

# Photovoltaics for Rural Electrification in the Dominican Republic

RICHARD D. HANSEN<sup>1</sup> and JOSÉ G. MARTÍN<sup>2</sup>

<sup>1</sup>Enersol Associates, Inc., 1 Summer Street, Somerville, Massachusetts 02143, USA

<sup>2</sup>University of Lowell, Lowell, Massachusetts, USA

Enersol's SOBASEC (SOlar-BASed Rural Electrification Concept) programme demonstrates that stand-alone photovoltaic (PV) systems can be an economical option to grid expansion. Developing a local institutional system to support the dissemination of PV technology at the community level has been a major thrust of the programme. Both a service and parts enterprise and a local credit institution have been established, and technicians have been trained and employed. A modest revolving fund was also established to finance the installations. Field analysis of 100 installed systems suggests that small PV systems are viable for widespread application in the Dominican Republic.

## 1. INTRODUCTION

A successful photovoltaic (PV) project involving systems for home, business and community use was initiated by Enersol Associates, Inc., of Somerville, Massachusetts, in the Puerto Plata province of the Dominican Republic. The project has allowed a unique opportunity for PV technology to become integrated with local culture. Minimal financial resources (about US\$20 000) were available to initiate the project. However, Dominicans have a great deal to offer in terms of human resources, co-operativeness and willingness to compromise and make the most of what is available. The close relationship between Enersol and the village participants has fostered the exchange of information and resources, and has led to a suitable solution to the villagers' problems related to a lack of electricity for home and small business use.

The PV system created for rural Dominicans

(Fig. 1) is a stand-alone design concept which is small and easy to match to local needs and skill levels. The use of many materials already available locally has been instrumental in keeping costs to a minimum and ensuring the availability of parts. These small systems, which are economically feasible in rural Dominican society, are a logical starting point for introducing PV technology and for building the institutional support essential to its widespread application.

Field analysis of 100 systems and the accompanying institutional support makes it clear that small PV systems have widespread application in the Dominican Republic, with the potential to serve 20–30% of the houses, businesses and community facilities that have no electric power.

## 2. ENERSOL'S PUERTO PLATA PROJECT

Enersol Associates, Inc., is a US-based non-profit international development organization. Richard

---

**Richard D. Hansen** is director of Enersol Associates Inc., a non-profit organization that specializes in developing the renewable solar energy industry in Latin America and the Caribbean.

**José G. Martín, PhD,** is Professor of Energy Engineering at the University of Lowell, Massachusetts. He has taught in Latin America and was chief evaluator for the International Energy Agency Small Solar Power Systems Project in Spain.

Natural Resources Forum © United Nations, New York, 1988