

Rural Electrification Workshop  
International Best Practices & Options for  
Policy Makers  
Yangon, Myanmar, 4-5<sup>th</sup> April, 2013

RE Mini Grids for Rural Electrification:  
Project Schemes to Support Mini Grid Electrification,  
Financing Schemes & Required Technical Support for  
Project Development at Operational Phase  
Case Study in Myanmar

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# 1. Contents

- 1.1 Project Schemes
- 1.2 Financing Schemes
- 1.3 Technology Required
- 1.4 Rural Electrification – Myanmar Case Study
- 1.5 Suggestions for Policy Makers
- 1.6 Latest Developments in Policy Planning in Myanmar and the Way Forward

## 2. Project Schemes based on Technology

2.1 Biomass Energy

2.1.1 Biogasification

2.1.2 Biomethanation

2.1.3 Biofuels

## 3. Solar Energy

3.1 Solar Photo Voltaic

4. Mini – Hydro Power

5. Wind Energy

# 3. Financing Schemes

- 3.1 Government Programmes
- 3.2 Community Funds with Government support
- 3.3 Community Funds
- 3.4 NGOs/INGOs Fund
- 3.5 IGO Funds
- 3.6 IPPs

# 4. Technological Support Required

- 4.1 Biogasification – Gasification Agents, Staged Gasification, FBC, Instrumentation & Plant Efficiency, Dry Process Standards and specifications
  - ❖ Large Power Plants
  - ❖ Wet Process
  - ❖ Problem of Contamination & Control

## 4.2 Biomethanation

- 4.2.1 Standards and Specifications
- 4.2.2 Instrumentation
- 4.2.3 Gas Engine
- 4.2.4 Large Power Plants
- 4.2.5 Waste Treatment and Energy Recovery
- 4.2.6 Feed Stock Limitations – Decreasing Cattle Population
- 4.2.7 Use of Carbon Rich Material Feed Stock

## **5. Wind Energy**

5.1 Wind Mapping Requirement

5.2 Standards and specifications

5.3. Coastal Wind Firms

## **6. Mini-Hydro Power**

6.1 Standards and Specifications

6.2 Instrumentation

6.3 Running off Water Turbines

## **7. Tidal Energy**

7.1 Low cost systems

7.2 Running off water turbines

# 8. Rural Electrification – Myanmar Case Studies

8.1 **Biogasification** – Location – Yone Daugt Village, Kyaik Latt Tsp

**Fuel** ----- Rice Huske

**Capacity** ---- 50 KVA

**Electricity** ---- For 243 HH, 2 monasteries, 1 BHS & 1 police station for  
5h x daily

**Funding** ---Soft loan by Private Company ( MEHL ) & villagers ---Cost -- 22,093  
USD (860 K/USD -- Pay back 16 months ( Estimated )

**Management** ----- Village Electrification Committee ( VEC )

**System Design & Manufacturer** ----- 100% Local ( Private )

**Cost/Unit** ----- 650 k ( 80 cent )/kwh

# Biomethanation (Biogas)

<b>Location</b>	-	Thu Nge' Taw Village, Kyauk Sai Tsp
<b>Plant capacity</b>	-	15 kVA (50 m)
<b>Feed Stock</b>	-	Cow manure (500 kg/day)
<b>Funding</b>	-	Government (S & T Ministry), Local Political organization and mainly by village community (Soft Loan and Donations)
<b>Cost</b>	-	3,200,000/ K (3,721/USD) (860 K/USD)
<b>Payback</b>	-	4 Years
<b>Electricity</b>	-	133 HH (536 people) for 5hr/day (since 2004)
<b>Design and Manufacture</b>	-	Ministry of S & T (100% Local)

# Suggestion for Policy Makers

- ◉ Government Policy & Support ( IPP Law, PPA, FIT, etc. )
- ◉ Rural Electrification must be high priority
- ◉ Planning of Biomass feed stock availability
- ◉ Financial inputs – grants, aids, contributions, soft loans
- ◉ Responsible Government Organization
- ◉ Local & International Organizations' participation
- ◉ Capacity building for local people
- ◉ Private Business participation

# Latest Developments in National Energy Policy Planning

- Forming of National Energy Management Committee (NEMC) and National Energy Development Committee (NEDC) by Notification No. (12/2013) dated (9.1.2013)
- NEMC** – Patron - VP U Nyan Tun - 1  
Chair - Minister, MoE - 1  
Dy. Chair - Minister, MoEP - 1  
Members - Union Ministers - 6  
High Govt officials - 1  
Non Govt officials - 2  
Secretary - Dy Minister, MoE - 1  
Joint Secretary - Dy Minister, MoEP - 1  
**Total 14**

- NEDC** – Chair – Minister, MoE – 1  
 Members -Dy.Ministers – 5  
 High Govt officials – 2  
 Non Govt officials – 5  
 (U Thoung Win)  
 Secretary - Proposed by Chairman- 1  
**Total 14**

# Tasks of NEMC

- National Energy Policy
- Energy Regulations
- Reliable Energy Data Base
- Energy Security Strategy – Rules, Regulations & Procedures
- Public/Private Transformations
- Electricity Development
- Long term plan for Electricity Development
- CCT Applications with Environmental protections
- Renewable Technology ( such as Solar, hydro, Wind, Geothermal, Biomass & Energy from Waste etc. ) Development
- Sufficient Energy Supply for Industrial Development
- Energy, Industry & Electricity sectors harmonization
- Adequate supply to local demand of Oil & Gas
- National & International Investments in Oil & Gas according to international rules & regulations
- Value added products from Oil & Gas

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- Adequate Gas & Electricity supply for Urea Fertilizer production
- Energy price setting according to international rates
- Mandatory EIA & SIAs for energy projects & public awareness
- Saving energy loss
- Promotion of national & international investments in energy sector
- Study of peaceful nuclear applications
- National Energy Security Strategy
- Rules, Regulations & Procedures under NEP & NESS
- Participation of other union ministries & concerned Pyithu Hlut Taw Committees

# Tasks of NEDC

- Participate in NEP and planning works
- Transformation of Public-Private sectors in Energy
- Energy plan and Industrial Development plan
- Value added products from natural resources
- Reliable energy data base
- Short and long term energy demand forecast and planning
- Analysis and correction of energy demand forecasts
- Mission and strategy setting for energy development
- Development of investments in states and divisions in energy sector and using of modern technology
- Rules, regulations and procedures for environmental protection
- Energy reserve and back-up for emergency situations
- Pricing committee and pricing policy for energy
- Local and international partnerships and JVs in energy investments

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- Attractive programmer for investments in Renewable Energy sectors
- Rules and regulations for local and international investors in energy development
- Seek help from and cooperate with experienced local and international experts and organizations, hire consultancy services for management and technology standards and specifications
- Knowledge dissemination for public and private sectors
- Seek international funding and technology transfer and prioritize energy investments
- Energy Efficiency and Conservation projects – short and long terms
- Coordination of EE and C programmer with other sectors.
- Cooperation with regional and international organizations for electricity generation by civilian nuclear power.

# **Thank You !**

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