

CAT[®] HYBRID GENSETS FOR TELECOM

**Integrated Renewable
Energy Power for
Telecom Applications**




SOLAR PHOTOVOLTAIC • DIESEL • BATTERY

OUR PROMISE. YOUR POSSIBILITY.







For more than 85 years, Caterpillar has created products and services that support the world's infrastructure and, in partnership with the global Cat® dealer network, has helped drive positive and sustainable change on every continent. With hundreds of locations around the globe to serve and support our customer base — from the Antarctic to the desert to the jungle — Caterpillar designs, installs, and services power systems that reduce operating costs and significantly decrease fuel consumption.

HYBRID GENSETS BUILD ON A REPUTATION OF RELIABILITY

We're expanding our expertise and global service network to offer an integrated genset + energy storage hybrid solution for telecom sites. This new product, combined with Caterpillar PV modules for off-grid applications, is the ideal choice to save fuel, reduce emissions, and lower the total cost of ownership. Technical expertise, customer support agreements and maintenance contracts, as well as full access to our highly reputable global Cat dealer network are also available.

GENSET

ENGINE

Reliable, high performance Cat diesel engines power these gensets to deliver industry-leading fuel efficiency and product life. Integrated spark arresting silencer with flexible connectors is in a separate compartment. Service points are positioned for safe, easy access. All gensets are shipped with engine oil and coolant. An extended 1000-hour service interval is available with these engines.

ALTERNATOR

Designed to match performance and output characteristics of Cat diesel engines. Coastal Insulation Protection (100% protection against humidity); Self (shunt) excitation; Class H temperature rise.

VIBRATION ISOLATORS

Rubber and pad anti-vibration mountings isolate the tank base and control tower from the engine/generator assembly.

FUEL TANK

600 litre single- or double-skin; 1000 litre single- or double-skin fuel tank options.

GENSET CONTROL MODULE

The TCP 3000 is a sophisticated module monitoring an extensive number of engine parameters. The TCP 3000 will annunciate warnings, shutdown, and engine status information on the back-lit LCD screen, illuminated LED, remote PC, and audible alarms. The module includes RS232, RS485, and ethernet ports as well as dedicated terminals for system expansion.

ENCLOSURE

CONVENIENT ACCESS

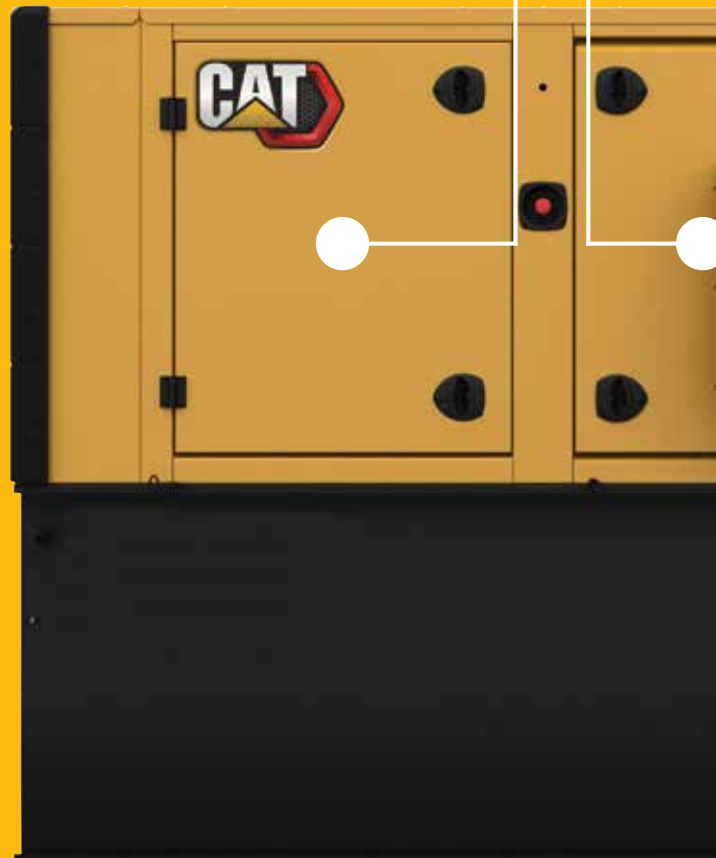
All regularly serviced parts are located on one side and covered by oversized hinged doors. A tower control with a full-height, hinged door and removable gland plate allows full access for cables. Fuel pipe installation is through dedicated access holes.

CORROSION AND DAMAGE RESISTANCE

Zinc phosphate and polyester powder coating. Air handling units and corner posts made from UV stable thermoplastic provide additional protection. All enclosures for this range have a base frame designed to overhang around the enclosure for maximum protection against handling damage.

