# Study: Mining Companies Can Benefit from Renewable Energy

The mining industry can significantly reduce its diesel fuel consumption when developing new mineral deposits by using microgrids with renewable energy sources. This is the conclusion of a study on "Mobile Solar and Wind Diesel Hybrid Solutions for Mineral Exploration."

CrossPower, developed by Pfisterer, is a hybrid and mobile energy system for setting up microgrids combining conventional and renewable energy sources. It is ideal for the requirements of exploration teams and is also scalable for the stationary supply of entire mines.

Supplying power to remote exploration camps is a significant cost factor in mineral exploration. This is because diesel fuel for generators has to be transported over large distances, sometimes even by helicopter. Renewable energy has become much cheaper over the last decade — but conventional installations are designed for an operational lifespan of at least 25 years. This is incompatible with the short-term needs of exploration teams, who only ever explore for new mineral resources for a short period at one site. At such an early stage of the mining process, there is no guarantee of finding sufficient deposits to justify a commitment to substantial infrastructure with long-term obligations.

Pfisterer — the leading manufacturer of fittings and accessories for underground cables and overhead lines — and consulting firm THEnergy therefore conducted a study on "Mobile Solar and Wind Diesel Hybrid Solutions for Mineral Exploration" to investigate solutions that use the savings potential of renewable energy in the exploration process.


**CrossPower, developed by Pfisterer, is a hybrid and mobile energy system for setting up microgrids combining conventional and renewable energy sources. (Courtesy: Pfisterer)**

## MOBILE MICROGRID CONTAINER

"Exploration companies want power solutions that are reliable and can be used at more than one site," said Martin Schuster, senior adviser at Pfisterer. "Military applications have similar requirements. Our system won a highly coveted NATO contract and has already been successfully used for the NATO Energy Security Centre of Excellence."

The CrossPower Small Grid (SG) energy system Pfisterer developed for mining exploration is based on the same CrossPower technology. Transportable microgrid containers that are easy to install and remove form isolated energy grids combining photovoltaics and wind turbines with conventional diesel generators.

## RELIABLE AND ECONOMICAL

CrossPower combines hybrid power generation with an intelligent management system. This guarantees a highly reliable power supply even on a cloudy or windless day. Modern lithium-ion batteries store the renewable energy, which is automatically prioritized by the management system. Diesel generators charge the batteries only as required, and

therefore operate in their optimum output range. This cuts fuel consumption by more than 50 percent and makes the system remarkably efficient.

Since much less diesel is needed, the number of cost-intensive fuel shipments is reduced at the same time. Moreover, the entire system is based on touch-safe design and can be sited in the close vicinity of tents and equipment.

### SCALABLE SIZE

CrossPower is available in different sizes, tailored to customers' individual needs. These range from mobile systems for exploration teams to the stationary CrossPower Large Grid (LG) with a power of 5,000 kW and more, which even enables entire mines to be powered. The system is always designed for easy transportation in containers.

Each facility's final system design depends on the level of the output power and is always geared toward the customers' individual requirements. This applies to the energy mix as well as the size and number of containers.

*Source: Pfisterer*

For more information, go to us.pfisterer.com

## New Version of FluidScan Handheld Infrared Oil Analyzer Released

Spectro Scientific, one of the world's largest suppliers of oil, fuel, and processed water analysis instrumentation and software, has introduced Version 5 of its FluidScan® portable infrared oil analyzer technology. FluidScan oil chemistry analysis enables users to determine when oil is no longer fit for use due to liquid contamination or other degradation. Lubrication abnormalities are a major cause of equipment downtime and failure.

FluidScan Version 5 includes a variety of new features that improve performance and enhance user experience. The new version of the patented FluidScan technology lowers limits of detection (LODs) on total water measurement for turbine oils from 1,000 ppm to 300 ppm, boosting analysis sensitivity and accuracy.

The new FluidScan oil library doubles in size from 300 oils to more than 700. The enlarged library facilitates analysis and matching of more than 97 percent of the oils Spectro customers reported using over the last 12 months. Measurement stability is reinforced by a new infrared background measurement function.


**The FluidScan Version 5 includes a variety of features that improve performance. (Courtesy: Spectro Scientific)**

In regard to ease of use, Spectro has modified key functions such as data viewing and matching to increase analysis speed by four times compared to previous versions. A new data synchronization function enables users to manage data simply and reliably, and enhancements in software and firmware updates assure a streamlined upgrade process.

FluidScan analysis provides direct, immediate measurement of water, total acid number (TAN), oxidation, glycol, total base number (TBN), and other parameters via Spectro's patented Direct Infrared Spectroscopy (DIR) technology. DIR operates without wet chemistry and requires no solvents; only one drop of oil is needed for analysis.

The onsite analysis capability of FluidScan technology eliminates the wait associated with outsourcing laboratory analyses. The results highly correlate to TAN and TBN laboratory tests conducted with ASTM D664 and D4739 titration methods and water tests with the ASTM D6304 Karl Fischer Titration method.

FluidScan V5 is an element of Spectro's comprehensive MiniLab™ suite of fluid-analysis systems. FluidScan's ability to provide direct quantitative measurement of a fluid's condition plays an important role in machine condition monitoring for proactive and predictive maintenance programs. Such programs provide critical protection of key capital assets.

