

FROM THE AMERICAS TO AFRICA

Mobile fast-track generation is a powerful engine for mining

Despite being one of the world's leading silver producers, with an output of 21.3 Moz in 2016, the success of precious metals producer Tahoe Resources' Escobal mine, has been challenged since beginning commercial operation in 2014 by its remote location in a largely agricultural region in southeast Guatemala. With no access to the national grid, the mine has relied on mobile fast-track power to supply the required 15.5 MW of generating capacity for its operations, the US-based power generation solutions provider tells **MINING REVIEW AFRICA**.

APR Energy provided the solution in the form of 14 mobile diesel reciprocating engines with a combined capacity of 23 MW and a transformer station, installed over a three-week period.

According to APR Energy's plant manager at the facility, Luis Ayerdi, the largest consumers of power at the mine are the 4 500-horsepower ball mill and the ventilation plant. "The ball mill and the ventilation plant are in operation around the clock to maintain production levels, which means that the generation facility is also under pressure to deliver an uninterrupted supply," says Ayerdi.

APR Energy's customised solution for the Escobal mine includes engineering, design, installation, operation and maintenance of the entire facility, which, Ayerdi points out, are vital components to the mine's continued success.

"Outsourcing these functions frees up capital and skilled labour that the mining company can redirect elsewhere. At the same time, the local economy still benefits from jobs creation, since we hire most of our operations and maintenance employees from the surrounding community."

Escobal mine has also been able to reduce its operating costs, thanks to enhancements introduced by APR Energy. "We were able to identify ways to save money by upgrading our equipment and improving our power output without increasing the cost," says APR Energy regional sales director Tirso Selman.

Applying past successes in Africa

Paul Marcroft, global sales VP at APR Energy, believes the lessons learned and challenges solved to ensure reliable generating capacity for the Escobal mine can be applied to power generation for African mining projects.

APR Energy provided 14 mobile diesel reciprocating engines with a combined capacity of 23 MW and a transformer station to Tahoe Resources' Escobal mine



Power plant control room

Over the past decade, the company has installed more

than 1 000 MW of generating capacity in 11 African countries – including power plants for Vale's Moatize mine in Mozambique and Discovery Metals in Botswana.

Mobile fast-track power as a solution

"The first thing to note is that fast-track power solutions can be delivered to even the most remote and geographically challenging locations. The Escobal mine, for instance, is located in mountainous jungle terrain where the elevation ranges from 1 300 m to 1 800 m above sea level," he says.

Of course, on-site power generation needn't be restricted to off-grid projects, Marcroft adds.

"Mines located within reach of their national power grids do not always have reliable electricity. Utilities in emerging economies are under mounting pressure to provide enough power for communities, which leads them to cut supply to mines. Recently the Zambian government cut its supply to some of the larger mines in the region by 20% to 40%," he says.

"On-site generating capacity can provide back-up power for mines that are connected to an unreliable power grid. The ability of the mobile generating equipment to reach full power in only a few minutes allows mining production to continue uninterrupted and safeguards mining companies whose lives depend on electricity for ventilation and dewatering," Marcroft adds.

Speed of installation

Another important consideration is that mobile power plants can be installed and operational in 30–90 days to provide electricity during initial exploration and development. Then, as a mine transitions into production, these modular plants are scalable, allowing generating capacity to expand to meet the requirements of a fully functioning mining operation.

"This speed and scalability is in stark contrast to what many remote mines face, as they wait for transmission lines to reach their site or for construction of permanent generating capacity to serve the mine. The ability to generate revenue in weeks rather than years is an enormous benefit for an industry that is finally seeing a rebound in commodity prices," Marcroft explains.

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Switchyard at the APR Energy power plant in Guatemala



Mobile fast-track power offers a third benefit: flexibility. "When a mining operation builds a permanent, on-site power plant, its future options are limited if environmental and emissions regulations change or if the fuel used to power the plant becomes scarce or more expensive," Marcroft says.

A range of solutions on offer

"A company like APR Energy can provide a range of power technologies that include the diesel reciprocating engines – plants typically offered by fast-track companies – as well as fuel-flexible aeroderivative turbines that can switch seamlessly between natural gas, diesel and LPG depending on cost and availability," he explains.

"Mining customers also have access to solar hybrids that offer the low-cost, sustainability and emissions benefits of renewables plus the security of diesel-fired backup power when the sun goes down."

Opportunities in Africa

Marcroft believes that mobile fast-track power could help jumpstart mining production – and economic growth – throughout much of sub-Saharan Africa. "In March, the World Bank reported that there are currently many opportunities for Malawi's mining industry, and potential sites for gold, base metals and hydrocarbons are being explored. Unfortunately, Malawi struggles with unreliable power supply and limited grid access," he says.

"The Democratic Republic of the Congo faces similar power shortage as mining companies try to ramp up copper production," Marcroft adds, "and Mozambique is seeing an increase in demand for reliable power for its coal mining projects, as well as for industrial sites that have been established in and around high-growth regions.

"The fact is, there are many countries in the region where mining companies are dealing with power generation issues."

A final – and perhaps most compelling – benefit of mobile fast-track power is that it enables mining companies to avoid large capital investments and long-term financing to build permanent power plants.

"Fast-track power generation is treated as a monthly operating expense that includes a fixed cost for access to the generating capacity and a variable cost for the power consumed. There is no large-scale, long-term commitment, other than providing the land for the generating equipment and the fuel to run the power plant," Marcroft says.

"Mobile fast-track power generation definitely has a role in growing the economies of developing countries, and that's doubly true across sub-Saharan Africa, where mining is such an important economic engine – as long as it has access to reliable power," Marcroft concludes. "And by outsourcing generation, mining companies can get out of the power business and focus on what they do best." **MIRA**