



Mining Companies Turn to Solar for Solutions

"I like to use Morningstar because it's robust and reliable."

Ricardo Rlghi Reis

Owner
Trailers RD-Minas

Summary

- Mining companies increasingly rely on solar energy to generate electricity at remote sites.
- Because mining sites operate 24/7, they need reliable surveillance, communication and lighting services for secure, continuous operation.
- Mining project managers selected Morningstar controllers for their high quality, outstanding service, and availability.

Situation

As the largest economy in Latin America and the ninth largest in the world, Brazil is a Southern Hemisphere economic powerhouse that relies heavily on mining. Gold, copper, tin, iron, bauxite and gemstones top the list of items extracted from Brazil's mines and directly drive its economy.

In order to ensure its expansion and growth, the Brazilian mining industry is increasingly turning to solar power to support its mining operations. Powering these can be a challenge—a mine has inherently high energy consumption due to the heavy equipment, lighting, and safety and ventilation required. Add to that the fact that mines are usually in very remote locations and pose safety concerns with either no or unreliable grid access. Often mines have to rely on noisy, emissions-producing diesel generators with their significant fuel and maintenance costs to supplement their on-site electrical consumption.

Replacing diesel generators and augmenting unreliable grid power with local renewable energy sources has the potential to greatly reduce mining operation greenhouse gas emissions as well as costs, by reducing or eliminating production delays due to load shedding and power outages. Which is why mine operators across Central and Latin America, and especially in Brazil, are increasingly turning to solar electricity to take advantage of the regions' abundant sunshine and harvest the electricity required locally, cleanly and more cheaply.



Project

One firm specializing in renewable applications for mining is Trailers RD-Minas, a company based in Belo Horizonte, Brazil. Trailers has 17 years of design, manufacture and assembly experience in developing solutions for mining companies in the areas of dispatch, data networks, cameras, and lighting. Their engineered solutions are renowned for improving worker safety and performance while also reducing maintenance costs.

In order to develop energy systems with the long-term dependability and performance demanded by mining operators, Trailers specifies Morningstar solar controllers in their projects, specifically the TriStar MPPT-60, TriStar Meter-2, ProStar MPPT-40 and SunSaver-MPPT-15 solar controllers. In fact, Morningstar components are installed in over 30 separate Trailers mining, construction, road, and airport sites throughout North America, South America and Africa, in projects including mobile radio repeaters, mobile surveillance cameras, and mobile light towers.

Solution

Mobile radio repeater trailers provide customers with real-time view of the status of their solar panels, batteries, operating cycle and position, at remote locations. This greatly facilitates maintenance and avoids unnecessary shifting and/or allocation. These specially designed and constructed trailers feed into the AC network and are mounted with a generator, air conditioning thermal insulation and battery banks. A typical trailer's chassis might accommodate 8, 14 and up to 20 deep cycle batteries rated at 110Ah to provide sufficient autonomy in remote applications.

For on-site lighting, mining operations use mobile light trailer towers with high efficiency LED spotlights powered by batteries recharged with solar panels and sometimes a wind turbine-powered generator (an option offered for regions with sufficient high wind). These lighting trailers are automatic, and do not require an operator to turn on at night or turn off in the morning. When fully automated, a tower can operate for 28 hours without incident of sunlight, over a day of autonomy. They are ideally suited for use in mining, maintenance stations, workplaces and other locations that require illumination for safer work at night. Unlike conventional diesel lighting trailers, Trailers RD-Minas' designs do not require fueling, filter replacements, belts, lubrication and other maintenance items – or even frequent bulb replacements, since the LED spotlights can last about 50,000 hours.

It's been said that all the riches in the Earth originated in the Sun—and if so, then there's poetic justice in tapping directly into the sun's power to more efficiently, safely and cleanly extract them. Minas' engineering combined with Morningstar's technology is rapidly improving one of the world's oldest industries to ensure that Brazil and other developing countries maintain their economic momentum.

