAS GENERATORS 60 Hz Propane Gas Ratings DG Series 30-150 kW 8 cvl 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 MW 0.5 0





Our gas generator sets are made to run on your most abundant gas sources, with tailored designs for natural gas, biogas, coal gas, and alternative fuels. New engine technologies deliver power, heat, or cogeneration with world-class electrical and thermal efficiency. Factory-sourced containers, heat-recovery modules, control systems, and turnkey containerized systems are available.

# **GAS GENERATORS**



# MICROGRID TECHNOLOGY

#### **CUSTOMIZED RENEWABLE ENERGY**

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

A Cat Microgrid system provides cost effective power for on- and off-grid communities and commercial or industrial installations. By combining renewable energy from our photovoltaic modules and smart energy storage, with traditional generation from utilities or generator sets, we can develop an energy system specifically designed for your application.

## **CAT SOLAR POWER**

For on-grid applications where a traditional utility is present, photovoltaic modules can be used to lower the costs of power from the utility. For offgrid applications, the photovoltaic modules are used to offset operation of diesel or gas generator sets. This lowers fuel consumption and reduces the operating costs of power production, while also lowering carbon emissions. Smart energy storage can also be added for short duration grid stabilization or longer duration renewable time shifting, enabling the renewable power generated during the day to be used when sunlight is not present.



# MICROGRID TECHNOLOGY

#### **MICROGRID MASTER CONTROLLER (MMC)**

The Cat MMC integrates a variety of traditional and renewable energy sources to provide overall monitoring and control of all connected microgrid assets.

- Graphical user interface for monitoring and control of complete microgrid system
- Asset optimization to minimize the cost of energy
- Grid import/export control when connected to the local utility service



#### **BI-DIRECTIONAL INVERTERS**

Cat bi-directional inverters provide reliable control of the charging and discharging of the storage solution. The inverter is compatible with a wide range of storage options, including lithium-ion, flywheel, and ultracapacitors.

- Designed for a wide range of applications and compatible with most power sources
- Integrates with renewable sources to provide continuous power
- Parallel ready multiple inverters can be used in parallel to increase available power

#### **PROOF FROM THE PROVING GROUND**

The Caterpillar Tucson Proving Ground was completely off grid and relied entirely on Cat diesel generator sets to power the facility. In 2016, Caterpillar decided to use the location to demonstrate the realworld value of its microgrid technology. They installed a 500 kW solar array and energy storage system which is expected to reduce fuel consumption by 33 percent.

# **RENTAL POWER**

#### THE PERMANENT SOLUTION FOR YOUR TEMPORARY **POWER NEEDS**

Cat Rental Power is hard at work around the globe providing single-source access to all product and accessory needs, including continuous power systems, cooling systems, and air compressors.

#### WIDE RANGE OF POWER

Rental power is available in gas and diesel, from 20 to 2000 ekW.

#### SUPPORT

Experts available every step of the way to help you design a system, deliver equipment, provide technical support, service, maintenance, and training programs for rental projects.

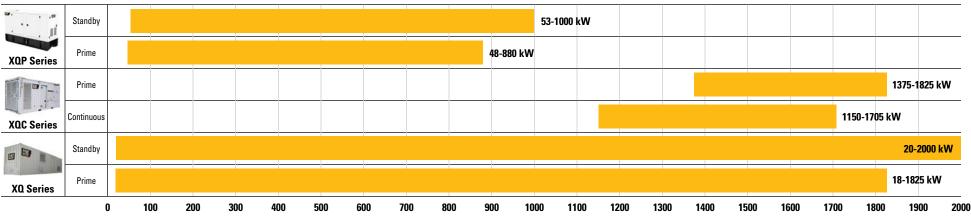
#### RESPONSE

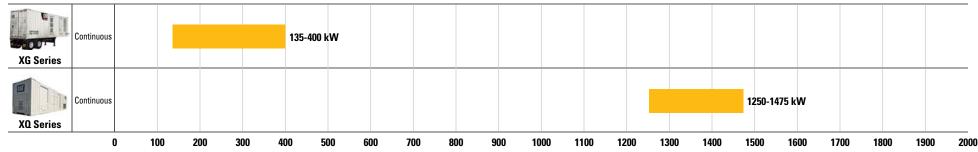
Supported by our network of rental power experts in the field, we can immediately outfit your system, deliver it (with all the ancillary equipment included), provide the connection, fuel, start-up, service, and maintenance, and can remain on-site to provide support when necessary.

