

A photograph of a rural village built on a hillside. The houses are constructed from mud-brick with tiled roofs. The landscape is lush with green vegetation, including trees and tall grasses. The sky is overcast. A yellow banner is at the top of the page.

# PUTTING POWER IN REACH

**CAT® MICROGRID SYSTEMS –  
RURAL ELECTRIFICATION**





## RENEWABLE ENERGY FOR IMPROVED QUALITY OF LIFE

Today, approximately **1.2 billion** people live without access to electricity, the vast majority living in rural communities far from national or regional electricity grids. These communities are highly dispersed with low population density, potentially making it cost prohibitive to bring in electricity from centralized utility sources.

PROVIDING ELECTRICITY FOR BASIC SERVICES – LIGHTS, FANS, COMPUTERS, TELEVISION, AND PHONES – WILL HAVE A SIGNIFICANT IMPACT ON THE COMMUNITY.

- **Social benefits:** Computers and lights help children read and study. Fans bring comfort. Computers and television provide leisure activities.
- **Economic benefits:** Electricity can lead to more productive processes – from basic food preparation and storage to a reliable source of water. It can also lead to the growth of locally owned businesses.





## IMPLEMENTING RELIABLE, EFFICIENT POWER.

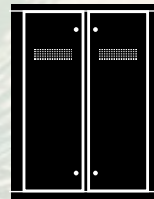
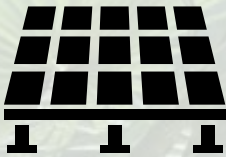
Up-front planning is essential to understand the community energy consumption and load profile. It's important to work with local experts to develop a product plan with the right mix of power sources with a plan for ongoing support. Financing options will help spread costs over time to help minimize initial costs and a comprehensive plan for management and maintenance of the system will ensure peak operation over the life of the system.

## A CAT MICROGRID OFFERS:

- **A range of products designed to work together to meet specific community requirements.**
- **Pre-engineered systems using factory validated components that can be rapidly deployed to remote areas.**
- **Easily expandable, scalable systems to meet growing community needs.**
- **Local support for design, site preparation, installation, commissioning, and training.**



# CAT MICROGRID COMPONENTS



## CAT ADVANCED SOLAR MODULES

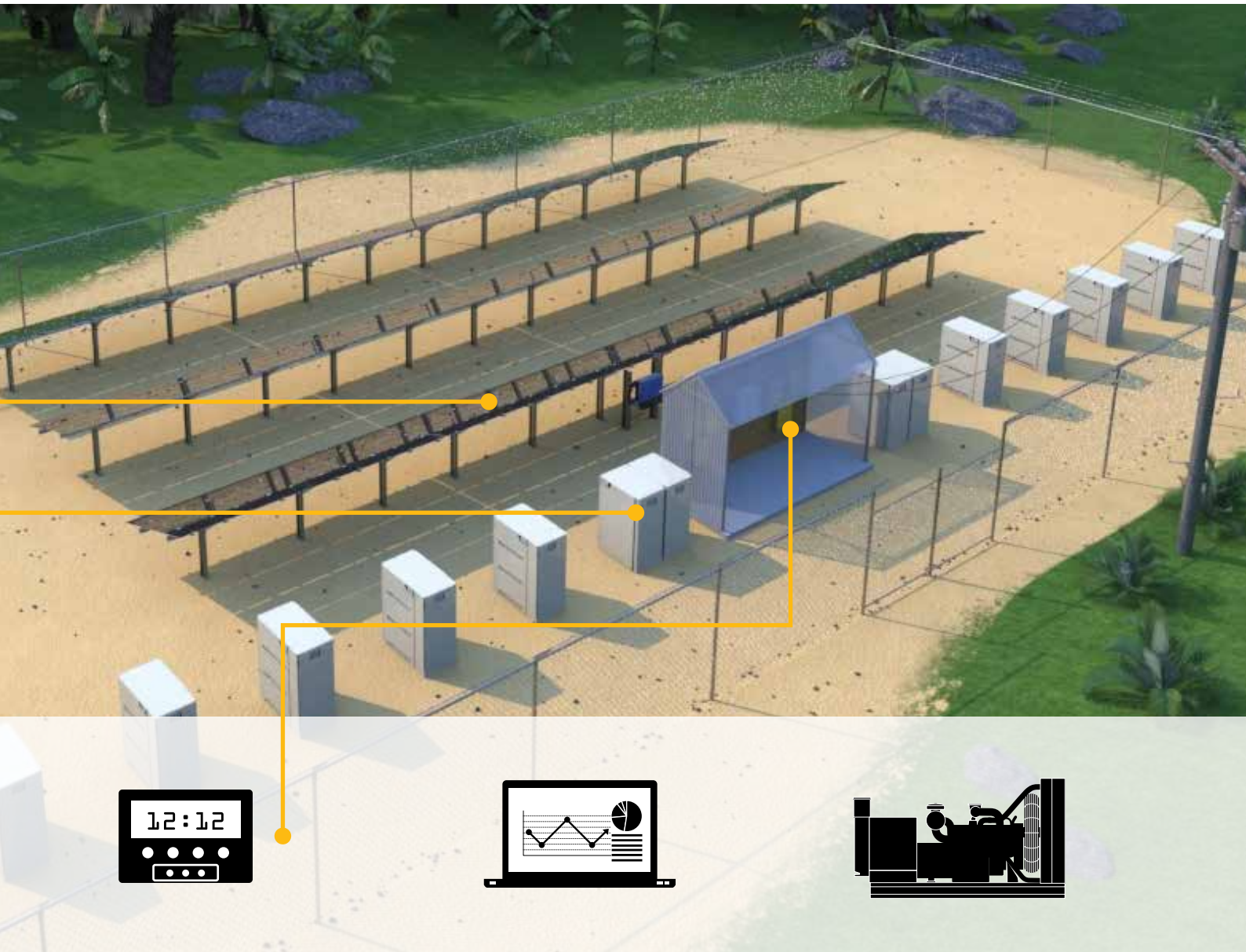
Microgrids are powered by advanced thin-film solar modules that are setting the industry benchmark with improved performance over conventional silicon solar panels.

