

Input description - Africa Re:Load – Green Energy Session – E1 “Power Business”

Input Title:

Productive Use of Solar Systems – A promising way to stimulate business

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Background

Worldwide approximately 1.6 billion people, especially in the rural areas of Sub-Saharan Africa (SSA), have no access to electricity and rely on expensive non-renewable off-grid energy carriers, such as kerosene and biomass to fulfill their basic energy needs.¹ SSA power infrastructure is seen as key to its development and to receiving private investments, and its weak structure is seen as a primary obstacle for SSA's escape from extreme poverty.²

The use of non-renewable off-grid energy carriers goes along with high costs, insufficient lighting, unproductive use of time for sourcing these alternatives, negative environmental effects, and negative health effects because of indoor pollution and potential fire hazards.³

SSA is characterized by low overall population density, low urbanization rates and a large number of landlocked countries as well as by small economies.⁴ Decentralized energy solutions like solar systems enable utilization possibilities which reduce the effects of these geographical circumstances.

For such solutions sufficient supply, distribution and maintenance structures are necessary, but these are still weak in most of SSA countries.⁵ The lack of these is seen as one of the major hurdles to successful electrification.⁶

Solar Sales and Productive Use

It is especially difficult to provide decentralized energy solutions to the main target group, the people in rural areas. In addition to being the target group which is the most uneconomical to reach, they are also least aware that these solutions actually exist and of their potential benefits.

Productive use of solar systems in terms of new businesses which operate in rural areas based on solar systems can increase the target group's awareness. Moreover, these businesses can also increase the benefits of solar systems by creating new job opportunities. Corresponding to management theory, it is always important to generate competitive advantages for a business. In areas where there is no regular access to electricity, new service offers are possible which can fulfil unsatisfied demands, and, thus, imply a natural competitive advantage.

Developed Solar Business Models for Productive Use

In the scope of a project course of the “University of Applied Sciences Neu-Ulm” in cooperation with the “Institute for Decentral Electrification, Entrepreneurship and Education”, four micro entrepreneur business models have been developed for Ethiopia, based on consumer and company surveys which have been conducted in rural areas of Arba Minch and Adama.

To achieve the target of being a business model which promotes solar systems and stimulates employment on a larger scale, it is important that many people are capable of taking advantage of the business opportunity and that the business has high visibility in rural areas once it is up and running.

Therefore, the following characteristics have been identified as important during the development:

- 1) Large customer base
- 2) Low investment costs
- 3) Easy to replicate
- 4) Long-term profitability despite easy replicability

Based on these conditions, the following business models have been developed:

Solar-Barber
Core-Business: Haircutting
Competitive or unique advantages:
- Light
- Straight hair
- Hairstyles with hair blower
Fulfilment of characteristic requirements: ALL
Investment costs: 300\$

Solar-Photographer
Core-Business: Event Photography
Competitive or unique advantages:
- Access to printed photos in villages
- Direct printing at point of event
- Better information base
Fulfilment of characteristic requirements: ALL
Investment costs: 550\$

Solar-Bar
Core-Business: Drinks & Entertainment
Competitive or unique advantages:
- Light
- Cold drinks
- Entertainment
Fulfilment of characteristic requirements:
Solar system which enables the low investment costs including cooling is still in development (500\$), but with light and TV it is already possible today (340\$).
Investment costs: 340\$ - 500\$

Solar-Service-Station
Core-Business: Loading of mobile phones
Competitive or unique advantages:
- Loading of mobiles directly in villages
- Repair services directly in villages
Fulfilment of characteristic requirements:
New entrants and solar retailers could be a potential hurdle for long-term profitability, but business is further upgradeable to a improved solar dealer
Investment costs: 100\$ - 200\$

Discussion Questions:

- 1) Productive use as a potential marketing tool for solar sales?
- 2) Productive use as employment/business driver?
- 3) Requirements for developing suitable business models?
- 4) Further business opportunities for productive use of solar systems?