#### ENVIRONMENTAL CONSIDERATIONS

Our units are specially engineered to produce lower gas/diesel emissions and meet or exceed local emission standards, and we offer options such as sound attenuation for sensitive environments. All units come with standard fuel containment.











# **CUSTOM POWER SOLUTIONS**

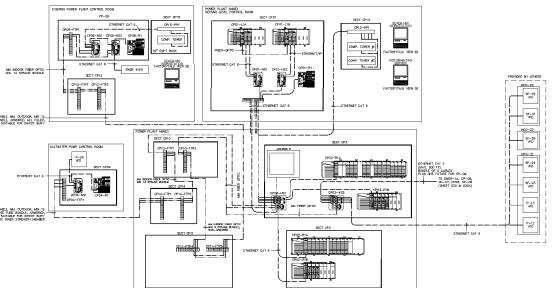
### POWER SYSTEMS TO MEET YOUR NEEDS

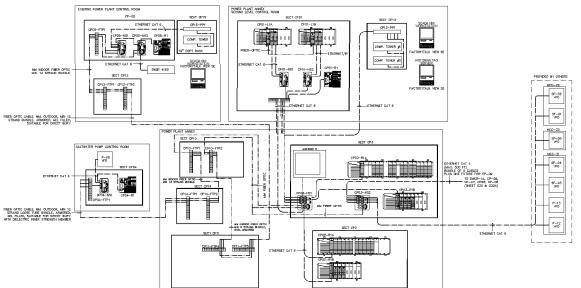
No application is too challenging – complex control systems, high voltage, extreme ambient conditions – we have what you need. Cat experts work with you to design a system to meet your individual power needs. We tailor each component to develop a system with attachments and performance options to match your specific application and regional standards. It's a fully customized, factory-tested power generation package with full Caterpillar warranty.

When purchased as a complete generator set package, Caterpillar engineers can integrate the generator controllers, switchgear, and programmable logic controller (PLC) into one seamless modular design, with the ability to witness test the complete integrated package in the factory.

This is a one-of-a kind, single-source system. Our capabilities and experience help us deliver a market-leading product, from sales support and conceptual design, to detailed design and production, to lifetime support for your customized Cat power solution.









# **CUSTOM POWER SOLUTIONS**

### Enclosures

Sound-attenuated and weather protective enclosures are built specific to your needs and come assembled with your generator set, minimizing on-site installation.

## **Continuous Power Module (CPM)**

The Cat CPM provides constant power protection against surges, sags, and power interruptions that can disrupt operations or cause loss of valuable data or system capacity.

## **Custom Control Systems and Switchgear**

Complete solutions for the control and monitoring of generators and associated switchgear in applications where complex control philosophies are employed.

## **Custom Voltage Generators**

Our engineers will source the alternator that meets your needs and fit it to your Cat generator set in one of our Caterpillar manufacturing facilities.

## **Ancillary Equipment**

Designed to work with your Cat generator set, we offer remote cooling groups, air start systems, heavy duty air intake filters, fuel filtration systems, special exhaust silencer systems, exhaust aftertreatment, and more.

## **Cooling Equipment**

We can design generator sets to operate in ranges from -40°C to +55°C, using a range of additional options designed for these conditions.

# **COMPREHENSIVE RESOURCES AND SUPPORT**

#### **Global Dealer Network**

Every Cat machine is backed by our global dealer network, long recognized as the best in the world for parts, service, and equipment. You expect more from the industry leader, and we are proud to set the standard with comprehensive programs to improve jobsite safety, train your employees, manage maintenance, and help you grow your business.

