

# Renewable Energy Jobs & Access

A SERIES OF CASE STUDIES

Laos Solar

## PROJECT PROFILE

Sunlabob, a private Laotian company licensed in 2001 and a member of the Alliance for Rural Electrification (ARE), provides commercially-viable energy services for remote off-grid areas. Since 2008, Sunlabob also conducts energy audits and efficiency consulting, and supplies and installs energy-efficient materials.

Solar lanterns often fail much earlier than expected, either because low-quality components are used to keep overall costs down, or because batteries are misused or irregularly charged by users. As a result, kerosene lamps continue to dominate the off-grid lighting market.

To overcome these problems, Sunlabob has developed an innovative solution to provide access to electricity. Its award-winning Solar Lantern Rental System (SLRS) is based on a fee-for-service concept, under which end users purchase a service rather than the equipment itself. The model also aims to create opportunities for micro-enterprise formation.

Systems consist of a solar charging station operated by a village entrepreneur and a number of lanterns, typically in the range of 20 to 50 that are communally owned. A 50-lantern charging station is comprised of a 120 Watt peak (Wp) photovoltaic (PV) panel, a 100 Ampere hours (Ah) battery, a charge controller, and a set of charging cables.

It takes about half a day to install the system, an additional day is required for accounting and technical training, and a lamp is charged in about 2-2.5 hours.

Households pay a small fee for a fully charged solar lantern. When the battery is depleted, a customer exchanges it for a fully charged one. Use of a solar lantern offers a 75% reduction in a typical household's lighting bill. The lanterns provide better quality and safer lighting than kerosene lamps and also offer the capacity to charge mobile phones.

## JOBS AND TRAINING

New workplaces are created for people to operate and oversee the system. A village technician/entrepreneur is responsible for operating the charging station. A village energy committee, consisting of 3-4 people, is selected to oversee system operations, and manage the maintenance fund and general financing. It receives a small amount of income for its activities.

Technical and entrepreneurial capacity-building are incorporated into the installation process. Sunlabob provides technical and accounting training. Proper training and follow-up visits after installation are critical to guard against misuse of the system that can shorten its lifespan, and ensure that maintenance funds and spare parts are properly tracked. Experience suggests that in some cases, the village technician and the village energy committee need to receive additional training.

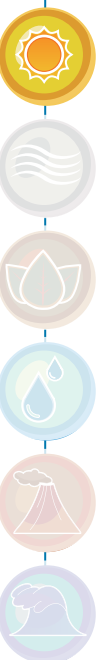
## SUPPLY CHAIN

### Upstream Linkages

Sunlabob sources all components locally. However, more sophisticated items are imported from abroad. Still, even for the imported components, some pre-assembly is done in Laos. Once the system is installed, it is managed locally.

### Downstream Benefits

The SLRS project creates jobs, generates income opportunities, and enables better conditions for micro enterprises in off-grid communities with the help of improved lighting.





## PROJECT SNAPSHOT

Sunlabob, a private commercial company and a member of the Alliance for Rural Electrification (ARE), has developed the Solar Lantern Rental System (SLRS), an innovative model under which end-users purchase a service rather than equipment.

- » **Technology**  
Solar PV
- » **Employment**  
1 technician/entrepreneur per village, plus 3-4 persons in village committee overseeing operations

## COUNTRY INFORMATION

- » **Population**  
6.2 million people
- » **GDP/capita**  
USD 1177
- » **Electrification rate**  
55% average  
42% rural  
84% urban
- » **Access to modern fuels\***  
2.6%

*The data from the case study was provided by the Alliance for Rural Electrification. Population and GDP data are from the World Bank Indicators (<http://data.worldbank.org/indicator>). Energy access data from United Nations Development Programme and World Health Organization (2009) report, *The Energy Access Situation in Developing Countries: A Review Focusing on the Least Developed Countries and Sub-Saharan Africa*. Photographs were provided by the Sunlabob team.*

*\* Modern fuels refer to electricity, liquid fuels, and gaseous fuels such as LPG, natural gas and kerosene.*

Access to electricity allows engaging in several activities previously not possible, such as reading and doing homework at night, making handicrafts, using a mobile phone, and having access to information and communication.

Local people benefit from reduced energy bills, significantly lowering the financial burden on households. The revenue generated by the system is kept within the community, providing income for the village entrepreneur and system maintenance, and hence strengthening local economies.

## FINANCING

Hardware and system installation are sponsored by a donor organisation. A village energy committee oversees the operations of each system and the management of the maintenance fund. Villagers are freed from high up-front capital costs—a key obstacle for many rural communities in the developing world.

A village technician is responsible for collecting fees from households renting lanterns, and is also in charge of running the micro-enterprise associated with the system. A share of the fee is transferred to the maintenance fund for future replacement of components, such as batteries, and other maintenance needs.



The Policy Advice and Capacity Building Directorate (PACB) welcomes your comments and feedback at [pcb@irena.org](mailto:pcb@irena.org).

These local case studies were prepared by IRENA in cooperation with the organisations described. They intend to explore the employment dimension of renewable energy development and deployment in rural areas in the developing world. For a more detailed version of this case study, please see IRENA (2012), *Renewable Energy Jobs and Access*, which is available at:

[http://www.irena.org/DocumentDownloads/Publications/Renewable\\_Energy\\_Jobs\\_and\\_Access.pdf](http://www.irena.org/DocumentDownloads/Publications/Renewable_Energy_Jobs_and_Access.pdf).

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