Energy Environment and Implications with Poverty

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Thailand Context

• Policy on balance development of Energy, Environment, Economic, and Social Development (3E+1S)
• Most energy policy focuses on large scale projects
• Some measures introduced to support low income people
• Tend to reflect more market price, with certain level of subsidies.
Concerned Topics

• Household characteristics

• Government supporting policy
  - Electricity
  - Power development fund
  - Fossil fuels, e.g. diesel, LPG
  - Renewable energy subsidy

• Community Projects
Energy consumption increases as income increases
Primary cooking fuel by deciles

Households substitute LPG in place of wood and charcoal as income increases
Energy Subsidy
Electricity for low-income people

- Tariff: increasing block pricing
- Free of charge if monthly consumption is less than 90 kWh
### Household electricity tariff

<table>
<thead>
<tr>
<th></th>
<th>Unit: Bath/kWh *</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 5 kWh</td>
<td>0.6824</td>
</tr>
<tr>
<td>Next 10 kWh</td>
<td>2.0400</td>
</tr>
<tr>
<td>Next 10 kWh</td>
<td>2.2269</td>
</tr>
<tr>
<td>Next 10 kWh</td>
<td>2.4792</td>
</tr>
<tr>
<td>Next 65 kWh</td>
<td>2.8624</td>
</tr>
<tr>
<td>Next 150 kWh</td>
<td>2.9558</td>
</tr>
<tr>
<td>Next 250 kWh</td>
<td>3.4605</td>
</tr>
<tr>
<td>Next kWh</td>
<td>3.6604</td>
</tr>
</tbody>
</table>

* *As of November 2012*
Power Development fund

- Support extension of electricity services
- Development of local community affected by power plant
- Promote the use of renewable energy, technology with less environmental impact
# Contribution from power generation licensees

<table>
<thead>
<tr>
<th>Input resources</th>
<th>Rate (St/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Natural gas</td>
<td>1.0</td>
</tr>
<tr>
<td>2) Fuel oil, Diesel</td>
<td>1.5</td>
</tr>
<tr>
<td>3) Coal, Lignite</td>
<td>2.0</td>
</tr>
<tr>
<td>4) Wind and Solar</td>
<td>1.0</td>
</tr>
<tr>
<td>5) Hydro</td>
<td>2.0</td>
</tr>
<tr>
<td>6) Other RE</td>
<td>1.0</td>
</tr>
</tbody>
</table>
LPG Price Subsidy

• Household < Transportation < Industry

Petroleum levy

• Diesel < Gasoline
Community projects

- Food waste to biogas
- Plastic waste to oil
- Energy crops, etc.
- Prices subsidy for electricity from renewable energy.
Waste Capacity: 6 ton/day; yield 4,500 litre/day
Products utilisation
Food waste
Biogas system

Chulalongkorn Univ.

*Semi-dry fermentation*
Capacity: 250 kg/day
Biogas 25 m³/day
replacing LPG 13 kg/day

Town-in-town hotel

*Semi-dry fermentation*
Capacity: 550 kg/day
Biogas 55 m³/day
replacing LPG 25 kg/day
Biogas utilization
Required Verification

• How effective these measures are?
• Who is really affected?
• How much the benefit is worth compared to the cost?

• How should we adjust the measures to effectively work?