## Cat<sup>®</sup> Connect

Cat Connect combines technology and services to boost your business performance. Using the data from technology-equipped assets, you'll get more information and insight into your equipment and operations than ever before.

- Control costs
- Improve performance
- Reduce risk

## Flexible Financing And Maintenance Programs

You can count on Cat Financial to provide the best financing solution for your business. Whether you want to finance a piece of construction equipment, a boat with a Cat engine, or a power supply backed by a Cat generator, our finance representatives understand Cat products across all industries. We will help you expedite your purchase and get your equipment on the job fast, with quick and easy financing and customized payment plans. You chose Cat equipment for reliable, productive, and powerful equipment. Now, choose Cat Financial to help grow your business.

## **Extended Service Coverage**

Your Extended Service Coverage offers transferable coverage beyond the standard warranty period, for all Cat branded electric power equipment. It protects against unexpected repair bills and offers a hedge against rising parts and labor costs by providing 100 percent parts and labor reimbursement for covered components, less any applicable deductible. The broad range of coverage options can be customized to suit your individual needs and simple pricing terms, giving you confidence and peace of mind about your power system's performance.

### **Customer Support Agreement**

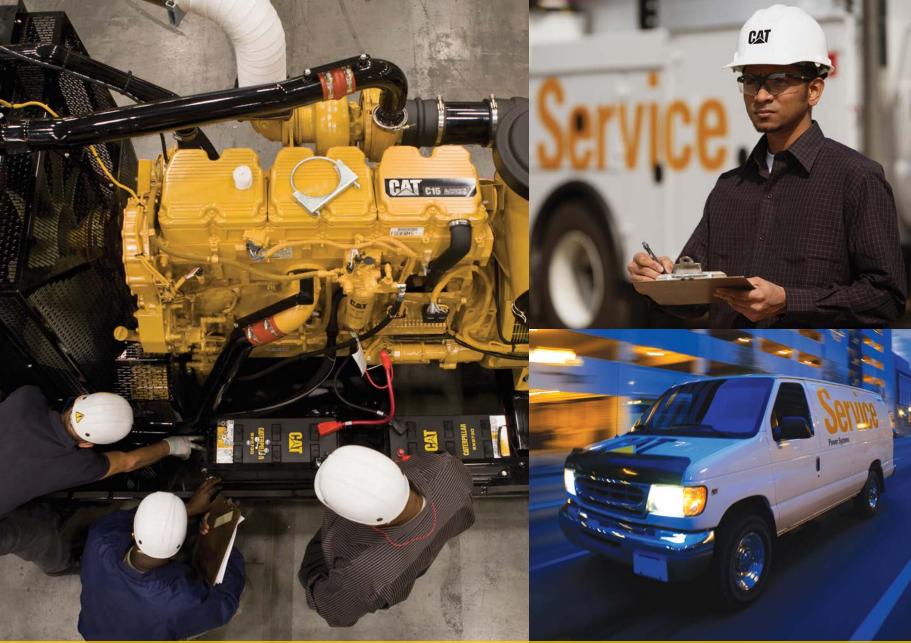
Your Customer Support Agreement is an individualized arrangement between you and your Cat dealer that helps you maintain your products while lowering your cost per unit of production, regardless of the size or age of your product. Agreements are tailored to fit your business needs and can range from simple preventive maintenance kits to total cost performance guarantees. No matter which option you choose, your Cat dealer will help you design your agreement and provide ongoing attention to ensure your success.

## Parts Availability

Your Cat dealer is equipped with a parts inventory and access to the global Cat parts network to fulfill 98 percent of parts orders within 24 hours from the time of order. We know that having the right parts on hand is crucial to keep your power system running, so we also provide 24/7 access to information at parts.cat.com. Here you will find videos, reference material and specs on Cat original, Classic<sup>™</sup>, and remanufactured parts, as well as information on repair and maintenance parts for your Cat electric power products, all manufactured to original equipment specifications and recommended by Caterpillar.



