

# 15.6 Million People Get Access to Electricity in Brazil Through Renewable Energy

"The success of the Light For All' project is paramount to the progress and prosperity of the citizens of Brazil. The SureSine's [inverter] rugged enclosure with no internal cooling fan ensures long-term reliability even in the harshest conditions," said Sergio Beninca, President of Kyocera Solar Brazil."

## Summary

- Installing solar power systems in rural homes and communities in Brazil provides electricity to many millions of people
- Solar electric system installations have the potential to reduce poverty and improve living standards by creating opportunities in areas such as health, water supply, employment, sanitation and improved educational facilities
- Morningstar ships some 20,000 SureSine inverters to Brazil to support the program

## Situation

In November of 2003, 10 million people residing in Brazil's rural areas were without access to electricity, with approximately 90% of them living below the poverty line. That meant they lived without basic amenities others take for granted, such as electronics devices, refrigeration, and lighting, in homes, schools and health clinics.

Worldwide, this lack of electricity in rural areas is the single biggest impediment to economic growth and contributes to isolation for many communities. For this reason, many countries have adopted ambitious rural electrification programs specifically designed to eradicate this "electrical poverty" and lift rural residents into a higher standard of living than previously possible.



## Project

The “Light for All” program was launched in 2003 by the Brazilian federal government. Coordinated by the Ministry of Mines and Energy, the program was established to deliver electricity to families in rural areas. Besides covering the equipment costs and installation fees, the program provides citizens with the necessary materials and training to operate and maintain the renewable energy installations in their communities.

The electrification program also reaches indigenous areas, including those difficult to access in the Amazon region. Challenges include transporting heavy equipment such as electrical mounting poles on boats to less accessible regions as well as passing electrical cables through rivers crossing them.



## Solution

To convert the solar-generated electricity to AC and deliver off-grid AC power to run electrical loads in rural households in remote locations, twenty thousand Morningstar SureSine inverters were installed with 160W solar/photo voltaic (PV) modules. The SureSine inverter was particularly well-suited for the task. It's a sealed design requiring no cooling fans which can fail over the long term and shorten the life of internal components by sucking in dust and dirt. It's ruggedized and encapsulated to withstand harsh conditions. And it is “fault tolerant,” with built-in protection circuitry better able to resist damage caused by installer or user error—an important consideration with very remote locations and novice installers and users well beyond the reach of traditional service and support.

Following these solar electricity residential installations, it is estimated that 81% of these families who were now able to access AC power purchased new TV sets. In addition, 71% of them bought refrigerators and 62% acquired cell phones. For the first time, many rural residents experienced the relative luxury of being able to read at night, watch a TV show, listen to music on the radio, or enjoy a cold drink.

The comprehensive Light for All electrification project enhanced and improved public services, education and welfare, employment and income. By May 2016, 15.6 million Brazilians had benefited from the program and over 485,000 jobs were created. This unqualified success led to the program being extended into 2018 with the goal of bringing another million citizens literally out of the dark.