

Technology Access Program

TECHNOLOGY OVERVIEW

The Office of Technology Access (OTA) disseminates information and facilitates technical assistance on U.S. renewable energy (RE) and energy efficiency (EE) technologies, tools, and techniques to energy and environmental decision makers worldwide.

OTA provides a key link between the research programs in DOE's Office of Power Technologies — wind, solar, geothermal, hydro-power, bioenergy, hydrogen, superconductivity, and distributed energy resources — and the customers and partners who will make these advances from this research practicable in the field. The rapidly growing demand for power generation technologies in the international market represents a very substantial opportunity for domestic RE and EE businesses, and OTA provides key resources for understanding and reaching these markets.

RE technologies such as photovoltaics, concentrating solar power, and wind, as well as many distributed generation technologies, are modular, appropriately scaled, and can be put in service quickly. This holds considerable appeal in many domestic and international market situations.

There are many noteworthy examples of RE and EE technologies being used in international markets — here are just a couple examples. Rural electrification using PV electric lighting systems in Latin American countries and other international locations brings light for 4 to 6 hours each night to local homes. Other crucial applications of this technology include lighting and refrigeration in health care clinics. Delicate surgery requires good lighting and many medicines must be kept cool to maintain potency. Plumbing is seldom found in the remote and smaller villages of South America, Asia, and Africa. Water for cooking, cleaning, and drinking is often carried in buckets from streams or ponds. Water pumping using wind technology is being applied in Oesao on Timor Island in Indonesia. The system is performing at 100% availability.

U.S. DEPARTMENT OF ENERGY PROGRAM

OTA works with a wide range of private companies, U.S. federal agencies, in-country (non-U.S.) governmental agencies, and various non-governmental agencies from around the world. The office also provides these same information and technical assistance services to Native Americans on a government-to-government basis.

OTA offers products and services that make it possible for its customers to develop renewable energy (RE) and energy efficiency (EE) technologies, including: field validation projects, financing access assistance, information and educational materials, market and resource assessments, policy analyses, training, and technology assistance and coordination.

International - This program area supports the expansion of U.S. renewable energy and energy efficiency technology exports to help meet the energy needs of developed and developing countries, reduce the rate of consumption of finite global resources, and address local and transna-

tional environmental issues. Program support is provided in three broad areas:

- Market and Trade Development
- U.S. Energy and Environmental Security
- Emerging Global and Energy Issues

Renewable Indian Energy Resources -

This program area assists American Indian Tribal Governments and their entities in gaining expertise in energy planning capabilities particularly for remote settings and the development of conventional and renewable energy resources.

Ullal, Harin - Central Electronics, Ltd./PIX01802



Bringing Electricity to the World – A woman in India collects potable water provided by a PV-powered pump. PV is being used to pump the water in many wells throughout rural India. India is often seen as an ideal location for the expanded use of renewable energy technologies because of plentiful renewable energy resources, the modular nature of renewable energy systems, the general shortage of electricity generating capacity in India, and the desire of Indian companies and agencies to work with U.S. organizations.

TECHNOLOGY ACCESS PROGRAM

International Programs

Over two billion people in developing countries—nearly one-third of the world's population—live without electricity service. Often, these people's lives would be greatly improved with only small amounts of power for such applications as indoor lighting or pumping of water. For these applications, photovoltaic (PV) electricity is often the least expensive and most reliable power alternative. This market represents one of the largest and fastest growing sectors for renewable energy technology.

Today, thanks to help from the U.S. Department of Energy (DOE), the Ramakrishna Mission in India has a trained staff of some 90 installers, has installed more than 500 PV domestic lighting systems, and has established "Aditya," a solar shop on the Ramakrishna Mission campus in Narendrapur. Sales are brisk at the shop, which sells as many as 11 domestic lighting systems to the rural villagers each day. The systems are manufactured in India and the United States.

Uljal, Hamir/PIX04875

MARKET POTENTIAL

Globally, some two billion people live without electricity and the important services it provides. These people – without such things as light at night, clean water, refrigerated foods and medicines, telephones, and radios – miss the social economic, and health benefits that these necessities afford the rest of the world. This market represents a marvelous win-win situation for RE technology business development and improving the lives of those without access to electricity. In fact, RE technology is often the least-cost option in many remote village situations. The overall demand for new generating capacity in these areas is staggering.

By 2020, nearly 3,000 GW of new generating capacity are projected to be installed around the world. More than half of the new capacity will be in developing countries, much of it in developing Asia.

The total cost of these plants is estimated at nearly \$3 trillion at today's prices, not including the cost of expanding the transmission and distribution network. The developing countries will need to invest around \$1.7 trillion in new generation plants. Various RE and EE technologies are well suited for these markets and could meet some of this new demand.

Limited power supply and the price of energy relative to household income often dictate the use of higher-efficiency equipment wherever possible in developing and transitional countries. If efficient equipment is available and the savings potential is communicated effectively, emerging market consumers will buy. The global market for energy efficiency has been conservatively estimated at U.S. \$80 billion per year.

For More Information:

Office of Technology Access (OTA)
Web: www.eren.doe.gov/power/tech_access/

List of OTA's programs, including program descriptions
Web: www.eren.doe.gov/power/tech_access/OTA_programs.html

Energy and Environmental Technology Information Center (EETIC). EETIC's information programs gather field and application reports on the diverse experiences of many countries with innovations in renewable energy and energy efficiency technologies.
Web: www.eren.doe.gov/power/tech_access/OTA_EETIC.html

Center for the Analysis and Dissemination of Demonstrated Energy Technologies (CADDET) Renewable Energy provides international information and project examples on the following technologies: biomass, geothermal, waste conversion, hydropower, solar, wind, and PV.
Web: www.caddet-re.org/

NREL International Programs, including the Renewables for Sustainable Village Power (RSVP) database and site, and a listing of United States Renewable Energy Manufacturers & Service Providers.
Web: www.nrel.gov/international/



Produced for the
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

by the National Renewable Energy Laboratory
a DOE national laboratory

DOE/GO-102001-1451
October 2001

Printed with renewable-source ink
on paper containing at least 50%
wastepaper, including 20% post-
consumer waste