# **COMPREHENSIVE RESOURCES AND SUPPORT**



# **ELECTRIC POWER** GENERATION

Industry-leading performance makes Caterpillar the preferred brand across industries. Ensuring your success and gaining your confidence in our products and services is our priority.

You need to meet deadlines and stay on budget. We're dedicated to customizing a power system for your specific needs, in any application.

# **POWER PLANT** IUCLEAR .0 DATA CENTER WASTEWATER TREATMENT PLANT GREENHOUSE LANDFILL HEALTHCARE RURAL UTILITIES INDUSTRIAL AND

#### ---- DATA CENTERS

#### Data Delivered When And Where You Need It.

It's your job to supply power to networks and systems so they can seamlessly manage the data that keeps our world moving. Discover Cat generator sets for continuous, standby, and temporary power, integrated with Cat UPS systems, ATS, and switchgear customized to fit your needs.

## DATA CENTERS



#### **CUSTOMER STORY: MOSCOW, RUSSIA**

#### **Reliable Power for Data Center Certified by** Uptime Institute.

DataSpace's Moscow data center was the first facility in Russia to receive Uptime Institute's international certifications for Tier III Design, Tier III Facility, and Tier III Operational Sustainability – Gold. Facility designers chose Caterpillar and Cat dealer Zeppelin Cat to supply the standby power solution that enables their customers to have uninterrupted access to their data.

#### SOLUTION

Six Cat 3516B diesel generator sets are configured to allow any of them to be serviced without shutting down the entire data center.



#### **CUSTOMER STORY: ALBERTA, CANADA**

#### Flexible Power And Diversified Strategy Nets Profits.

Demand for newsprint has decreased but Alberta Newsprint Company (ANC) continues to thrive with a diversified strategy and lean workforce. The rising cost of grid power prompted ANC to build its own power plant. When the price of power is high, the mill uses less power from the grid and excess power generated onsite is sold back to the grid at the higher price.

#### SOLUTION

The Cat power plant runs about 25 percent of the time, ramping up quickly to meet demand, netting ANC a profit.



#### - POWER PLANTS

#### More Than 4,500 MW **Installed Worldwide.**

Caterpillar is a leading developer of highly efficient power plants operating on medium speed generator set technology. We can support power plant output capacities ranging from 2 to more than 200 MW and operate on a variety of fuel options.

Caterpillar delivers medium speed natural gas power plants in 4 to 5 MW building blocks with combined heat and power options. Cat Modular Power Plants are delivered quickly with construction in as few as 12 days.



#### ----- INDUSTRIAL AND COMMERCIAL

You're trusted to power the places people work and our commercial generators offer world-class fuel efficiency and low life-cycle costs. Whatever your facility needs, we can customize a solution.

# **INDUSTRIAL AND COMMERCIAL**

#### Power That Works As Hard As You Do.



#### **CUSTOMER STORY: SÃO PAULO, BRAZIL**

#### **CHP Reduces Energy Costs, Improves Reliability.**

In São Paulo, large commercial facilities needed to reduce their grid electricity consumption to avoid rolling blackouts. When Rochavera opened a major commercial office and retail complex they turned to Ecogen and the support of local Cat dealer Sotreq. Rochavera's unique combined heat and power (CHP) system saves 6 million kW hours of energy consumption each year while reducing demand on the local grid.

#### SOLUTION

Two Cat G3520C gas generator sets rated at 2,055 kW of electrical power each and one 1,500 kW Cat 3512B diesel generator set for standby or peaking power.

## **HEALTHCARE**



#### **CUSTOMER STORY: DUBAI, UAE**

#### Integrated System For Emergency Backup And **Facility Power.**

The American Hospital Dubai (AHD) took on a massive expansion and needed a reliable, high-quality power supply for the hospital facilities and emergency backup power. AHD already had a strong relationship with their local Cat dealer and felt it was logical to select them to provide the power for the project. The Cat integrated system plays an integral role in ensuring the hospital provides quality, uninterrupted care, even during a power loss.

