Status of Rural Electrification in ASEAN

...what is at stake in the region?

Rural Electrification Workshop

International Best Practices and Options for Policy Makers

Yangon, 4-5 April 2013

Arne Schweinfurth

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Content

- **Rationale** for Rural Electrification in ASEAN
- **Experiences** in ASEAN Member States
- **Trends** and **Challenges** ahead

ASEAN-RESP: **Project Principles**

- Jointly implemented by the **ASEAN Centre for Energy** (ACE) and **GIZ**
- Focusing on the needs and demands of the **10 ASEAN member states**
- Transfering **regional know-how** and experiences
  - Regional Networking
  - RE Policy ⟶ **Rural Electrification**
  - RE Capacity Building
- **“Learning from each other”**

Rationale for Rural Electrification in ASEAN

Rationale: **Sustainable Energy Access for All**

Electrification Ratio in the ASEAN (estimations)

Country	Electrification Rate (%)	Unelectrified Population (million, approx.)
Myanmar	**26.0**	**44.4**
Cambodia	**24.0**	**10.6**
Laos PDR	**78.0**	**1.4**
Indonesia	**73.7**	**62.4**
Total ASEAN-4	**53.8**	**118.8**
Philippines	89.7	9.5
Vietnam	97.3	2.1
Thailand	99.3	0.5
Malaysia	99.4	0.2
Brunei	99.7	0.0
Singapore	100.0	0.0
Total ASEAN-6	**95.6**	**12.3**
Total ASEAN-10	**73.9**	**131.1**

Success story!

Challenge ahead!

Source: WEO 2011; ASEAN-RESP 2012; PLN 2012; MoEM Lao PDR 2012.

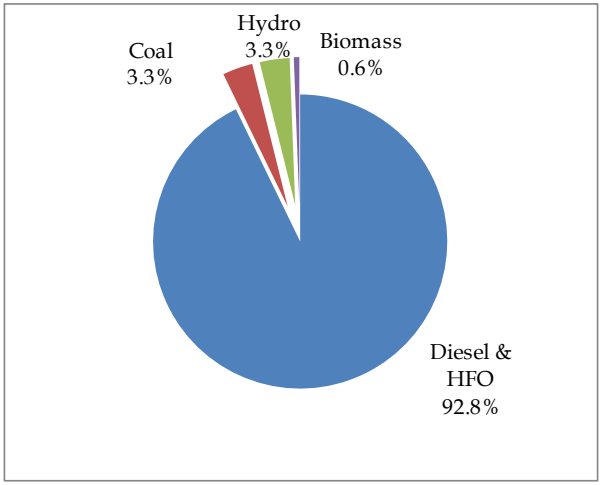
Rationale: **Bring access to the (energy) poor**

- Reliable energy/electricity considered as backbone of **sustainble development** in remote areas
  - ASEAN target: “Accelerate the electrification program for the rural and remote areas in the ASEAN region” (APAEC 2010-2015)
- **Grid extension** successfully realized over the last decades
  - Millions of households connected to reliable electricity
- **Grid connection** is preferable option for households and utilities
  - Dispersed and remote communities/households cannot be reached efficiently
  - Electricity of remote areas an important topic on the political agenda

Rationale: **Dependence on Fossil Fuels**

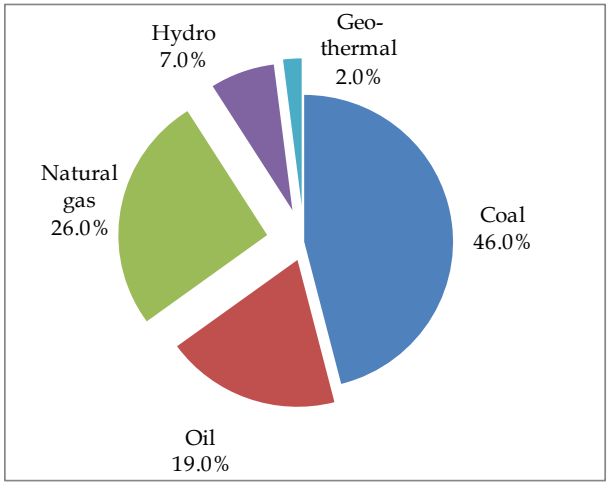
Electricity generation in chosen member states

