Promotion of Productive Use of Energy Overview and Best Practices

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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)

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
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 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

PHASE IV: Monitoring and Evaluation

Module 6:
Ensure monitoring and evaluation (M&E)
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.produse.org) will be launched in May 2013

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

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