#### SOLUTION

Two Cat C175-16 diesel generator sets as standby power and a Cat 300 Series UPS (250 kVA) ensure continuous power generation in the event of an extended power outage.

#### - HEALTHCARE

#### **Designed To Be Trusted.**

You power the machines that sustain lives. Cat generator sets are powering some of the world's largest hospitals. It's essential to have a backup generator you can trust when the power goes out. We'll configure a power system to match the ongoing demands of your facility or additional temporary power in emergencies.

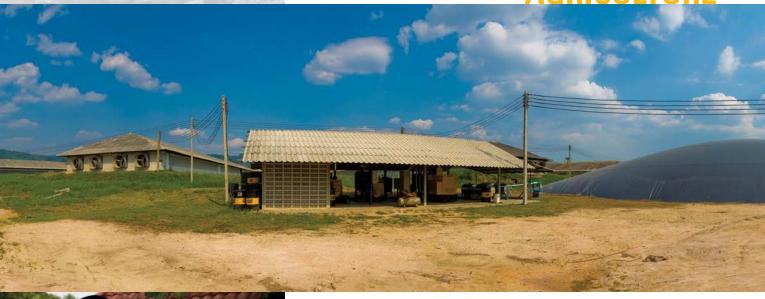
#### - AGRICULTURE

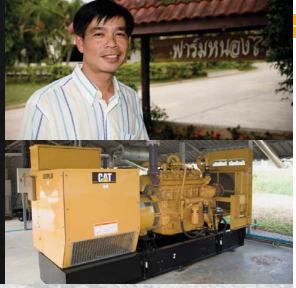
#### **Power To Sustain** Your World – And Your Operation.

Our standby and rental emergency generators help agricultural operations run smoothly during costly power outages. In addition to traditional power systems for agriculture, biogas-fueled generator sets turn what used to be waste into cost-saving fuel. Byproduct gases from agricultural, food processing, and industrial processes are captured to fuel generator sets, cutting input costs and reducing the release of harmful gases.



## AGRICULTURE





#### **CUSTOMER STORY: RAYONG, THAILAND**

#### **Biogas for Continuous Power.**

Nong Rai Farm wanted to tap its biogas resources for on-site power. The farm consumes 200 kW of power for blowers, drying systems, and other auxiliary use in its operations. Now their power plant is meeting all of the farm's electric power needs and saving 2.8 million baht annually that would have been spent on electricity from the local power grid.

#### SOLUTION

Two biogas-fueled Cat generator sets produce a total of nearly 200 kW; control panels and ATS ensure the power generated is distributed reliably and efficiently.

## MINING

#### **CUSTOMER STORY: AUSTRALIA**

#### **Reliable Power In Challenging Applications.**

Roy Hill is Australia's largest mining construction facility and home to the Marra Mamba iron ore deposit. Their mining project includes a mine, process plant, and heavy haul railway system. Cat dealer EPSA supplies power to this desolate and demanding environment with Cat power modules. EPSA and Caterpillar worked together on the customized design, generation technology, and delivery.

CAT

#### SOLUTION

30 Cat XQ2000 rental power modules, each containing a Cat diesel generator set installed in a 40-foot container, supplying all the needs for the port facility.

#### **Power You Can Run Into** The Ground.

When you need reliable, continuous power, temporary power, or a combined heat and power system far from any available grid power, count on Cat generator sets to keep your mining operation running. From the largest mining operations to the smallest quarries your Cat dealer will customize and install a system for your specific application. We engineer our generator sets to keep your operation running efficiently, while protecting the health of your crew and our environment.



#### ----- NUCLEAR



# **NUCLEAR**

#### **Producing The Safest Nuclear Power.**

For more than 90 years Caterpillar has been providing emergency and standby power generator sets. Decades of experience and the industry's broadest product range allow us to customize emergency and standby power to fit the specific needs of your nuclear power plant. Our nuclear industry experts advise, plan, engineer, deliver, install, and ensure continuous support. To ensure operation before and after a seismic disturbance, we perform certified tests and analysis to meet your most stringent nuclear standards. And we'll provide any necessary documentation and witness testing opportunities.

