Investing in High Quality Infrastructure

16 June 2021
Jun ARIMA
Project Professor, GraSPP, University of Tokyo
Senior Policy Fellow of Energy and Environment
Economic Research Institute of ASEAN and East Asia
The APEC Guideline for Quality Electric Power Infrastructure.

APEC Guideline for Quality Electric Power Infrastructure

Energy Working Group

October 2016
SIX COMPONENTS of “the Quality Electric Power Infrastructure”

- **Cost**
- **Life Cycle Cost (LCC)**
- **Power Infrastructure (Thermal Power Plant)**
- **External Factors**
  - Environmental destruction, etc
  - Industrial accidents, etc
- **Performance**
  - Initial Performance
  - Stable Supply
  - Ability to Smoothly Stop and Recover
- **Environmental and Social Consideration**
- **Safety**
This six components are well corresponding to the basic framework of energy policy, namely “3E+S” (energy security, economic growth, environmental conservation and safety).
Measuring the “Quality” - Operation phase -

- **13 indicators** are identified to assess the Quality **during business operation phase**.
- Indicators are mainly keyed to self-check for power providers.

<table>
<thead>
<tr>
<th>Component</th>
<th>Performance Evaluation Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initial Performance</td>
<td>(N/A)</td>
</tr>
<tr>
<td>2. Stable Supply</td>
<td>1) Availability</td>
</tr>
<tr>
<td></td>
<td>2) Increase of heat rate</td>
</tr>
<tr>
<td></td>
<td>3) Ability to adjust power supply and demand</td>
</tr>
<tr>
<td>3. Ability to Smoothly Stop and Recover</td>
<td>4) Forced outage rate (FOR)</td>
</tr>
<tr>
<td></td>
<td>5) Long-term FOR</td>
</tr>
<tr>
<td>4. Environmental and Social</td>
<td>6) SOx and NOx discharge rate</td>
</tr>
<tr>
<td>Consideration</td>
<td>7) CO2 emissions rate</td>
</tr>
<tr>
<td></td>
<td>8) Water quality</td>
</tr>
<tr>
<td></td>
<td>9) Noise/vibration</td>
</tr>
<tr>
<td></td>
<td>10) Waste recycle rate</td>
</tr>
<tr>
<td></td>
<td>11) Employment rate from an economy concerned</td>
</tr>
<tr>
<td>5. Safety</td>
<td>12) Number of deaths caused by industrial accidents</td>
</tr>
<tr>
<td>6. LCC</td>
<td>13) LCC considering all other five components</td>
</tr>
</tbody>
</table>
Asia needs energy related investment of $27.5 trillion from 2018 to 2050. Fossil fuel related investment amounts to $7.9 trillion (28% of total).

Source: IEEJ Asia and World Energy Outlook (2019)
OECD has issued a report urging stopping ODA for fossil fuel related activities.

ADB proposed new energy policy significantly squeezing finance to fossil related activities.

- No finance to coal mining, oil & gas field exploration, drilling or extraction
- No finance to any new coal fired capacity, no participation in investment to modernize, upgrade or renovate coal facilities
- May finance natural gas projects... when the following conditions are ALL met i) provides energy services to those who currently are without said energy service ........ v) demonstrates alignment with targets to achieve carbon neutrality by mid-century

The Ministers recognised the continued role of natural gas and clean coal technologies in helping transition the region’s economies towards a low carbon future while improving energy security and underlined the importance of mobilising finance. (EAS Energy Ministers Meeting 2020)
Affordable Energy Access: Priority for Developing Countries

◆ Overcoming energy poverty is prerequisite for achieving SDGs
◆ Globally, nearly 1 billion people still lack access to electricity. Improving electricity access in 2000-2015 has been largely achieved by fossil fuel (68%), most notably, coal (44%).
◆ Abundant coal reserves in Asian region cannot simply be neglected.

IEA Energy Access Outlook 2017 WEO Special Report
What Matters Most to You?

◆ UN poll “My World 2030” (524,000 respondents) suggests that, among 17 SDGs, developing countries put higher priority on no poverty, good health, quality education, job and economic growth ahead of climate change.

Source: United Nations My World 2030 (Jan 2020)
Asian region will have growing energy security and climate change challenges in coming decades.

Criteria of High Quality Investment (cost, initial performance, stable supply, ability to smoothly stop and recover, environment and social dimension and safety) are multi-faceted. Priority among them could be different among countries.

All the options should be pursued in Asia for enhancing energy security, resilience and reducing CO2 emissions through energy efficiency, clean use of coal, fuel switching from coal to gas, nuclear, renewable and adoption of innovative technologies (CCS/CCUS, hydrogen etc) reflecting each country’s circumstances.

Given fossil fuel will play a vital role in coming decades for economic growth through affordable energy supply, squeezing finance to fossil fuel related sector could have negative implication to affordable energy supply in Asia.

Growing gap between energy reality in Asia region and COP discussion. Asian energy reality needs to be reflected for seeking more pragmatic solution.