

GRID Alternatives create free reliable solar energy

## Larger Capacity System Keeps Health Clinics Operating

“We chose Morningstar equipment for this project because we needed a product that was cost-efficient but did not compromise on quality. Morningstar products are built to last—a critical requirement when building communities.”

**Jenean Smith**

Director of International Programs  
at GRID Alternatives.

## Situation

In 2000–2001, California was marred by a severe energy shortage, causing rolling blackouts that shut down schools and businesses, ground traffic to a halt and sent residents scrambling for reliable food and shelter. Low-income residents—without access to financial safety nets—were the hardest hit by the crisis. While policy makers debated regulations, two engineers devised a more immediate solution to eradicate the electrical poverty created by the energy crisis.

GRID Alternatives was launched to create access to free reliable solar energy in low-income communities, while also providing job-training in an industry where demand for skilled professionals is on a seemingly endless upward trajectory. Decades of success in the US led the program to expand its reach globally. As GRID Alternatives expanded its footprint, Mexico, Nepal and Nicaragua were a natural fit for the community-based program. With its expansion into developing countries came new challenges, and a need to design systems that are still inexpensive and reliable, but can also withstand challenging climate and geography. For systems in Mexico and Nicaragua, GRID Alternatives turned to Morningstar products.

## Project

For isolated, rural communities, electrical poverty is not a temporary situation; it is a daily way of life. Without access to an electrical grid, residents depend on expensive kerosene generators for electricity. The simple act of charging a battery or phone may take days, as residents must travel long distances to access charging stations.

Without reliable power, health clinics are unable to provide more than the most basic level of care. Local health care providers cannot use medical equipment that requires electricity, and there is no refrigerator to store medications or vaccines. Without basic medical care, minor medical issues can quickly escalate to life-threatening emergencies, making the long journey to a hospital even more dangerous.

Working with local leaders, GRID Alternatives identifies communities that are most in need of access to renewable energy sources, and develops community-supported plans to implement projects. Systems are installed at no-or-little cost, and local community members and local participants are given hands-on training to build and maintain the systems.



## Solution

The varied scope, needs and risks for each installation meant that there was no one-size-fits all solution. Each project required its own system setup; not only would the installation project need to be scalable, but so would the components needed to build it.

For the solar home projects, GRID Alternatives created a solar application capable of generating up to 300 watts of power; enough to operate two lightbulbs and a small appliance.

### Home System Specs

- One 235W photovoltaic module
- One Morningstar SS-MPPT-15 Charge Controller
- One Morningstar 300W inverter
- One 12V battery
- One Battery State of Charge Monitor
- 2 LED light bulbs

### Solar Health Clinic System Specs

- Two 245W Modules
- One Morningstar 300W SureSine inverter
- Two Morningstar SunSaver 15A controllers
- Two 12V, 105Ah, deep-cycle lead-acid batteries
- Other DC components: Breakers, DC wires, connectors, flashings, etc.
- AC components: All AC wiring, breakers, switches, outlets, light sockets, etc.

**GRID Alternatives designed a larger capacity system designed to keep health clinics operating.**

Each system includes a battery meter to alert users if the battery charge falls below 40%, reducing the risk of blackouts.

The end users for this project had no previous experience with electricity or solar powered battery systems. As part of the installation process, local people from inside and outside the beneficiary community gain hands-on solar installation experience, giving them both the experience and education necessary to pursue future employment.

With access to reliable power, families are able to enjoy luxuries that most of the world takes for granted. They may read at night, make a phone call or enjoy a cold drink. But power brings them so much more. As schools are able to remain open for longer hours and students are able to complete evening homework assignments, education opportunities expand. Access to a phone and electricity-powered equipment allows families to launch small business and connect with customers. Emergency health care is minutes away instead of days or hours.