Cambodia



96% fossil fuels
Rural generation costs: >**1 $/kWh**

Indonesia

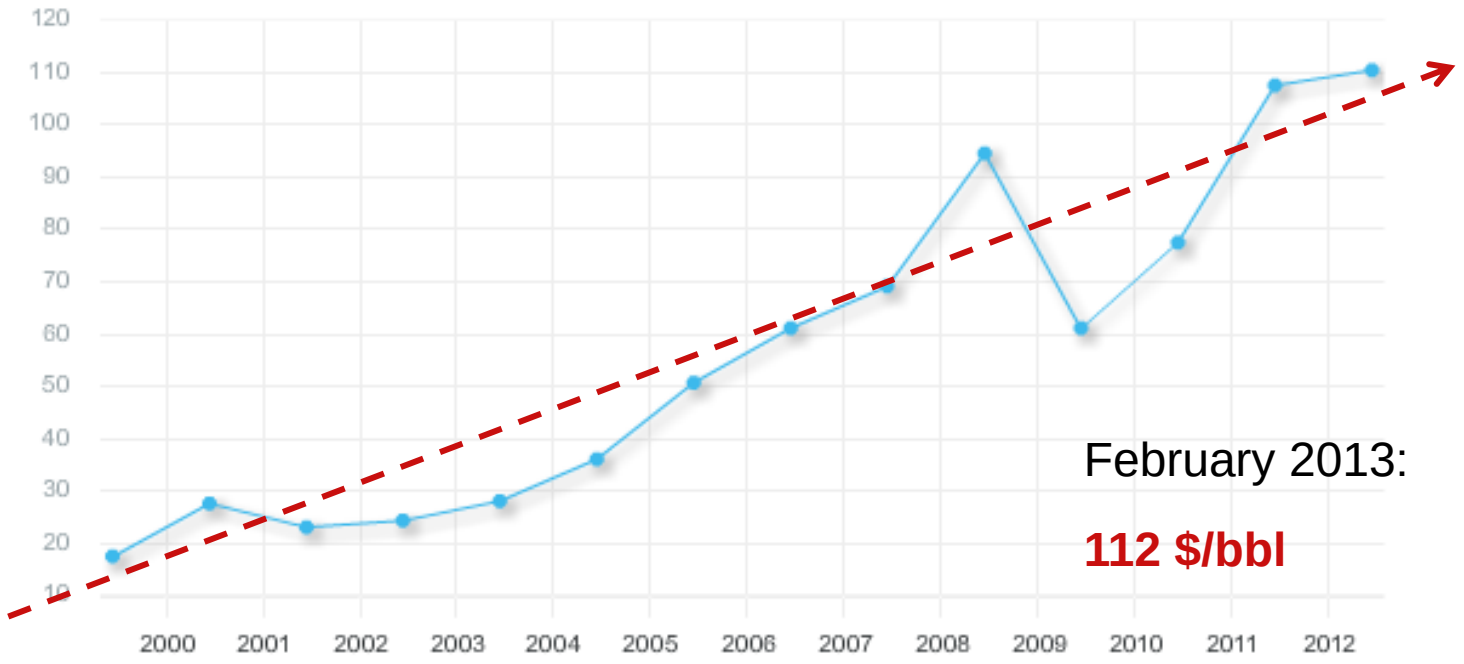


91% fossil fuels
Rural generation costs: >**0,3 $/kWh**

Source: Annual Report of Electricity Authority of Cambodia 2010; ASEAN-RESP Survey 2012.