Together with the FluidScan V5 release, Spectro also released software and firmware updates for the rest of the MiniLab system, including SpectrOil 120C, LaserNet Fines Q230, and the SpectroVisc Q3050 portable viscometer.

"This new version of FluidScan illustrates Spectro's continuing effort to develop and upgrade its products and increase their utility and usability for our customers around the world," said Spectro President and CEO Brian Mitchell.

*Source: Spectro Scientific*

For more information,
go to www.spectrosci.com

## Antaira Develops Compact Unmanaged Gigabit Media Converter

Antaira Technologies, a leading developer and manufacturer of industrial device networking and communication product solutions for harsh environment applications has developed a compact IMC-C1000-SFP series.

Antaira Technologies' IMC-C1000-SFP series is a compact IP-30 rated gigabit Ethernet-to-fiber media converter featuring a simple plug-and-play connectivity solution to quickly convert between Ethernet media and fiber optics. The small form factor of this metal casing switch is 30 percent smaller, allowing for a more versatile implementation. It is designed to fulfill industrial applications that have small space requirements and need high bandwidth capabilities such as factory automation, security, ITS transportation, power/utility, and water wastewater treatment plants. This device also works well in any other outdoor application susceptible to an extreme ambient weather environment.


**Antaira Technologies' IMC-C1000-SFP media converter. (Courtesy: Antaira)**

The IMC-C1000-SFP series features a 10/100/1000TX Ethernet port and a dual rate 100/1000 SFP slot to support speeds up to 1,000 Mbps. There is a built-in "Link Fault Pass Through" (LFP) and "Far End Fault" (FEF) function to alert users when a fiber link TX or RX connection is lost, and the media converter will cut off all Ethernet connections. It provides 12~48VDC redundant power input support with a reverse polarity and overload current protection. It comes with DIN-rail mounting support as well as wall mountable orientations.

This series provides wide operating temperature range models for either a STD: minus-10° C to 70° C or an EOT: minus-40° C to 75° C. These units also have high EFT, surge (2,000 VDC), and ESD (6,000 VDC) protection to prevent against any unregulated voltage. The compact size and lightweight design has dimensions of 26 mm (W) x 75 mm (D) x 95 mm (H) and a unit weight of only 1 pound. Lastly, it is backed by a five-year warranty from Antaira Technologies.

*Source: Antaira Technologies*

For more information,
go to www.antaira.com

## Portable Metals Analyzer Offers Advanced OES Tech in an Easy-To-Use Unit

Spectro Analytical Instruments recently introduced the new Spectroport portable Arc/Spark Optical Emission Spectrometry (OES) metals analyzer that delivers advanced OES technology in a unit that is as easy to use as a handheld analyzer.

Spectroport delivers many advantages of Spectro's flagship mobile Spectrotest OES analyzer in a smaller, lighter unit featuring point-and-shoot performance — for fast, ready response; flexible portability; intuitive ease of use; and minimal standardization efforts.

Spectroport is as fast as a handheld XRF, with many analyses taking only a few seconds. But unlike handheld XRF, it accurately analyzes elements such as carbon, sulfur, phosphorus, boron, lithium, beryllium, calcium, silicon, magnesium, and aluminum at low and critical levels. Its new optical system covers a wide range of elemental wavelengths, displaying excellent precision, stability, and robustness without additional heating.

Spectroport offers flexible options to maximize mobility, including large and small transport trolleys plus portable batteries. For testing in difficult-to-reach places — such as analysis of installed or small parts, thin wires, curved surfaces, or concealed welding seams, or for infrastructure control tasks — Spectroport can be used cordlessly with a rechargeable battery pack.

Data management with Spectroport is flexible and comprehensive. Advanced tools accurately and definitively verify, record, and document complete testing results. Data can be delivered to a wide variety of devices via WebApp and PC connections from WLAN/LAN to USB.

Spectro's Spark Analyzer Pro software enables Spectroport users to quickly and easily define different testing modes, sample identification fields, and more. New preset applets perform much of the work — and eliminate most errors. Simplified, predefined operator views eliminate unnecessary selections. Users are presented with clear choices for tasks such as pass/fail sorting and grade identification, via dedicated toolbar buttons.

Moreover, the need for repeated calibrations and their resulting delays are eliminated with predefined calibration packages and the new Spectro-exclusive iCAL 2.0 calibration logic system, which also helps maintain the same standardization regardless of most temperature shifts.

Amecare services, available to Spectroport users, help ensure uninterrupted performance and maximum ROI over the life of Spectro spectrometers. Optional machine-to-machine (M2M) support allows proactive alerts, backed up by client connection with a remote Spectro service expert's PC.

Spectroport is surprisingly affordable, features a continued low cost of ownership, and delivers all the reliability of Spectro, the leader in metals analysis, with more than 40,000 spectrometers worldwide. Spectroport is available immediately from Spectro Analytical Instruments.

**The new Spectroport portable Arc/Spark Optical Emission Spectrometry metals analyzer. (Courtesy: Spectro)**

*Source: Spectro*

For more information,
go to www.spectro.com/spectroport