



# Investing in a Climate for Change

## Engaging the Finance Sector



### Greenhouse Gas Reductions from PROSOL

	Tonnes
Total annual CO2 reduced from installed systems	28,000
Total CO2 reduced over 20 yrs from installed systems	570,000
Total CO2 reduced annually under Government target	135,000
Total CO2 reduced over 20 yrs under Government target	2,700,00

### Greenhouse Gas Reductions from Selected AREED Projects

Company	Activity	CO2 Offsets (tonnes)	Est. Value*
KBPS, Zambia	Waste to charcoal	33,361	\$50,042
RAPS, S. Africa	Solar Home Systems	116,875	\$759,687
AME, Senegal	Solar Hot Water	1,966	\$12,778
RASMA, Zambia	Energy Efficient Stoves	166,341	\$249,512
TATEDO, Tanzania	Energy Efficient Stoves	3,936,751	\$5,905,127
UBWATO, Zambia	Energy Efficient Stoves	478,542	\$717,813
ZED, Mali	Solar Home Systems	2,523	\$16,397

### Contact

**Eric Usher**

Direct phone: + 33 1 44 37 1429

Fax: + 33 1 44 37 1474

Email: [eric.usher@unep.fr](mailto:eric.usher@unep.fr)

UNEP

15 rue de Milan 75441

Paris CEDEX 09 FRANCE

## UNEP Projects and Greenhouse Gas Reductions

Many UNEP projects and programmes not only support and finance clean energy services in developing countries, they also offer a clear reduction in greenhouse gas emissions.

In terms of development, projects that improve access to cleaner forms of energy provide a double dividend if they also reduce greenhouse gas emissions. Often, the benefit from this reduction can be quantified and turned into a financial benefit under voluntary and regulated carbon markets, such as those stemming from the Kyoto Protocol.

Where possible, UNEP projects are structured to qualify under the Protocol's Clean Development Mechanism (CDM), which can bring an additional revenue stream from the sale of so-called Certified Emissions Reductions (CERs).

Carbon finance represents a valuable means to leverage more funds for projects, while stimulating the market for sustainable energy technologies. In particular, new programmatic CDM methods being developed bundle small efforts to achieve a scale reduce and reduce the transaction costs that are generally a barrier for small-scale carbon reduction efforts.

A good example of this is the PROSOL initiative in Tunisia, where UNEP support spurred local banks to lend for solar water heaters. In the three-year initiative, more than 20,000 solar water heaters were financed, reducing the country's imports of liquefied petroleum gas (LPG) and reducing carbon emissions. The approximately \$2 million cost of PROSOL reduces carbon emissions by an estimated 28,000 tonnes annually, and will total more than 500,000 tonnes over the 20-year life of the solar water heaters.

However, PROSOL has also helped to create a sustainable market for solar water heating, and led to new government initiatives that will further boost the number of systems and subsequent greenhouse gas reductions. If the Tunisian government's goals are reached, solar water heating will significantly expand, reducing carbon dioxide emissions by 135,000 tonnes annually, and more than 2.7 million tonnes over the 20-year life of the systems.

The African Rift Valley Geothermal Energy Development Programme (ARGeo) is another project with significant potential to reduce emissions. With support from the Global Environment Facility, the World Bank and UNEP, ARGeo is a five-year, US\$18 million facility to add low-cost power generation from geothermal resources in six countries of the Rift Valley. By adding this new capacity, ARGeo will also help to increase the security of power supplies, promote economic

development in the region, and reduce greenhouse gas emissions. ARGeo eligible countries include Djibouti, Eritrea, Ethiopia, Kenya, Tanzania and Uganda. At the end of ARGeo, up to nine geothermal plants with a combined capacity exceeding 100 megawatts (MW) will be installed or in the pipeline, reducing direct greenhouse gas emissions by 400,000 tonnes per year.

Although the CDM and other formal carbon markets are useful tools to reduce carbon emissions, they are also limited in scope. Under current rules, many UNEP activities and projects with substantial carbon benefits do not qualify.

The Rural Energy Enterprise Development (REED) Initiative is a case in point. REED provides enterprise development and seed financing to clean energy entrepreneurs in five countries of West and Southern Africa, Northeast Brazil and China's Yunnan Province. REED uses an enterprise-centered development model to invest in small and mid-size enterprises (SMEs) marketing clean energy products and services, a sector generally considered too risky to attract conventional sources of finance.

One REED entrepreneur selling improved cook stoves, for example, can not only improve the energy service for a small family, but the lower demand for fuelwood also reduces the destruction of local forests and decreases emissions of greenhouse gases and harmful pollutants. Because these enterprises are small and diverse, however, the avoided emissions can be difficult to quantify.

Consequently, most of the REED enterprises today can not qualify as CDM projects since they deal with decentralized energy products or services where reduced carbon emissions are impossible to verify on a per system basis.

The reductions are real and significant, however. The African REED programme, AREED, has successfully invested from \$20,000 to \$120,000 in 28 businesses in the areas of solar crop drying, sawmill waste charcoal production, efficient cook stove manufacturing, wind water pumping, solar water heating, liquefied petroleum gas (LPG) distribution, and energy efficiency. Together, the \$2.6 million of AREED investments has helped more than 400,000 people in Africa gain cleaner energy while creating new jobs and reducing carbon emissions by more than an estimated 400,000 tonnes annually.

\* Based on \$6.5/tonCO2 for electricity displacement activities, and \$1.5/tonCO2 for wood fuel consumption displacement activities