Rationale: **Increasing fuel costs**

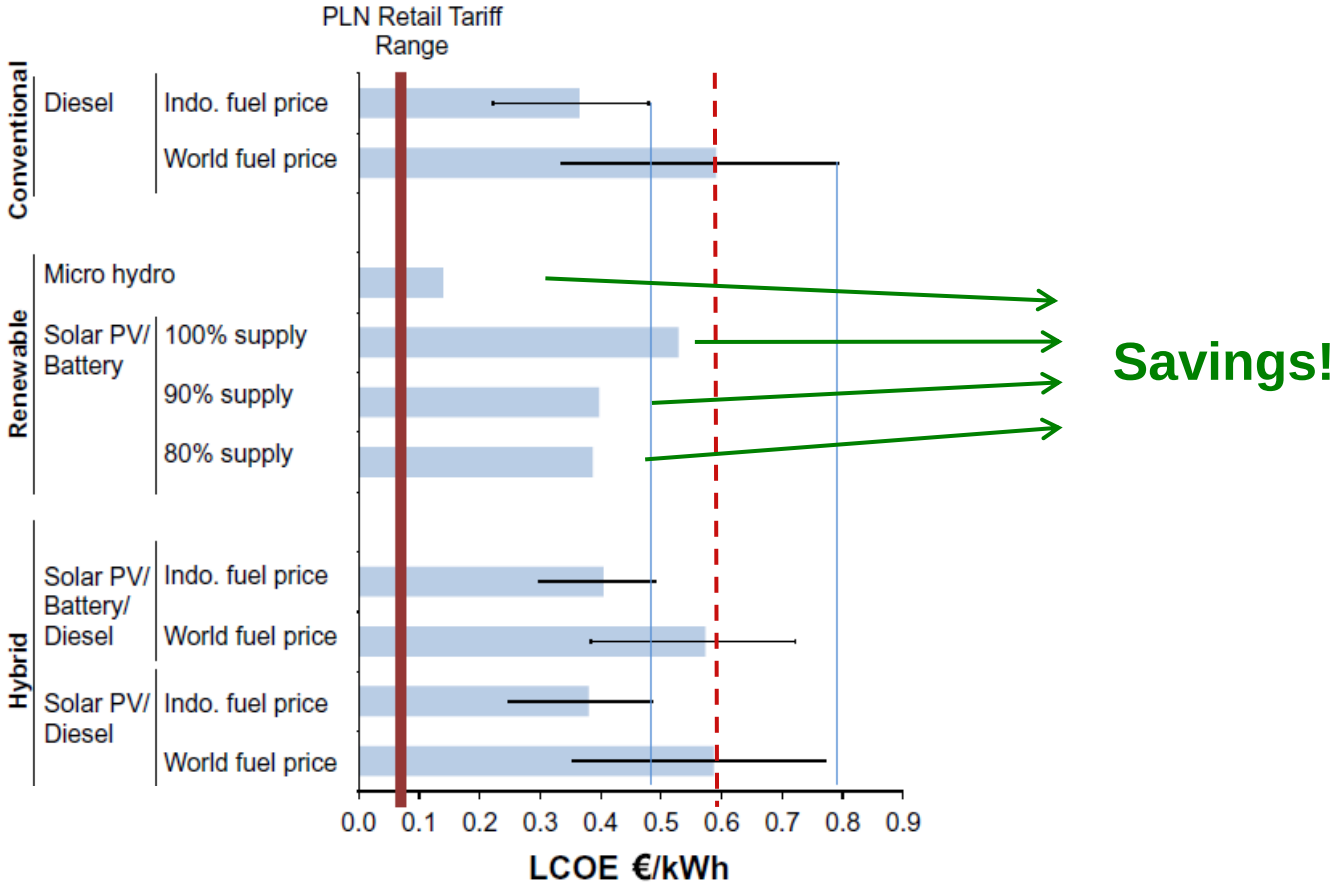
OPEC basket price in USD (2000-2012)



Source: www.opec.org 2013.

Rationale: **Renewables are cost competitive**

Levelized **costs of electricity** for villages grids in **Indonesia**



Source: Blum et al. 2013.

Experiences in ASEAN Member States

Implementation: **Technologies applied in the ASEAN**

- Grid electrification
- Diesel gensets (village and hybrid grids, households)
- Mini Hydropower (village grids)
- Photovoltaic (village and hybrid grids, households)
- Biomass (village and hybrid grids)
- Others (small wind)

→ **Decades of experience are prelevant in the region**

Implementation: **The off-grid practitioners view**

*"Government's **long-term target and commitment** to rural electrification is important for project development"*

*"The **local community** knows best what is feasible and has to be involved at an early stage of the project"*

*"Cheap and **low-quality equipment** has to be **avoided**"*

***"Locally manufactured** technologies helped reducing the project investment costs"*

Tapping the "Local Wisdom"!

Implementation: **Key issues to be considered**

- Policy Framework: Comprehensive approach, longterm commitment; one authority
- Financing Mechanism: Clear and transparent rules; investment security
- Project Setup and Business Models: Include the private sector; consider productive use of energy
- Appropriate Technology: Thorough technology assessment; local capacity; cross border cooperation
- Community Involvement: Bottom-up approach vs. top-down planning; capacity building
- Training and Capacity Building: Continuous training; local training capacities; train-the-trainer activities

Trends and **Challenges** ahead

Trends: **Regional know-how is available**

- **Technology** is reliable and regionally available
  - PV (hybrid grids increasingly applied; Pico appliances available and produced in the region)
  - Mini Hydropower (widespread in the region; turbines and engineering know-how available in the region)

HYCOM ASEAN HYDROPOWER COMPETENCE CENTRE

- **Successful approaches** are implemented in the ASEAN region
  - Importance of a “business case” is increasingly acknowledged
  - Sustainability issues are on the agenda: Productive use of energy, community involvement
- There is a clear willigness and openess to **cooperate regionally**

Challenges: **Implement the right policy**

- Successful approaches are implemented – but often still “one size fits all” or “give-away” programmes!
- Technology is available and reliable – but technology is not everything!
  - Continuous capacity building missing (operation, maintenance, management)
  - Regional technology transfer only punctual
  - Financing for remote electrification projects not available
- Political targets are fullfilled – but what are the long term effects?

Thank You!