

SESSION TOPIC: RENEWABLES

- Resource mapping for Renewables;
- Renewable Energy For Agriculture;
- Renewable Project Assistance and Finance

Richard Moorer, Deputy Assistant Secretary for Technical Development, DOE

1) Resource Mapping for Renewables

Case Study

Suite of Four Software Modeling Tools for Renewable Energy Installations:

1. HOMER: simplifies the task of evaluating design options for both off-grid and grid-connected renewable energy power systems.
2. ViPOR: designs an autonomous village electrification system using the lowest cost combination of centralized and isolated generation.
3. Hybrid2: simulates the performance of various wind/photovoltaic/diesel hybrids and compares the long-term performance of comparable systems.
4. Geospatial Toolkit GsT: Map-based software application that integrates resource data and geographic information systems (GIS) for decision-making and policy analysis in addition to renewable energy project planning.

Example – Chiloe Islands, Chile:

- By using HOMER, ViPOR, and Hybrid2, a group of island communities in Chile secured a \$40 million loan from a multilateral development bank to provide rural electrification throughout the archipelago.

Point of contact on U.S. delegation: Richard.Moorer@ee.doe.gov

Lessons learned

This type of real-world technical assistance can significantly increase the rate of renewable energy adoption by providing empirical data to domestic and international policy and financing decision makers on the technical viability of renewables.

Obstacle Confronted

Lack of analytical tools to help decision makers determine optimal use of renewable energy technologies.

Next steps

Work with other interested stakeholders to expand the use of these software tools.

2) Renewable Energy for Agriculture

Case Study

In order to improve agricultural productivity more than 400 pilot systems were installed over 10-year period, focusing on photovoltaic (PV) water pumping. A technical evaluation and survey was conducted of the installation of 195 PV water-pumping systems. After the survey, it was determined that over 60% of installed PV water pumping systems were still working, some operating for more than ten years, and 80% of users were satisfied with the systems reliability and performance. However, a number of systems were not working due to controller and/or inverter failures, wells drying up, well collapses, hurricane damage, theft, or owner relocation.

Point of contact: Patricia Flanagan: pflanagan@usaid.gov

Lessons learned

Solar PV water pumping is technically viable and financially feasible option. Proper system integration (pump, controller, inverter) is important.

Obstacle Confronted

Agricultural productivity was hampered due to lack of cost-effective water pumping

* - Case study listed in CSD Matrix

+ - Case study to be submitted to Secretariat during CSD-14

Next steps | Expand and scale-up the use of renewable energy technologies for a variety of agricultural applications

3) Renewable Project Assistance and Finance

Case Study | Financing of Renewable Energy Enterprises in Central America (FENERCA), and the La Esperanza Hydroelectric Plant in Honduras

To assist the private sector in providing energy services, USAID is supporting the FENERCA Program in Central America. FENERCA is managed by E+Co, and energy services group supported by USAID that assists small businesses in developing countries to access financing for clean energy projects and companies. The 12.9 MW La Esperanza Hydroelectric Power Plant in Honduras is an example of a successful energy project developed with assistance from the FENERCA program. E+Co supported the project developer – a company called Consorcio Inversiones, S.A. (CISA) with assistance on business plan preparation and an early loan of \$250,000. This technical assistance during the early stages of the project resulted in securing \$8.9 million in financing from a Honduran private bank called BGA and the Central American Bank of Economic Integration.

Point of contact on U.S. delegation: Patricia Flanagan, pflanagan@usaid.gov

Lessons learned | **Providing small businesses with seed capital and business plan preparation support can help them secure the necessary project financing needed for small to medium size renewable energy projects.**

Obstacle Confronted | Smaller scale renewable energy projects at times lack sufficient funding for business plan preparation project start-up

Next steps | Work with other interested stakeholders to replicate the FENERCA model in other regions

Additional examples

- Renewable Energy Resource Assessment for Stimulating Investment in Sri Lanka and the Maldives*
- Mexico Renewable Energy Program FIRCO Renewable Energy for Agriculture Program+
- Wind Energy on Rural Native American lands.*
- Philippines Off-Grid Renewable Energy+
- South Africa-Solar Water Heating for Municipal Infrastructure Delivery in South Africa*
- Sri Lanka and Maldives-Renewable Resources Assessment for Stimulating Investment*
- U.S. Environmental Protection Agency's Voluntary Methane Program*
- Promoting an Energy Efficient Public Sector*
- Mexico-Innovative Financing for Energy Efficiency*

* - Case study listed in CSD Matrix

+ - Case study to be submitted to Secretariat during CSD-14