

## **Distributed Micro Generation in the Developing World.**

### Abstract

Over 1.5bn people do not have access to the electrical grid, and in Africa this number is rising by 1% a year due to population growth.

Energy is central to sustainable development and poverty reduction efforts. It affects all aspects of development -- social, economic, and environmental -- including livelihoods, access to water, agricultural productivity, health, population levels and education. None of the Millennium Development Goals (MDGs) can be met without major improvement in the quality and quantity of energy services in developing countries.

Between 2.5bn & 3.5bn people use wood, charcoal and other biomass for the majority of their cooking needs. These fires result in emissions of up to 2GT of CO<sub>2</sub> per year, 1.5 million lives lost from burning and other accidents and up to 2 million bronchial infections. An average of 30 hrs per month is spent searching for wood per family; a chore falling predominately on women and children.

We will describe an Irish Aid funded project that will deliver devices, and measure impact in the field, of an electricity generating energy efficient cook stove. Compared to a standard 3 stone fire, the technology reduce biomass consumption by 50%, particulate emissions by up to 90%, improves cooking efficiency and will harvest and store electrical energy to power LED's for lighting, mobile phones and other low power devices. The technology relies on direct thermal to electric conversion. We will also describe several approaches towards deployment.

Such a device could become a backbone of a low power distributed electrical generating capability for household use, where grid power is not feasible.