INCLUSIVE GREEN GROWTH: INVESTING FOR A SUSTAINABLE FUTURE
Dialogue Session 2: Green Energy: Powering the Future

Internalizing the Externalities in Power Development Plans in the GMS

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Summary

- Focus on changes to the strategic planning system for the power sector in GMS countries
- Important and rapidly changing sector in all countries
- Combination of means and opportunity to make the sector a key part of successful sustainable development
- The opportunity is the change happening in global energy technologies and markets
- The means is the integration of strategic environmental assessment into power sector strategic planning
Strategic Environmental Assessment

- A method to integrate social and environmental impact assessment into strategic planning
- SEA is or soon will be a legal requirement in all GMS countries
- Assess impacts and identify mitigation measures
- Informed decisions based on the whole picture
- Can ensure overall national development policies are more effectively integrated into power sector planning
The SEA Process

Links between prediction, evaluation and mitigation

- Environmental Baseline
- Strategic action
- Impact prediction techniques

**Prediction:**
- how big is the impact, what is its duration, etc?

**Evaluation:**
- is the predicted impact significant?

**Mitigation:**
- can negative impacts be reduced and positive ones enhanced?

Target/threshold, expert judgment, etc

Where mitigation changes the strategic action significantly
Why Use SEA?

• Compare alternative sets of options through scenarios – e.g. different demand forecasts or levels of investment in renewable energy
• Quantify and where possible put an economic value on all impacts – positive and negative
• “Internalize” the costs into the economic analysis of the plan
• Can compare very different impacts using a common parameter – money
• Include structured consultations
• Identify potential problems as early as possible in the planning process
Predicted Future Price Trends

We have heard how the cost of renewable has fallen in recent years. The price of renewables will continue to decline over the next 10 years. As PDPs must plan for a 10-20 year period, the likely continued decline of the price of renewables must be taken into account in the preparation of a PDP.

<table>
<thead>
<tr>
<th>Renewable Type</th>
<th>Investment costs (2015 USD/kW)</th>
<th>Percent change</th>
<th>Capacity factor</th>
<th>Percent change</th>
<th>LCOE (2015 USD/kWh)</th>
<th>Percent change</th>
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</thead>
<tbody>
<tr>
<td>Solar PV</td>
<td>1810</td>
<td>-57%</td>
<td>18%</td>
<td>8%</td>
<td>0.13</td>
<td>-59%</td>
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<tr>
<td>CSP (PTC: parabolic trough collector)</td>
<td>5550</td>
<td>-33%</td>
<td>41%</td>
<td>8.4%</td>
<td>0.15</td>
<td>-37%</td>
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<tr>
<td>CSP (ST: solar tower)</td>
<td>5700</td>
<td>-37%</td>
<td>46%</td>
<td>7.6%</td>
<td>0.15</td>
<td>-43%</td>
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<tr>
<td>Onshore wind</td>
<td>1560</td>
<td>-12%</td>
<td>27%</td>
<td>11%</td>
<td>0.07</td>
<td>-26%</td>
</tr>
<tr>
<td>Offshore wind</td>
<td>4650</td>
<td>-15%</td>
<td>43%</td>
<td>4%</td>
<td>0.18</td>
<td>-35%</td>
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</table>
Implications for PDPs

Policy Frameworks

- Need to align the power sector with national development policies such as green growth and sustainable development.
- Water and air pollution from power generation has led to impacts on human and environmental health.
- Reduce greenhouse gas emissions to facilitate climate change mitigation.
- Environmental protection regulations mean that social and environmental impacts that have been neglected in the past must be included in power generation plans.
Implications for PDPs

• Need to plan with increasing uncertainty and speed of change in both energy sector and environmental policies
• Expanding RE means many more, smaller investments that are much quicker to develop
• Very likely much higher levels of private sector investment including FDI
• Power sector planning needs to include more actors, including decentralized authorities and private sector
Vietnam’s Experience

- SEA became a legal requirement in Vietnam in the 2005 Law on Environmental Protection
- There was little experience on how to do this and the Ministry of Industry and Trade asked ADB’s EOC for help
- This was followed by 12 years of ADB support to SEAs in PDPs in 3 phases:
  1. A pilot, retrospective SEA on the Hydropower Master Plan in the context of PDP 6
  2. Support to the SEA in PDP 7
  3. Advise on the development of the SEA in the revised PDP 7
- Led to evolution of capabilities from SEA as a new idea to where SEA is now integrated into the PDP process
Vietnam’s Experience

• PDP 7 included an SEA & was submitted in 2012
• Main impacts from atmospheric pollution:
  - Greenhouse Gas Emissions: Valuation of CO$_2$ impacts over $9$ billion by 2030
  - Acidification: SO$_2$ impacts valued to over $728$ million by 2030
  - Health Impacts: Valuation of PM & NO$_x$ impacts increases to $1.35$ billion in 2030
• GoV required PDP 7 to be revised as demand forecasts too high and thermal power impacts not acceptable
Vietnam’s Experience

- Revision went through several iterations, progressively increasing renewable energy.
- Savings of 100 million tCO2eq by 2030 enough to meet INDC 8% target.
- Represents economic saving equivalent to +$1 billion by 2030.
- No increase in predicted generation cost per kWh.

<table>
<thead>
<tr>
<th></th>
<th>Original PDP 7</th>
<th>Revised PDP 7</th>
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</thead>
<tbody>
<tr>
<td>Generation capacity 2030</td>
<td>137,388</td>
<td>129,508</td>
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<td>Coal</td>
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<td>Natural Gas and oil</td>
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<td>Nuclear</td>
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<tr>
<td>Imported</td>
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The Next Steps

- Guidance on how to integrate an SEA in PDP Preparation
- Build capacities and gain experience on SEA
- Expanding RE and EE needs changes to planning methods
- Can include greater involvement of decentralized authorities
- Opportunity to develop policies such as polluter pays and PES
- Better alignment with national policies and targets and better coordination between different agencies