



Courtesy Solar Electric Light Fund

Haitian instructors install a lab-yard array during a “train-the-trainers” course.

Remote Energy

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Remote Energy is a nonprofit organization with a mission to empower underserved and marginalized populations with the highest-quality, customized PV training programs and project support. Remote Energy works directly with technicians, NGOs, businesses, and other international agencies that use renewable energy to address issues related to jobs, health, clean water, education, gender equality, and poverty alleviation.

Each of the founders of Remote Energy—Carol Weis, Brad Burkhardtmeier, Chris Brooks, and Jason Lerner—shared a vision to bring quality PV training programs to developing communities. Founded in 2017, Remote Energy consists of a team of multilingual professional solar installers, electricians, and PV trainers who specialize in technical capacity-building programs and PV system implementation. Together, they have conducted training activities in more than 25 countries throughout Africa, the Caribbean, Latin America, and Asia.

Recent Projects & Programs

Haiti, like many other developing nations, is poised for renewable-energy growth and the demand for a trained solar workforce is growing. Solar Electric Light Fund (SELF) recognized that need, found funding to start a national training center, and brought in Remote Energy to develop a two-year

training program at Haiti Tec, a local polytechnic school in Port-au-Prince. Haiti Tec already had a strong electrical program and energetic teaching staff, but they lacked the technical capacity and materials needed to teach PV system design and installation. A comprehensive PV curriculum, designed by Remote Energy and delivered in French and Creole, was developed to prepare students for real-world work in the PV industry. It includes a hands-on laboratory where students practice installing, maintaining, and troubleshooting a variety of PV systems. Remote Energy also trained the instructors to ensure high-quality delivery and sustainability of the program. This year, 32 students graduated from the Haiti Tec National Training Solar Center as solar electricians, and half were women.

On the Horizon

Remote Energy is dedicated to training in other capacities. Its Women’s Program focuses on women’s-only PV classes to provide a comfortable and supportive atmosphere for women to gain hands-on experience from professional women instructors. In 2018, a solar lighting class was conducted in French for women from Benin and Niger. The PV systems they learned to build will provide them with light to study for their university exams.

Remote Energy also focuses on training the technicians and end users who are responsible for the PV systems at their facilities. This year, the organization worked with the Lakota Nation in South Dakota to install a 20 kW system for their community radio station and train local technicians. They also trained students and staff to install and maintain a PV system at a remote school in the Himalayas.

Remote Energy’s team is passionate about developing and implementing training programs that foster sustainable PV projects in developing communities. They look forward to expanding their existing network of partners and will continue pursuing opportunities to empower people with RE education.

Solar Sustainability at SECMOL

This summer, Remote Energy cofounder and trainer Chris Brooks partnered with the Physics and Engineering Department of San Juan College to teach a hands-on PV training program and lead an off-grid installation at a school in the Indus Valley of Ladakh, a remote region in the northern Indian Himalayas.

The workshop included students from San Juan College and students and staff of SECMOL (Students’ Educational and Cultural Movement of Ladakh) School. SECMOL has pioneered the reform of India’s struggling governmental school system. The campus is an ecovillage that equips young Ladakhis, especially those from rural or disadvantaged



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Right: Students from Niger and Benin build PV-powered DC systems to provide lighting for taking university entrance exams.

backgrounds, with the knowledge, skills, perspective, and confidence to choose and build a sustainable future. PV technology will prove to be a big part of this future, as recent Indian government initiatives aim to develop substantial renewable energy projects in the region.

The SECMOL campus had been struggling for years with an antiquated PV system that had broken modules, faulty wiring and components, and chronically undercharged batteries. Despite their solid grasp on energy efficiency and conservation, and a terrific solar resource, the students of SECMOL frequently ran a generator to supply their modest electrical loads.

The PV workshop was designed to meet this need. Students were introduced to the basic skills necessary to design, install, and maintain a standalone PV system. Special emphasis addressed crucial topics: system safety; battery selection, sizing, and maintenance; conductor types and sizing; overcurrent protection; and system integration. Each topic focused on PV system sustainability, which is critical in remote areas. As part of the learning process, the 12 students from San Juan College worked alongside staff and students from SECMOL School to install the critical system upgrades, which included a new battery bank, charge controller, and inverter. Overcurrent protection and disconnects were added. The PV modules and racks were repaired and rewired to a new MPPT charge controller. Larger AC wires were run from the power plant to the school.

Chris from Remote Energy discusses module wiring with San Juan College and SECMOL students.



Courtesy Carl Bickford



Courtesy Remote Energy

The training workshop and installation proved to be a great success for everyone involved. The San Juan College students had the valuable experience of studying PV in the context of international, rural, sustainable development and the students of SECMOL now have the knowledge base and confidence to operate and maintain their new PV system. Plans are already being made for future PV trainings and projects in the region.

Solar Supports the SECMOL School

Project name: SECMOL School PV system

System type: Off-grid

Installers: Students and staff of SECMOL School (India) and San Juan College (United States)

Date commissioned: June 20, 2018

Location: Phey, Ladakh, India

Latitude: 34°N

Altitude: 11,100 ft.

Average daily peak sun-hours: 6.2

System capacity: 2.88 STC kW

Average annual production: 5,210 kWh

Equipment Specifications

Number of PV modules: 36

PV manufacturer & model: Tata BP Solar 80 W

Inverter & charge controller: OutBack Power VFXR3048E, OutBack FlexMax FM80 charge controller

Battery bank: Luminous, lead-acid, 48 V, 300 Ah

Inverter rated output: 3,000 W, 230 VAC

Array installation: Pole mount; custom-built dual-axis tracker (azimuth-adjusted three times daily; tilt adjusted twice seasonally by the SECMOL students)