

Stable Renewable Energy Supply in Disaster Situations

Pfisterer's CrossPower mobile hybrid energy system allows robust and scalable power grids to be created for the very first time from renewable energies anywhere in the world. The intelligent control system allows all types of available energy sources to be mixed and effectively balances energy generation and consumption. In emergency situations, mobile power grids can now be established quickly in less accessible areas, which are more independent from fossil fuels and the associated replenishment of supplies, resulting in fuel savings of up to 50 percent. At the 11th European Congress on Disaster Management in Berlin (from September 28 to 29, 2015), the system was presented to international participants from 40 nations.

Pfisterer's CrossPower mobile energy system, which comprises an energy management system and local generators, allows, for the very first time, any conventional and renewable energy sources to be mixed in isolated energy networks known as microgrids. This means that renewable energies can now be utilized reliably in any weather conditions to generate power in remote regions, areas of conflict, or refugee camps, for example. Until now, diesel generators were the only reliable energy source in such areas. Stable grids can be established by using intelligent power management and state-of-the-art components. Instead of lead acid batteries, for example, lithium ion technology is used. Combining wind turbine and photovoltaic systems with conventional diesel generators substantially reduces operating costs and consumption of fossil fuels, while at the same time, reducing the risk of supply on less accessible transport routes.

"The risky transportation of fossil fuels to areas of crisis is an enormous logistical challenge that poses some extreme dangers while also being very cost-intensive. At the same time, quickly establishing operating power grids is the foundation for the immediate stabilization of the situation, which could allow the population to remain in the area. The use of existing energy sources such as wind and solar energy brings immense benefits," explains Michael Keinert, member of the management board at Pfisterer Holding AG. The reduction of fossil fuels was on the agenda at the European Congress on Disaster Management for the first time. In areas of crisis, available energy is crucial for the supply of drinking water and for communication systems, for example. Without this, the population is usually forced to leave the area due to emerging social problems. Microgrids from renewable energy are a fast and efficient solution to replace missing or destroyed power systems.



Pfisterer's decentralized hybrid energy system, CrossPower, allows independent power from renewable energies to be supplied reliably to areas of conflict for the very first time.



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Flexible Energy Management for All Energy Sources

The CrossPower system comprises a central control unit and high-performance storage batteries to which any generator can be connected. Output is scalable from 25 kW to 5.000 kW. It is even possible to use available generators or connect to the existing energy networks. Intelligent energy management prioritizes renewable energy sources itself according to availability. The diesel generators cut in only as required to charge the batteries and always operate within their optimum output range. This reduces fuel consumption by up to 50 percent. The entire system has a touch-safe design and can be set up in the close vicinity of tents and operating facilities. Remote monitoring is also available for maintaining the CrossPower modules.

“The requirements for providing a reliable smart energy supply in remote regions and crisis areas are challenging. The systems have to supply power reliably around the clock, by utilizing energy sources available locally, and must be suitable for mobile deployment. And we have achieved precisely this,” explains Martin Schuster, Senior Advisor and Project Manager. Success hinges on interface management between the various power sources and consumers. Temporary energy networks can be built quickly and reliably without specialists through the use of modular components by Pfisterer.

Ready for Deployment

In June 2015, Pfisterer’s new Mobile Energy Management System already demonstrated its practical viability under realistic conditions during NATO’s Capable Logistician 2015 exercise in Hungary. The 25-kW system had a storage capacity of 60 kWh and provided a reliable supply of power to a range of central facilities such as operating theaters, cooling rooms, IT systems, and tent accommodation. Consequently, an order was placed to construct a mobile 150-kW plant. The developers are also already in contact with technical relief agencies.

“We shall continue to build such multifunctional, scalable, and mobile power systems, both for temporary use as part of disaster protection measures, but also for long-term use, for example, to supply remote settlements and small islands,” says Michael Keinert, member of the management board. “It is an ideal system wherever an independent, cost-effective, and reliable supply of energy from renewable resources is needed.”

About PFISTERER

PFISTERER Holding AG, headquartered in Winterbach near Stuttgart, with around 1,400 employees and an annual turnover of around 250 million euros, is one of the world's leading technology companies for system solutions and components in energy transmission. Established in 1921, this family-owned German-Swiss company is one of very few in the world to offer solutions for the complete transmission chain of low, medium, and high-voltage for outputs of between 110 V and 850 kV. The Group operates technology, distribution, and training centers at a number of locations in Germany and Switzerland; it has several manufacturing facilities in Europe, Argentina, and China, and is represented with sales offices in 19 countries throughout Europe, Asia, South America, and the USA. As an innovating force and supplier of key technologies with a complete range of products, as well as consulting, installation, and training services, PFISTERER AG is in demand globally as a partner for energy supply utilities, network operators, technology companies, rail transport operators, and other infrastructure companies.