

# Promotion of Productive Use of Energy Overview and Best Practices

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Yangon, 5<sup>th</sup> April 2013





## Definition of Productive Use of Energy (PUE)

*“Agricultural, commercial and industrial activities involving energy services as a direct input to the production of goods or provision of services”*

- Productive vs. consumptive and community uses
- Focus on income-generation / enhanced productivity



## Rationale for PUE Promotion

- PUE / higher electricity consumption increases viability of electric systems, especially where higher consumption has no major effect on investment costs
- PUE has the potential to increase impact of electrification through increased income, employment etc.
  - However, PUE can be a zero-sum game, when it leads only to a redistribution of wealth within the same community
  - Value-adding productive uses should be prioritised



## Different Types of PUE

Energy sources: grid electricity, mini-grids, diesel generators, SHS, solar lamps, improved cookstoves and ovens, solar dryers, hydro mills etc.

Sectors:

- Manufacturing (milling, metal fabrication, carpentry, etc.)
- Service sector (cell phone charging, shop lighting, entertainment etc.)
- Agriculture (irrigation etc.)



## Productive Use of Energy (PRODUSE) Study

Joint GIZ-ESMAP study (to be released in May 2013 on [www.produse.org](http://www.produse.org))

Rigorous evaluation of impact of electricity on performance of microenterprises in three African countries

- use of control groups, advanced statistical methods
- ⇒ Significant positive effects on income, employment etc. cannot be taken for granted!
- ⇒ Need to accompany energy access programmes with PUE promotion activities



## Typical Features of PUE Promotion Programmes

- Identify PUE opportunities
  - ⇒ Value chain analysis etc.
- Raise awareness about PUE opportunities
- Provide Business Development Services (BDS) for start-ups and established businesses
  - ⇒ Business training incl. business plan development, coaching
- Facilitate access to efficient and high-quality end-use equipment through
  - Advice
  - Demonstration
  - Improved access to long-term credit



## PRODUSE Manual

- Manual on PUE promotion for electrification practitioners
- Developed by GIZ and EUEI Partnership Dialogue Facility (EUEI PDF)
- Pragmatic guidelines on how design and implement PUE promotion programmes
- Nine modules incl. tools



Productive Use of Energy – PRODUSE  
A Manual for Electrification Practitioners



## PHASE I. Feasibility and initial planning

### Module 1:

Decide whether to engage in productive use promotion

### Module 2:

Set the cornerstones of the productive use programme

## PHASE II. Analysis and programme design

### Module 3:

Analyse local economic structures and potentials for productive uses

### Module 4:

Plan productive use promotion activities

## PHASE IV: Monitoring and Evaluation

### Module 6:

Ensure monitoring and evaluation (M&E)

## PHASE III. Implementation

### Module 5.1:

Foster energy services

### Module 5.2:

Raise awareness of productive electricity uses

### Module 5.3:

Provide technical assistance to MSMEs

### Module 5.4:

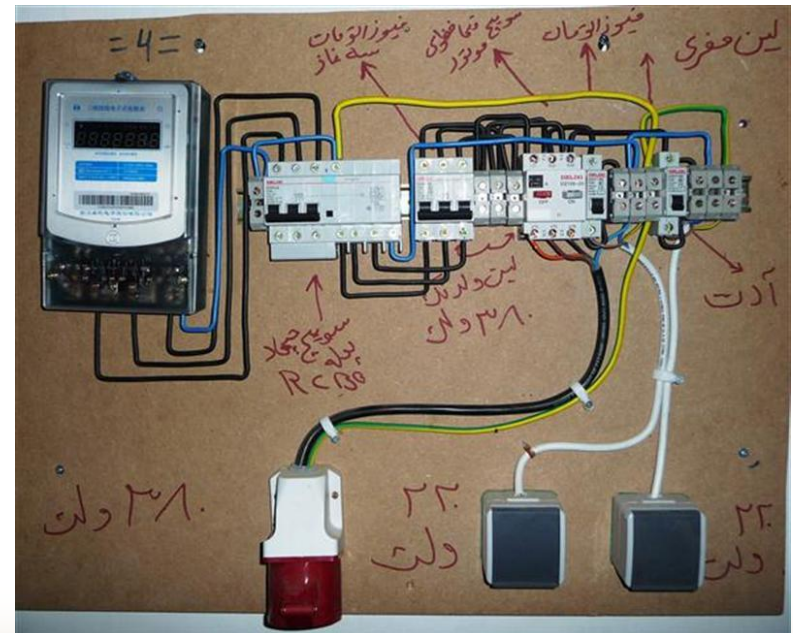
Facilitate access to financing





## Project Example GIZ Afghanistan

- GIZ supports construction or rehabilitation of 9 micro-hydro projects as well as PUE promotion
- Provincial electrification planning takes productive use potentials into consideration
- Technical and business training (CEFE methodology)
- Advice on selection of equipment incl. for existing businesses that switch from diesel to electricity-powered equipment
- Supply of three phase boards and motor protection relays





## Project Example UNDP Nepal

UNDP's 'Renewable Energy for Rural Livelihood Programme' supports development of community-based micro-hydro projects as well as PUE

Quantitative targets for establishment of energy-based businesses

Budget for PUE promotion: Rs 10,000 (113 USD) per kW installed capacity, Rs 250,000 (2,500 USD) maximum per scheme

Results highly site specific, depending on factors such as market access, migration etc.

⇒ Multi-donor 'National Rural and Renewable Energy Programme' includes PUE component (USD 8.4 million, 5 yrs)



## Project Example GIZ Nepal

Joint Project of GIZ-Energising Development and NGO  
Helvetas Swiss Intercooperation

PUE promotion in rural distribution systems managed by  
Community Rural Electrification Entities (CREE)

➤ Domestic tariffs are subsidized

Main activities

- Identification of PUE potentials (“area potential survey”)
- CREEs: Awareness raising about PUE potentials and extension of loans to businesses where necessary
- ToT for BDS providers



## Project Example NRECA Guatemala

- NRECA grid extension combined with PUE promotion in different parts of Guatemala
- Facilitation of cooperation between utilities and local banks that are responsible for sensitisation and training of business owners
  - NRECA and utility trained banks/NGO (ToT)
  - Bank/NGO recovers cost of TA to businesses through interest rate
- Involvement of equipment suppliers in demonstrations and training



## PRODUSE Impact Evaluation Methodology

- Methodology and questionnaire for rigorous evaluation of
- Impact of electricity access on enterprise performance
- Potential of complementary services (BDS, MFI) to “boost” such impact
- Suitable for cross-sectional (control group) and over-time comparison
- To be applied in the context of electrification projects at fairly low cost

## More information:

PRODUSE Website ([www.produce.org](http://www.produce.org)) will be launched in May 2013

- PRODUSE study and manual, impact evaluation guide, project examples etc.

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