

THE GEF AND RENEWABLE ENERGY

The Global Environment Facility (GEF) is the largest source of funds for renewable energy in the developing world. As the financial mechanism for the United Nations Framework Convention on Climate Change, the GEF has provided about \$900 million for more than 110 projects in 50 countries. This support has leveraged almost \$6 billion in additional cofinancing.

The importance of renewable energy for sustainable development is beyond dispute. Clean energy technologies are vital to alleviating poverty, expanding rural development, and maintaining environmental quality. The productive use of renewable energy in rural areas helps to raise incomes and improve health. Pumping water for irrigation, power for drying crops, energy for cottage industries, and lighting in schools and hospitals are all important applications of renewable energy for rural areas that have no chance for connection to a power grid in the foreseeable future.

The opportunities for renewable energy are staggering. About one-fourth of the world's population lacks access to electricity, mainly in South Asia and Sub-Saharan Africa. In Sub-Saharan Africa, many women carry 20 kilos of fuel wood an average of 5 kilometers every day and then burn this wood in an inefficient cookstove. These stoves pose grave health hazards. Globally, about 2.5 million women and children die prematurely every year from breathing the smoke from inefficient cookstoves.

The GEF helps shift energy investments in developing nations in more sustainable directions. It

works to remove barriers and to bring down the cost of promising new technologies, while minimizing subsidies for equipment and consumers. The GEF is constantly seeking partners and new ideas for opportunities that will allow continued investment without further external support. The GEF is innovative and catalytic; a key feature of its work is linking national development priorities and global environmental objectives.

Through its projects, the GEF deals with problems hampering the transformation of markets for renewable energy: lack of supportive policy frameworks, inadequate financing for installations or supporting businesses, lack of technical capacity, and lack of awareness and trust in the technologies by users and utility companies. The GEF's renewable energy projects involve private firms as manufacturers and dealers, local project developers, financial intermediaries, recipients of technical assistance, technology suppliers and contractors, and project executors. Here are some typical examples:

- Solar home systems for rural off-grid markets
- Mini-grids based on micro-hydro, photovoltaic, wind, or biomass
- Biomass and biogas for captive applications (agro-processing industry)
- Wind farm demonstrations
- Favorable policy environments for wind farms (such as power purchase agreements)
- Geothermal power plants
- Biomass-based district heating
- Innovative financing mechanism for renewable energies.

Several examples illustrate the diverse strategies the GEF deploys. In rural Sri Lanka, a GEF rural renewable energy project has helped tens of thousands of people switch from kerosene or lead-acid batteries to solar energy and micro-hydro systems to power their lives. To implement the project, a local nongovernmental organization offers loans to the purchasers of household solar systems, pays the supplier, and has the responsibility of collections. In addition to solar energy, the project is promoting small village-level hydro schemes. To date, the project has set up 84 village hydro installations, which electrify more than 4,000 houses, with more in the pipeline. The project has been so successful that the GEF has launched a follow-up project, which is exploring the potential for biomass and wind technologies for village mini-grids, along with emphasizing new approaches to income generation and social services.

Another example is the Strategic Partnership for Geothermal Energy Development in Eastern Europe. It is designed to promote the use of geothermal energy in the region by mitigating financial and resource-related risks, by providing financial support for some investment projects, and by providing capacity-building and technical assistance. Partners are the participating countries in the region, the GEF, the World Bank, the United Nations Environment Programme, and various international financial institutions. The core innovation of this partnership is a partial risk guarantee window to mitigate against the geological risks of exploratory drilling—which often is a prohibitively large investment and a barrier to the wider market penetration of geothermal energy production.

Another strategy underlying GEF renewable energy projects is helping commercialize new technologies that are particularly beneficial to developing countries. In Tunisia, a solar water heater project has led to an unprecedented

market acceleration for this cost-effective application. In this project, the GEF supported government efforts to encourage the substitution of renewable solar energy for fossil fuels in public and private institutions so as to mitigate global warming by reducing carbon dioxide emissions. GEF support has helped triple solar water heater installations.

In Mexico, the GEF is supporting the commercial development of a solar thermal power plant. The project aims to demonstrate the commercial feasibility of the solar trough technology as a major source of power. The GEF is engaging the relevant companies in a dialogue about risk sharing and the next steps toward achieving fully commercial development. The GEF is supporting similar plants in Morocco, the Arab Republic of Egypt, and India.

The solar thermal power plant project ties in with the GEF's other renewable energy work in Mexico. To reduce greenhouse gas emissions while responding to increasing energy demand and energy diversification imperatives, Mexico is exploring a long-term strategy to accelerate the commercialization of renewable energy technologies, particularly at the grid-connected level. The government of Mexico is seeking to directly stimulate renewable energy through a GEF-supported financial mechanism that will deliver incentive (tariff) support to jump-start the market. It will facilitate the investments through regulatory changes and policy commitments at the national level. The program will develop a continuous stream of investments with a declining level of concessional support over time, and it will integrate these investments with policy and market recognition of the energy capacity and environmental and diversification value of renewable energy sources at the tariff level. Coupled with significant commercial financing, the expected level of tariff support implies an approximate 10-to-1 leveraging of GEF funds.

FOR MORE INFORMATION

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