

MARKET AND APPLICATIONS FOR RENEWABLE TECHNOLOGIES

Solar Thermal

- Resource
Ghana has a good solar energy resource, receiving daily solar irradiation of between 4 and 6kWh/m² and a corresponding annual sunshine duration of 1800 - 3000 hours. Solar radiation levels are higher in the northern regions which include a large portion of the rural areas of the country.
- Applications / Market Opportunities
Water heating for hotels and clinics. Solar ovens as replacement for wood-fuel ovens in domestic and small-industrial sectors.
- Origin of Hardware
(locally manufactured, including number of suppliers)

Photovoltaic systems

- Resource
same as solar water heating
- Applications
Telecommunications, rural health installations and water supplies.
- Existing Installations
About 700 solar PV systems have been installed across the country, including 400 communication systems, 70 refrigeration systems, water pumps and other applications¹.
- Origin of Hardware

Biomass/gas

- Resource
need this
- Applications
Several biomass resources have been used successfully, e.g., cookstove technologies for urban areas (so far about 30,000 Ahibenso and 5,000 sawdust stoves have been disseminated), biomass fired dryers, pyrolysis and briquetting (targetted for commercial consumers). Potential also exists for biogas electricity generation and cogeneration, the latter so far being absent due to low electricity prices.
- Existing Market Opportunities
About 70% of total national energy consumption is accounted for by biomass in either the direct or processed formⁱⁱ. Fuel wood and charcoal are the dominant end products in use although crop residues and other non-woody materials also find some usage.

Wind

- Resource

Wind velocities prevailing in the country have been considered too low to encourage wind technologies but new measurements are now being taken by the Energy Commission and private developers and the results are expected to give a more favourable picture.ⁱⁱⁱ

Small Hydro

- Resource

It is estimated that Ghana has the potential for 2,000 MW of new hydro power. About 1,205 MW of this total is expected to be produced from proven large hydro sources while the rest will come from small hydro sources. It is estimated that there are about forty (40) Small Hydro Plant (SHP) sites in Ghana, where small hydro is defined as any hydro installation rated at less than 10 MW.

- Existing Installations

Until recently virtually all of Ghana's electricity was produced from two large hydro dams on the Volta river at Alosombo and Kpong which combined have a capacity of about 1.1 GW out of a total installed capacity of about 1.5 GW.

In spite of the considerable resource base, no SHPs have been developed in the country.

- Origin of Hardware

Other

ⁱ [Ministry of Mines and Energy, 1998]

ⁱⁱ KITE, 1999a

ⁱⁱⁱ Abeeku Brew-Hammond p.29