

# Solar Powered Rural School Systems



## ADDRESSING THE NEEDS OF RURAL SCHOOLS WITH SOLAR POWERED COMPUTER NETWORKS AND OPEN SOURCE EDUCATIONAL SOFTWARE.



Most rural schools in the developing world do not have access to electricity and the benefits of computer software with Internet access. GSI solves that problem by installing solar powered computer networks with open-source educational software developed by teachers and other education professionals. GSI partners with supporting organizations to ensure a successful installation with appropriate training and long term support for a truly sustainable solution.

- Solar PV electricity
- Computers and Software
- Internet Access
- Lights, fans, audio-visual
- Installation and Training
- Long term maintenance
- Open source educational software
  - Kahn Academy
  - One Laptop Per Child
  -
- Partners:
  - Inveneo
  - Teachers Without Borders
  - Nextek

“ *Global Solace is working with teachers and educators to locate educational software to match the national curriculum standards of the countries where we operate!* ”

The solar electricity allows the school to be open at night with room and task lighting and cooling fans. Students have a place to study, adult classes can be held, and small businesses can take advantage of this community resource. Audio visual equipment can now be used in teaching and the communications capability of the Internet opens the door to the world for the students.

**Please call to discuss your school's needs!**

**Ask about our solar powered rural health clinic solutions!**

**Global Solace**  
*empower • inspire • sustain*

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The solar power system uses state of the art solar modules to capture energy from the sun and convert it to electricity to run the computers and appliances during the day. The system is designed for extra daily production that is stored in batteries for use in the night using the HOMER program from the US Dept of Energy. GSI designs the system to balance the electrical loads throughout the day with the solar modules and battery storage. The system seamlessly integrates into a local grid if it exists and is operating and to any auxiliary generators that are available for times when the solar power is not enough.

Solar energy systems have no moving parts, are typically warranted for up to 25 years, and work effectively in the hot, humid, and sometimes dusty found in the developing world. Using DC power instead of converting to standard AC power allows the use of more efficient computers, lights, fans, and other appliances.

GSI has designed a "standard" system of 2 kW however it is easily expandable by adding solar modules and batteries. The supporting components, such as charge controllers, wiring, and switching equipment, are typically oversized so that the basic system can grow as your needs grow over the 25 year lifetime of the system.

GSI highly recommends the replacement of donated computers with our latest state of the art "low power" models. Our computer and monitor uses approximately 20 watts of DC power when operating where older AC machines may use on the order of 150 watts. Our standard 2 kW system can support up to 24 low power computers but only 8 older models. The cost of additional solar energy capacity for old computers is typically significantly greater than the cost of new computers so replacement is recommended. The GSI software is not testable on all of the variations of operating system versions found on donated computers and can not be guaranteed to work.

## Long Term Support for Sustainable, Successful Installation

Global Solace's expertise is in the solar energy system, computer hardware, internet access, and computer software business and therefore we partner with other organizations to provide the long-term support that is required to make these installations successful and sustainable.

Our current rural school partners include: Teachers Without Borders, Inveneo, and St Joseph's Catholic Church, Barnesville, MD.

## Hardware Features

- Standard 2 KW solar array with 24 volt DC power distribution system
- 8 maintenance free 250 AHR Gel batteries with charge controller
- Nextek Power Supply Module with electrical grid and generator interface
- Computer network file server, printer, and Internet modem
- 12 work station computers with wired/wireless connection are standard
- Expandable to 24 work station computers with the 2 KW solar array
- Internet access allows remote system monitoring
- Camera and speakers for video conferencing
- Projector and screen for educational presentations
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## Clinical Software Features

- Ubuntu Linux or Microsoft Operating System
- Word processing, spreadsheet, and presentation apps
- Internet web browser
- Open Source educational materials
  - Kahn Academy via the InInternet
  - One Laptop Per Child software
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- Video conferencing with Skype
- Other "Open Source" software as applicable
- Phase 2 Applications
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## System Appliances

- Ceiling and task LED lighting plus ceiling fans for 6 class rooms
- Cell phone charging station for 24 simultaneous users
- Audio-Visual projector and screen
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