#### **CUSTOMER STORY: CZECH REPUBLIC**

#### **Czech Republic Improves Nuclear Plant Safety**

CEZ, operator of the nuclear power plants in the Czech Republic had to add new independent sources of emergency power following the post Fukushima stress test. Requirements like significant mechanical impact resistance, seismic qualification, and resistance against electromagnetic pulse had to be met. By installing Cat generator sets in customized containers in the Temelin and Dukovany NPP, CEZ benefited from significant cost savings and a very short and reliable implementation schedule. All four generator sets were installed and ready to operate less than one year after the order was placed, meeting stringent nuclear standards.

#### SOLUTION

Four C175-20 Cat generator sets protected by a customized container mounted on a concrete base, which was manufactured, delivered, and installed in less than 12 months.

## **GREENHOUSES**



#### **CUSTOMER STORY: ONTARIO, CANADA**

#### **CHP System Keeps The Flowers Blooming** Year-Round.

It takes a lot of energy to generate the necessary heat to grow flowers year-round. Rosa Flora, in Ontario Canada, accomplishes this with the aid of its own CHP system. They have always counted on their local Cat dealer and today the system achieves more than 90% efficiency.

#### SOLUTION

Two G3516 gas generator sets still on the job with over 80,000 hours. More recently, two G3520C and two G3516H generator sets have joined the team.

#### - GREENHOUSES

#### **Generator Sets That Grow Business.**

Get power engineered to cut costs and boost plant health. Cat CHP systems produce electricity for your operation while heating your facility. Fueled by natural gas, our CHP generator sets run at an efficiency of more than 90 percent. A Cat aftertreatment system filters exhaust gas, rich in carbon dioxide, to be used as plant root fertilizer. You can even sell excess energy to your local grid with our utility grade paralleling switchgear and controls.

### **Exceptional Power For Everyday Needs.**

You supply power to meet life's needs – lighting schools, powering homes, keeping offices in business. Cat stationary or temporary generator sets are cost-effective, reliable power to meet spikes in demand and keep power affordable for your customers.

## UTILITIES





**CUSTOMER STORY: BOA VISTA, BRAZIL** 

#### **Power In The Jungle.**

Boa Vista is separated from the rest of the country by the nearly impenetrable Amazon rainforest. Isolation from the national power grid, aging and failing equipment, and the region's increasing need for power made brownouts common and power rationing a necessity. Additional, reliable power was needed quickly.

In eight short weeks, a nearby substation was developed to supply more than 40 MW of power. For the long-term solution, a power plant was built, meeting requirements for low emissions, low noise, excellent voltage, and frequency control.

#### SOLUTION

32 containerized Cat 3516A and 3516B diesel generator sets.

# **RURAL ELECTRIFICATION**



#### **CUSTOMER STORY: MUSTIQUE, ST. VINCENT AND THE GRENADINES**

#### **Reliable Power, Natural Beauty.**

Ensuring power to an island community takes commitment and the most reliable equipment available. The vacation island of Mustique covers approximately 5.7 square kilometers and is completely powered by Cat generator sets.

#### SOLUTION

A C175-16 diesel runs continuously and the island's peak power need is met with the addition of one 3516 diesel generator set. Two additional 3516 diesel generator sets are used during routine maintenance and serve as standby units.



#### - RURAL ELECTRIFICATION

#### **Taking Power Where It's** Needed.

Today, more than 1.3 billion people lack access to electricity and billions more need a reliable grid for basic human needs including access to clean water, health care, lighting, and education. For 90 years, remote industry sites, villages, rural communities, and islands have depended on the power of Caterpillar for reliable energy, grid backup, and sustainable, continuous power.



#### ----- LANDFILLS

local grid.



