

APR ENERGY HELPS SOLVE PERU'S DROUGHT-CAUSED HYDROELECTRIC POWER SHORTAGE

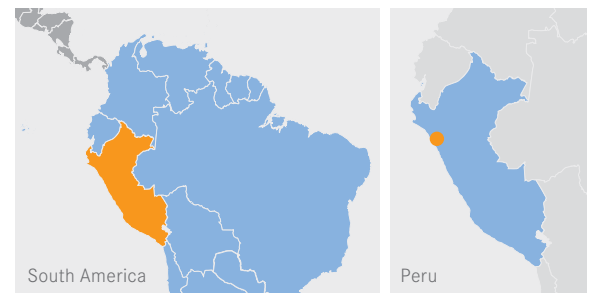
MTU ONSITE ENERGY GENERATORS OFFER 60 MW OF STANDBY EMERGENCY POWER



// **Who:** APR Energy

// **What:** Fast-tracked emergency power system utilizing 40 MTU Onsite Energy diesel generators with 60 MW total capacity

// **Where:** Trujillo, Peru, South America



Peru is dependent on numerous hydroelectric generating facilities fed by rivers flowing down from the Andes. Indeed, the country gets upward of 80 percent of its power from this source. However, prolonged drought conditions over the past few years have severely affected the production of hydroelectric power in northwestern Peru. Consequently, the country has to find ways to supplement its electricity generation.

As a temporary prime power solution, Electroperu S.A., the government-owned national utility in Peru, contracted with APR Energy of Jacksonville, Florida, to build a 60 MW diesel plant near Trujillo, Peru's third-largest city. APR Energy chose 40 diesel generator sets from MTU Onsite Energy to provide 60 MW of emergency replacement power for the country's electric grid.

A fast-tracked project

APR Energy specializes in customized turnkey power solutions and is a recognized leader in the emergency rental power industry. Due to the emergency nature of many of the services the company provides, many of its power projects need to be fast-tracked. Thanks to the availability of MTU Onsite Energy generator sets, APR Energy was able to meet the project's contractual lead time.

"The delivery of the generators was always on the schedule's 'critical path.' However, we were still online on time," says Paul Marcroft, vice president of sales and marketing, APR Energy. "We have had extensive experience using MTU generator sets, and we've found that they provide the reliability and performance that our projects require."

In sizing the generator sets for the project, APR Energy varies their output ratings depending on site conditions, such as temperature, altitude and operating parameters. "For this specific project in Peru, the 40 power modules are rated so that several units can be held in reserve as standby generator sets, while the other units collectively deliver 60 MW. This way, with the units running from 12 to 24 hours a day, we have the flexibility to perform periodic maintenance without affecting the total output," Marcroft says.



MTU Onsite Energy generator sets for APR Energy's Peru project feature the advanced MTU Series 4000 diesel engines.

Diesel technology offers fast delivery, high efficiency

In addition to utilizing its remaining hydroelectric capacity, Peru is running a number of natural gas peaking plants to keep up with electrical demand. But even with the country's ample natural gas supplies, diesel generators were chosen for this project over gas turbines due to the rapid availability of diesel units, the ease of setup and the excellent fuel efficiency that diesel engines offer. All of the diesel units for Trujillo are new MTU Onsite Energy generator sets that were packaged into standard ISO containers by Enercon Engineering.

The 40 generator sets are powered by the MTU Series 4000 diesel engine, one of the most advanced diesel engines in the world today. The Series 4000 generator drive engine is a 16-cylinder, fully electronically controlled diesel engine with advanced turbocharging and high-pressure common rail fuel injection that delivers excellent fuel economy. In prime power generation applications, the engine is rated at 2,709 hp at 1,800 rpm and has up to 20 percent more cylinder displacement than comparable engine-generator combinations. This results in unexcelled transient response and greater frequency and voltage stability.

The Trujillo plant is being operated and maintained by a team of technicians from APR Energy and a group of APR-trained Peruvian workers. The team gets additional service and factory support from MTU Onsite Energy. The project was initially contracted to supply supplemental electricity for 18.5 months. In the meantime, Peru will be relying on this temporary power solution from APR Energy until normal precipitation returns and hydroelectric capacity is restored.

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/ // / Paul Marcroft, APR Energy

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MTU Onsite Energy is a brand of Rolls-Royce Power Systems AG. It provides diesel and gas-based power system solutions: from mission-critical to standby power to continuous power, heating and cooling. MTU Onsite Energy power systems are based on diesel engines with up to 3,400 kilowatts (kW) power output, gas engines up to 2,150 kW and gas turbines up to 50,000 kW.