- Reliable and predictable energy in all climates and applications, particularly in high temperatures, high humidity, extreme desert, and coastal environments where it generates more energy than multicrystalline silicon solar modules.
- Modules are independently tested to pass accelerated life and stress tests beyond industry standards (including Thresher, IEC, ISO, UL, CSI, MCS, CEC, and other international standards) and come with warranty protection.

## ENERGY STORAGE

A range of energy storage technologies will be matched to your specific requirements.

- The revolutionary rechargeable metal air battery system provides economical long duration energy storage with no cycle life limitations and broad ambient operation with no impact on battery life.
- Additional energy storage technologies, such as lithium-ion and ultra-capacitors, can also be used in combination with the metal air system to further extend the operating life of the energy storage system.



## CAT MICROGRID MASTER CONTROLLER (MMC)

MMC manages every source in the entire system to ensure the community loads are connected at all times in the most economical way available.

- Determines optimum recharge times for the energy storage systems.
- Manages power during times that solar energy is not available.

## REMOTE MONITORING

The complete system is monitored remotely using Cat Connect technology.

- Real time monitoring of performance and health.
- If an issue is detected, local technicians can be dispatched to resolve the problem.

## GENERATOR SETS (NOT SHOWN)

Caterpillar offers the industry's widest range of diesel, gas, and dual fuel generator sets that can be added as an option to the system to further increase the reliability of the power to the local community.



**PROTECT YOUR  
RURAL COMMUNITY  
POWER WITH  
EXPERT  
SUPPORT.**



## CAT DEALER NETWORK

Your Cat dealer is committed to cost-effective, quality controlled, fast turnaround service. Combined, Cat dealers have over 140,000 employees with more than 75 percent engaged in product support. Technical assistance is just a phone call away whenever and wherever you need it, to ensure the long-term reliability of your Cat power system.

## FINANCING SERVICES

Financing options offer you customized payment plans and competitive rates. We're in a better position than any bank or lender to value equipment and structure options: project or structure financing, leasing or general financing. We're working to make our financial proposal match your needs and fit your schedule.

## FACTORY WARRANTY AND PRODUCT COVERAGE

Every Cat Microgrid is backed by a standard factory warranty for all products. Coverage can be extended to protect 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, which can be customized to suit your individual needs, combined with simple pricing terms, provides confidence and peace of mind toward your power system's performance.

## CUSTOMER VALUE AGREEMENTS (CVA)

A CVA 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 needs and can range from simple preventive maintenance kits to sophisticated total cost performance guarantees. Your Cat dealer will help with careful planning and ongoing attention to help you succeed.

## PARTS AVAILABILITY

Your Cat dealer is equipped with a parts inventory and access to the global Cat parts network to fulfill most parts orders within 24 hours from the time of order. Your Cat dealer will work with you to develop the most cost effective parts stocking plan to ensure you are not required to carry unnecessary parts inventory on site.



## A REPUTATION OF TRUST

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

Your local Cat dealer is committed to ensuring optimized efficiency and return on investment with expert consultation and design, installation, commissioning, warranty, parts, and Cat financing. We're built to keep the power on.

[www.cat.com/microgrid](http://www.cat.com/microgrid)

**LET'S DO THE WORK.™**

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