### Unexpected Fuel For Everyday Power.

Power your world with sustainable practices. Cat generator sets are designed to collect, clean, and run on harmful gases produced by landfills. It's reliable power that's sustainable. Rather than eliminating landfill gas by simply burning it off, you can turn it into a renewable fuel with gas-fueled engine-generators that can produce electric power from landfill gas. Sell the power produced to your electric utility with our switchgear, including programmable logic controller (PLC)-based controls, paralleling your generator sets to the



#### **CUSTOMER STORY: QUÉBEC, CANADA**

#### **Renewable Power Generation.**

EBI Énergie Québec, Canada signed a 25-year agreement to produce 9.4 MW of renewable electricity using excess biogas not already being sold to into the pipeline. 4,500 standard cubic feet of methane per minute is pumped to the cogeneration plant where Cat biogas generator sets convert the gas to electricity. The generator sets operate at 99.9 percent availability and produce enough energy to power more than 7,000 homes. The company's relationship with their local Cat dealer was a key factor when developing the plan.

#### SOLUTION

Six Cat G3520C gas generator sets specifically designed to operate on biogas fuel, with a seventh unit serving as a swing generator; CHP, and switchgear.

## **TELECOM**



#### **CUSTOMER STORY: NAIROBI, KENYA**

#### Uninterrupted Coverage Across East Africa.

Nairobi-based Alan Dick East Africa serves Kenya, Tanzania, Rwanda, Burundi, Uganda, and Sudan, an area of more than 4 million square kilometres. The company has built thousands of mobile sites in the region. Because of the nature of the sector, zero-downtime is essential. Cat dealer Mantrac was selected to supply power generation equipment based on their extensive experience, the reputation of Cat equipment, and excellent product support.

#### SOLUTION

More than 600 diesel generator sets of various sizes from 8 kVA to 700 kVA, all in sound attenuated enclosures.

#### - TELECOM

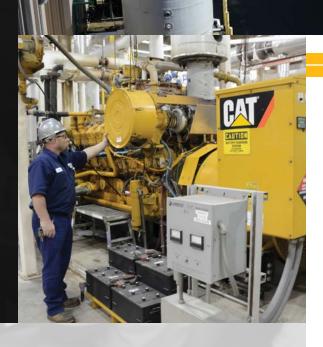
#### **Engineered For Extremes.**

With unmanned operations in remote locations you need a system you can rely on and easily access. Cat power generation equipment is made for non-stop power and customized by your Cat dealer team to meet specific site requirements. Our modular sound attenuated enclosures meet noise level regulations, deter fuel theft, offer protection from the elements, and still allow for easy repair and installation.

#### -• WASTEWATER TREATMENT PLANTS

#### **Using Waste Gas For Power Production.**

Gas generated by wastewater digesters used in the water treatment process can be captured and used to provide the plant with electricity and heat for the digester or other thermal loads. Methane-toenergy increases energy efficiency, reduces electricity costs, and decreases environmental impact. Cat low-energy fuel generator sets have a specialized tolerance to the contaminants in sewage gas fuels and your Cat dealer will help you design, install, and maintain your power plant.



#### **CUSTOMER STORY: ELIZABETH, NEW JERSEY, U.S.A.**

#### "Cogeneration Made The Public Utility Our Standby Power."

When Superstorm Sandy made landfall, the Joint Meeting of Essex & Union Counties wastewater plant in Elizabeth, N.J., never shut down. Throughout the power outage the treatment facility operated on power produced by its onsite cogeneration facility. Cat generator sets kept the facility going, to treat all of the raw sewage that entered the facility. The cogeneration plant is using all their waste gas plus saving \$2.2 million annually in electric power it would otherwise purchase from the grid.

#### SOLUTION

Three Cat G3516 generator sets run on either piped natural gas, or the methane gas from two large anaerobic digesters, and a fourth serves as standby for scheduled maintenance.



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Caterpillar is committed to your success, with lifetime support for every product we sell. The global Cat dealer network makes sure you have the service and support you need, anywhere in the world. From expert consultation and design, optimized efficiency and ROI to installation, commissioning, warranty, parts, and Cat financing options – we're built to keep the power on.

Contact your local Cat dealer today.

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#### Learn more at <u>cat.com/powergeneration</u>.

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