NOISE ABSORPTION AND SOUND ATTENUATION

Noise absorbent materials help make our sound attenuated genset enclosures among the quietest on the market. Smart design minimises noise breakout for a range of sound levels start at 72dbA @ 1m.



DC POWER CONTROL

INTEGRATED POWER CORE

This is a rack mountable system with integrated DC load distribution, housing controller, solar chargers, and/or rectifiers. The system is flexible and can easily be upgraded to meet changing demands.

The 48V/24 kW DC power control unit is suitable for both on- and off-grid applications. The on-grid system comes with an automatic transfer switch as standard and the off-grid system has capability for solar chargers up to either 6 kW or 12 kW. DC power control is fitted with heat exchanger as standard. Air conditioning unit is optional.

THE CONTROLLER OFFERS:

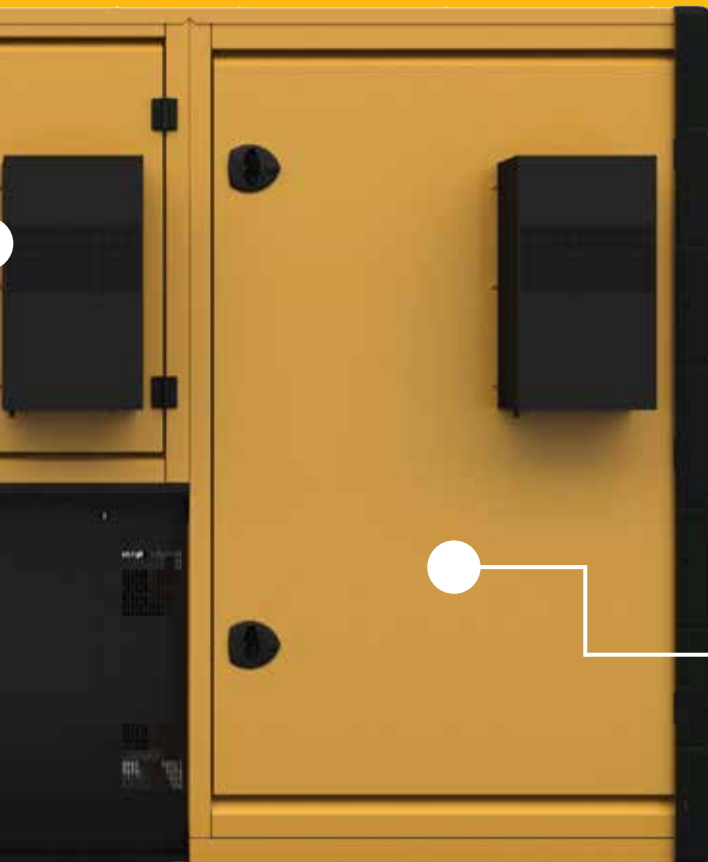
- Genset optimisation programs
- Fuel level, consumption, and theft monitoring
- Configurable data logging options
- Password protection and site cloning feature

48V 2 kW HIGH EFFICIENCY (HE) RECTIFIER

- 96.5% power conversion efficiency
- High power density
- Wide operating AC input range
- Wide operating temperature
- Power rating 2 kW

SOLAR CHARGER MODULE

- 96.5% power conversion efficiency
- Advanced Max Power Point Tracking routines
- Full galvanic isolation
- Wide operating DC input range
- Power rating 1.5 kW
- Full telecom specification



ENERGY STORAGE SYSTEM

The Caterpillar designed and manufactured battery compartment and racking provides capability to enclose either 24 or 48 battery cells. The compartment is cooled by natural convection and has an optional air conditioning unit. The compartment is flat packed for shipment.

ENERGY STORAGE 1 – 1000AH CELLS

- Max. working temp 25°C
- 4-year warranty
- 2700 cycles at 60% DoD

ENERGY STORAGE 2 – 1000AH CELLS

- Max. working temp 25°C
- 5-year warranty
- 4300 cycles at 60% DoD

PHOTOVOLTAIC (PV) MODULES

The Cat solar photovoltaic modules provide a proven performance advantage over conventional solar modules. Generating more energy than competing modules with the same power rating, the Cat modules deliver superior performance and reliability to our customers.

DRAMATICALLY REDUCE OPERATING COSTS

TODAY'S TELECOMMUNICATIONS NETWORK OPERATORS ARE ASKING FOR LESS.

Less fuel consumption.

Lower operating costs.

Fewer maintenance trips to the field.

