- The ASEAN Region
- RE Development in the ASEAN
- Future Outlook
The ASEAN Region

RE Development in the ASEAN

Future Outlook
ASEAN Region: Overview

- 10 member states
- ~625 million population
- USD 2,400 billion GDP (2013)
- 5.1% GDP Growth (2013)

- Primary energy demand: 549 MTOE (2011)
- Electricity generation: 132,412 GWh (2011)
- Electricity demand: +4.2%/year
The ASEAN Region

RE Development in the ASEAN

Future Outlook
**RE Development:** Common Drivers

- Increasing demand
- Security of energy supply
- Energy subsidies

Electricity generation by source; www.aseanrenewables.info
RE Development: Common Drivers

- Energy access

<table>
<thead>
<tr>
<th>Country</th>
<th>Electrification Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cambodia</td>
<td>31%</td>
</tr>
<tr>
<td>Myanmar</td>
<td>49%</td>
</tr>
<tr>
<td>Laos</td>
<td>78%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>80.4%</td>
</tr>
<tr>
<td>Philippines</td>
<td>81.7%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>98%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>99%</td>
</tr>
<tr>
<td>Thailand</td>
<td>99.3%</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>99.7%</td>
</tr>
<tr>
<td>Singapore</td>
<td>100%</td>
</tr>
</tbody>
</table>

Around 100 mln people without access to electricity

Source: www.aseanrenewables.info
**RE Development: Common Drivers**

- Decreasing development costs (PV)

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**PV Module Price Trend in Thailand**

**EPC Price Trend in Thailand**

Source: Mott MacDonald 2014.
RE Development: Targets

- Collective RE Target for the ASEAN: 15% RE Share in total installed capacity (power generation) by 2015
- 8 of 10 ASEAN member state have set concrete RE Targets
- RE Targets of each ASEAN Member State have different focuses

<table>
<thead>
<tr>
<th>Member states</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>17% share of RE in national energy mix by 2025 Including 2% liquefied coal</td>
</tr>
<tr>
<td>Thailand</td>
<td>20% share of RE in national energy mix by 2021 (Power + Thermal + Fuel)</td>
</tr>
<tr>
<td>The Philippines</td>
<td>15 GW installed capacity in 2030</td>
</tr>
<tr>
<td>Myanmar</td>
<td>15-20% share of RE in power generation by 2020</td>
</tr>
</tbody>
</table>
RE Development: Achievements

- Primary energy mix in ASEAN (2011, latest collective available data)

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>MTOE</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewable Energy</td>
<td>133.5</td>
<td>24%</td>
</tr>
<tr>
<td>Oil and Petroleum</td>
<td>207.6</td>
<td>38%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>117.4</td>
<td>21%</td>
</tr>
<tr>
<td>Coal</td>
<td>90.4</td>
<td>16%</td>
</tr>
</tbody>
</table>

Total: 548.90 MTOE

Source: ACE 2013.
**RE Development: Achievements**

- RE in the ASEAN Power sector (2011)

Data from 2011; ACE 2013.
RE Development: Summary

- Ambitious targets set in place, but not fully met on country level
- RE markets very diverse, leading to different challenges (adjustment of grid codes vs. basic electricity supply)
- Considerable development on the regulation/policy side in some ASEAN countries (ID, MY, PH, TH, VN)

BUT

- Still relatively unstable investment environment for large scale deployment of RE (exception: TH)
- The ASEAN Region
- RE Development in the ASEAN
- Future Outlook
Outlook: Need for Power!

Source: ACE: 3rd ASEAN Energy Outlook, IEA: Southeast Asia Energy Outlook 2013
Outlook: Remaining Challenges

- “Teething trouble” which accompanies new developments
- Frequent changes/adjustments of RE support schemes
- Intransparent and complicated administrative procedures and case-by-case decision making
- Lack of data and data inconsistency
- No regional market (common technical norms and standards);
- Private investment from local investors still relatively scarce
Outlook: Remaining Challenges - Procedures

- Many different government levels involved
- Central policy vs. decentral approval
- Differing procedures in different regions
- Involvement of many authorities for minor licences
- Mismatch between size of project and number of licenses
- Regulations in place but not disseminated
- Procedures not ‘bankable’

Need for Guidance
ASEAN Perspective: Remaining Challenges - Transparency

“Where are **eligible locations** for the power plant?”

“How much time does the issuing of the environmental permit take?”

“What are the **costs** to obtain a temporary production license?”

“It took me almost **3 years** to obtain **several hundred licenses and permits**!”

“There is a regulation for the local government, but **nobody knows** about it”

Need for Transparency
Guideline for Biomass/Biogas Project Development in Indonesia
Overall Procedure (Flow Chart View)
Power Purchase Agreement

Chapter 3

Direct Appointment Mechanism

C3-1
Submit a proposal for PPA

C3-2
Approval for direct appointment

C3-3
Conduct feasibility study

C3-4
Negotiate the duration of price agreement, point of connection

C3-5*
Negotiate the selling price

C3-6*
Selling price approval

C3-7
Sign the PPA

When the project developer wants a selling price higher than the FiT

The first performance bond (C5-1)

Temporary Electricity Production License (C4-1)
Further Information: ASEAN RE Guidelines

www.re-guidelines.info
Further Information: ASEAN RE Webportal

www.aseanrenewables.info
Thank You!

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