IRENA
International Renewable Energy Agency

Renewable Energy Jobs & Access

A SERIES OF CASE STUDIES

Nicaragua ❖ Solar/Wind

PROJECT PROFILE

Solar Company A, an E+Co portfolio company, was established in 1999 as a "spin-off" of a non-profit student initiative at National Engineering University, promoting solar energy and training local people on solar technologies. It promotes, sells, installs and services solar home systems (SHS) and solar thermal equipment, as well as small-scale wind power systems.

Headquartered in Managua, the company also has four branches in the countryside. Its activities extend throughout Nicaragua, and the majority of installations have been in rural communities. By the end of 2010, the company had served 2 118 households with more than 10 000 people. The firm's 3 000 installed solar PV systems have generated a cumulative 591 megawatt-hours of electricity.

Households make up 85% of customers; 10% are institutions and 5% are commercial or business enterprises.

JOBS AND TRAINING

The company employs 13 persons full-time in Managua as managers, technicians and administrative and support staff. Salaries for non-managers range from USD 200 to 350 per month. Since E+Co first invested in the company, it has estimated general income generation among its employees at USD 47 000.

The company has 15 sales representatives in the field, and has created micro-franchises to distribute products and offer solar solutions. This is providing income to women in rural co-operatives. The company also provides employment to the heads of family in charge of local branches.

Employee benefits include social security, and employer loans for education, health and house improvements. In late 2011, the company began to distribute 30% of its shares to its employees as bonuses.

E+Co has provided training to the company related to operations, management and finance. The company enhances skills and capacity among several groups of people:

- Local technicians and salesmen are trained to understand the systems they are selling.
- Branch managers receive training on installation, product specifications, battery maintenance, basic finances, etc.
- Women from co-operatives are taught how photovoltaic (PV) based products such as lanterns work and how to keep track of sales.
- Buyers are instructed on how to keep their systems working optimally.

SUPPLY CHAIN

Upstream Linkages

The company purchases all components of the PV systems from international suppliers. Its technicians install the PV panels and produce metal structures to attach panels to roofs.

The company chooses its suppliers carefully to ensure product quality and to avoid any negative social impacts (such as child labor) along its supply chain.

PROJECT SNAPSHOT

The company primarily sells, installs, and services solar photovoltaic equipment throughout Nicaragua, with a focus on un-electrified rural communities.

- **Technology**
  Solar PV, solar thermal, and small-scale wind
- **Employment**
  13 full-time staff in Managua, plus 15 sales representatives

COUNTRY INFORMATION

- **Population**
  5.8 million people
- **GDP/capita**
  USD 1 132
- **Electrification rate**
  72.1% average
  42% rural
  95% urban
- **Access to modern fuels***
  45.2%

The data from the case study was provided by E+Co. 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.

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

None of the suppliers are local. Focused on selling high-quality systems, the company is working with firms in Germany (such as Phocos and SMA) and in the United States (DC Power) and works with other well-known manufacturers such as Sharp, Kyocera, etc.

The company adheres to Nicaragua's import restrictions to ensure that batteries comply with adequate safety and environmental standards.

Downstream Benefits

Rural households with PV systems usually see their finances improve. They are able to save expenses from kerosene, firewood, and candles. Households also experience improved health, which translates into decreased medical needs and costs.

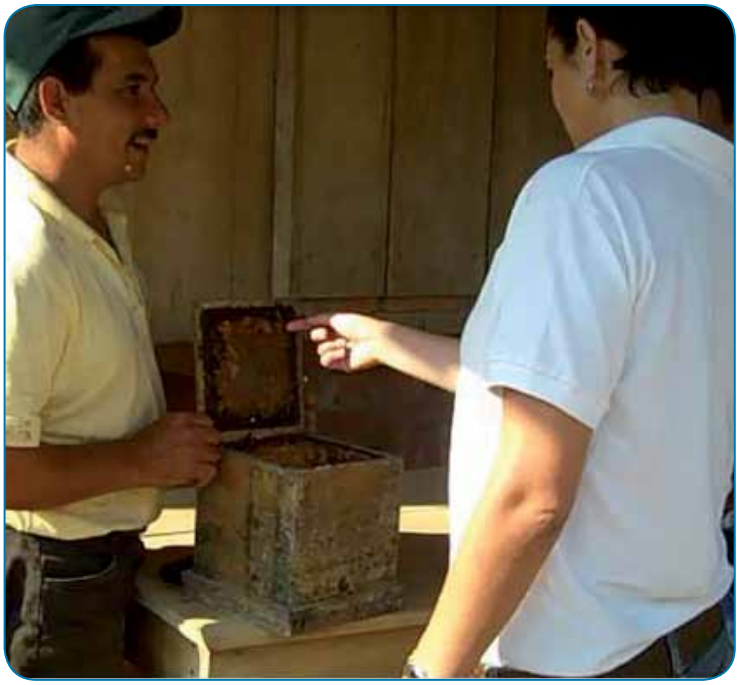
Some PV system owners are setting up small grocery shops. PV systems give them access to affordable and reliable refrigeration and allow them to keep their stores open for longer hours—translating into greater business and more income generation.

Since E+Co's investment began, PV owners have been able to displace about 1 million litres of kerosene and 4.2 million paraffin candles, providing substantial savings.

Soft benefits include access to news and education via radio or TV, children's ability to study longer hours and, due to better lighting, overall security in homes is improved.

FINANCING

Company operations are based primarily on cash sales to households and other customers.



The Policy Advice and Capacity Building Directorate (PACB) welcomes your comments and feedback at pacb@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.