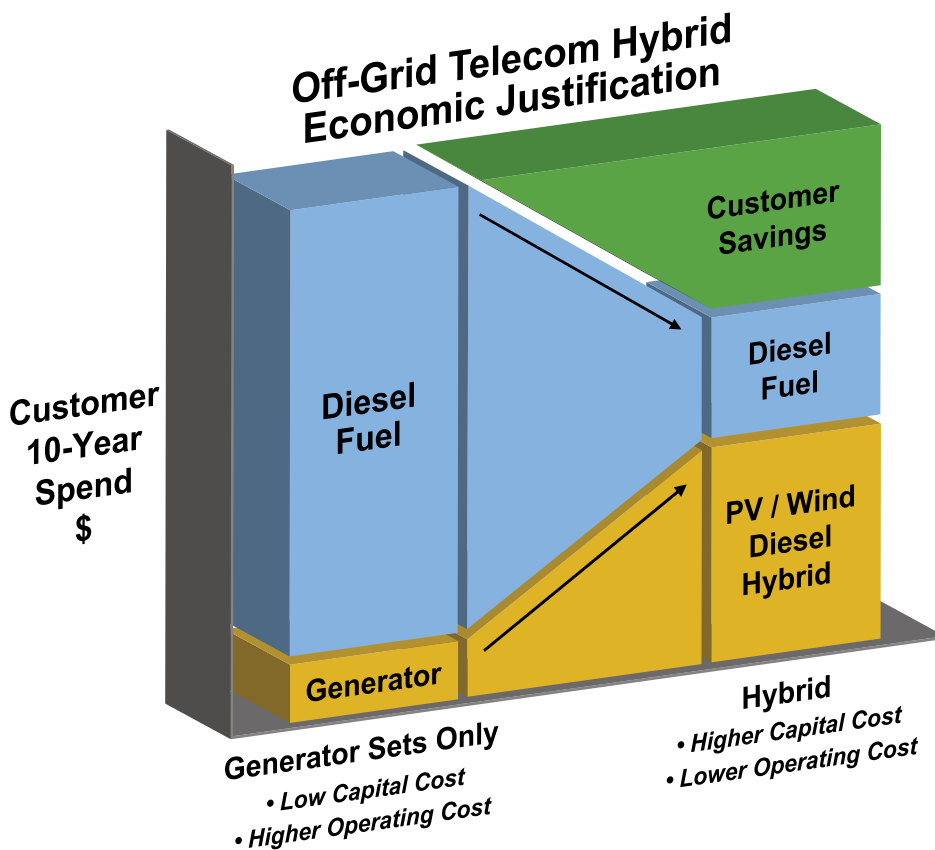
Hybrid power systems deliver the kinds of benefits telecommunications customers need. By optimising the usage of available renewable resources and operating the genset at peak efficiency points, hybrid power systems provide breakthrough reductions in total owning and operating costs, substantially decrease fuel consumption, and maximise system reliability. With a Cat telecom hybrid power system, your business has the potential to increase operating efficiencies and meet or exceed stringent environmental requirements.

Hybrids are particularly well-suited for applications in remote areas, where electric utility service does not exist. In comparison with the costs of grid extension or the high costs of fuel delivery to remote locations, hybrids can offer several benefits to telecommunications operators:

- Decreased fuel consumption by 30–100%
- Extended maintenance and replacement intervals
- Payback periods of 3 years or less in many instances

Cat hybrid systems offer the following features and benefits:

- Factory-built and factory-tested system for high reliability and site uptime
- Remote monitoring, control, and alarms
- Multiple, small components operating in parallel to enhance reliability (PV charge controllers, rectifiers, solar panels)





EVERYTHING YOU NEED

DEALER NETWORK

At Caterpillar, we know your business demands more than just quality products. That's why you can count on the Cat global dealer network to offer the additional resources, reach and know-how that add value to your operation.

CUSTOMER VALUE AGREEMENTS (CVAs)

CVAs are the most effective way of operating your hybrid power systems at peak performance. They greatly reduce the risk, disruption, and loss of revenue caused by unscheduled downtime. And they ensure that your service, maintenance, and repairs are performed by highly skilled professionals, giving you more time to concentrate on driving your business forward.

MAINTENANCE CONTRACTS

From analysis and assessment to the service agreements that take maintenance worries off your mind, your Cat dealer can supply the total support you need for maximum efficiency and peak performance.

FINANCING

Our experienced industry finance representatives understand Cat products and will help you get the most out of your investment.



A REPUTATION OF TRUST

Caterpillar believes in the success of sustainable progress. We continue to develop solutions to power a better world while minimising economic, social, and environmental costs.

Your local Cat dealer is committed to your success, offering a suite of support services. From expert consultation and design to ensuring optimised efficiency and RDI, to installation, commissioning warranty, parts, and financing solutions — we're built to keep the power on.

FOR MORE INFORMATION SEE THE FOLLOWING SPECIFICATION SHEETS:

LEHE1143-00 Cat® Diesel Generator Set

LEHH0584-00 DC Power Control System Cat® – Hybrid Gensets for Telecom

LEHH0585-00 DC Energy Storage Options Cat® – Hybrid Gensets for Telecom

Contact your local Cat dealer today. Go to www.cat.com/dealer-locator

LET'S DO THE WORK.™

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