


Financing Renewable Energy in the Developing World: Issues and Opportunities

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Financing Renewable Energy in a Risky Environment



- **Investors seek risk-adequate return** – private investment available only for limited spectrum of the renewables market in developing countries
- **Cost reduction** needed to bring more renewable options into the market
- A **stable economic framework** (rule of law, predictability of regulation, tariffs etc.) needed to promote renewables
- **„Level playing field“**: eliminate (open or hidden) subsidies for conventional energies
- **Higher tariffs** and/or **subsidies** needed for expansion of markets for renewables

The Role of Renewable Energies in Developing Countries



- **Poverty alleviation** is the prime objective
- **Energy is vital** for social and economic **development**
- Energy for **cooking** most important: use of biomass; health effects; modern forms of energy rarely affordable for the poor
- **Transport** and **motive power** needs: limited renewable options
- **Rural electrification** is extreme costly and alone does not suffice to promote local development

Least cost alternative ↔ ability to pay



Differentiating Renewable Options

	Competitive or close to market competitiveness	Not yet competitive
Grid-connected	A) wind, biomass, hydropower, geothermal energy	C) solarthermal and photovoltaic energy, (fuel cells)
Off-grid	B) photovoltaic energy, home-based biogas (ability to pay ?)	D) solar dishes, photovoltaic networks with diesel back-ups

Financing Options



- **Commercial Financing:** equity; project finance; commercial loans
- **Development Finance:** soft loans, grants
- **„Consumer“ Finance:** micro credits, feed-in laws (rate-payer pays), green pricing based on quota systems
- **Third-Party Finance:** fee-for-service schemes, leasing schemes
- **Public and Fiscal incentives:** tax incentives (tax breaks, accelerated depreciation), feed in laws (tax payer pays)
- **Pre-investment facilities**
- **„Carbon Finance“**



Who pays ? – How much ?

Financial Support

high

feed-in laws
(rate payer
pays)



soft loans

grants

feed-in laws
(tax payer pays)

tax incentives

fee-for-
service

commercial loans

low

rate payer

tax payer

Promoting “Off-Grid”-Systems in Development Co-operation



Sales Model customer owns

cash: ownership → maintenance, high upfront capital cost, customer owns risk

credit/micro finance: no need for upfront capital; high cost for collecting payments in rural areas

Concession / ESCO Model: Energy Service Companies install individual systems (SHS), remain the owner, charge monthly fees;
s: long term concession, maintenance, low monthly fees;
w: customer does not own/care, operating cost unknown, financial sustainability

Biogas Support Programme in Nepal



Objective: up to 300.000 biogas reactors (4-10m³) until 2009 for small farmers; reactor produces biogas for cooking and lighting from animal dung.

Cost of Plant: 260-400 EUR

Financing concept:

farmers contribution in kind and labour	20%
farmers contribution in cash (micro credit)	55%
Investment subsidy	25%
German development cooperation	17%
Nepalese Government	6%
Netherlands	2%

To reach financial sustainability: reduce costs, increase Nepalese contribution

(In addition NL and Nepalese government finance TA)



The 5P-Challenge

- **P**rice/Cost of Technology
- **P**urchasing Power of End Users
- “Level **P**laying Field”
- **P**olitical Support
- **P**roduct Marketing/Market Aggregation





Thank you for your attention !

