

# **APEC Initiative for Enhancing Quality of Electric Power Infrastructure**

**25 August 2015**

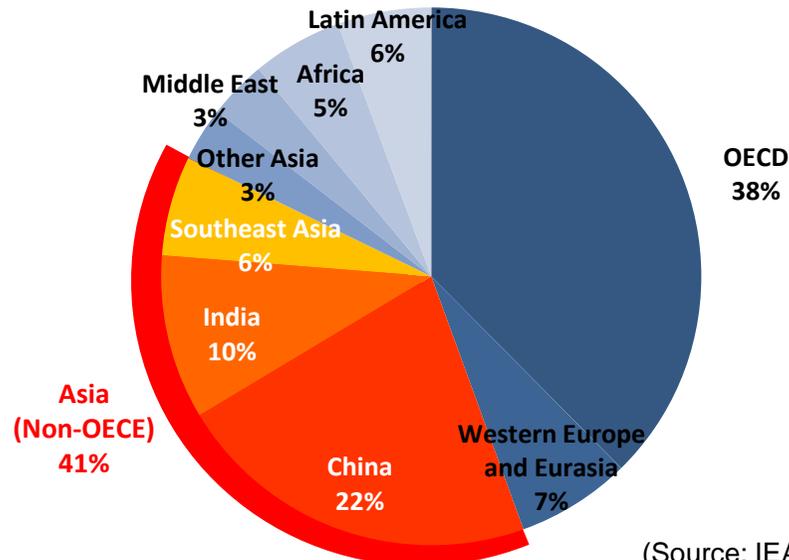
**Katsushi Takehiro**

**Agency for Natural Resources and Energy  
Ministry of Economy, Trade and Industry (METI), Japan**

# 1. Background

- Non-OECE economies are the center of energy infrastructure investment in the medium- and long-term.
- Especially, cumulative investment in the Asian electric power sector is expected to reach approximately US\$ 6.7 trillion by 2035. (China US\$ 3.6 trillion; India US\$ 1.6 trillion; Southeast Asia US\$ 1.0 trillion)

Figure. Share of cumulative investment and energy efficiency by region (2014-2035)

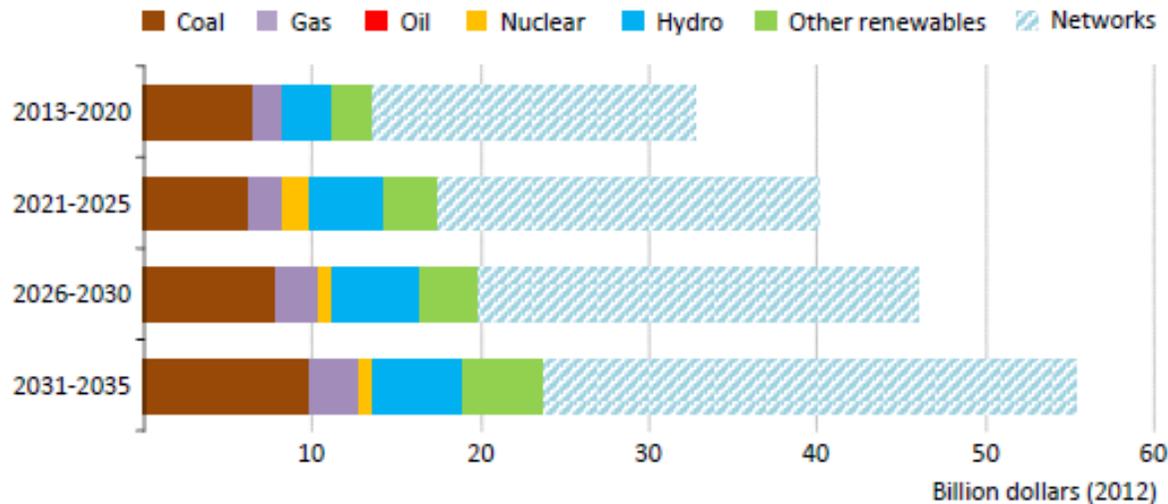


(Source: IEA World Energy Investment Outlook (2014))

# 1. Background *(cont.)*

- Electricity demand in Southeast Asian countries will increase by 140% between 2012 and 2035, which leads to cumulative investment of about US\$ 1.0 trillion in power sector.
- In particular, investment in coal-fired power generation expects to grow.

Figure. ASEAN average annual investment in power generation capacity and T&D networks

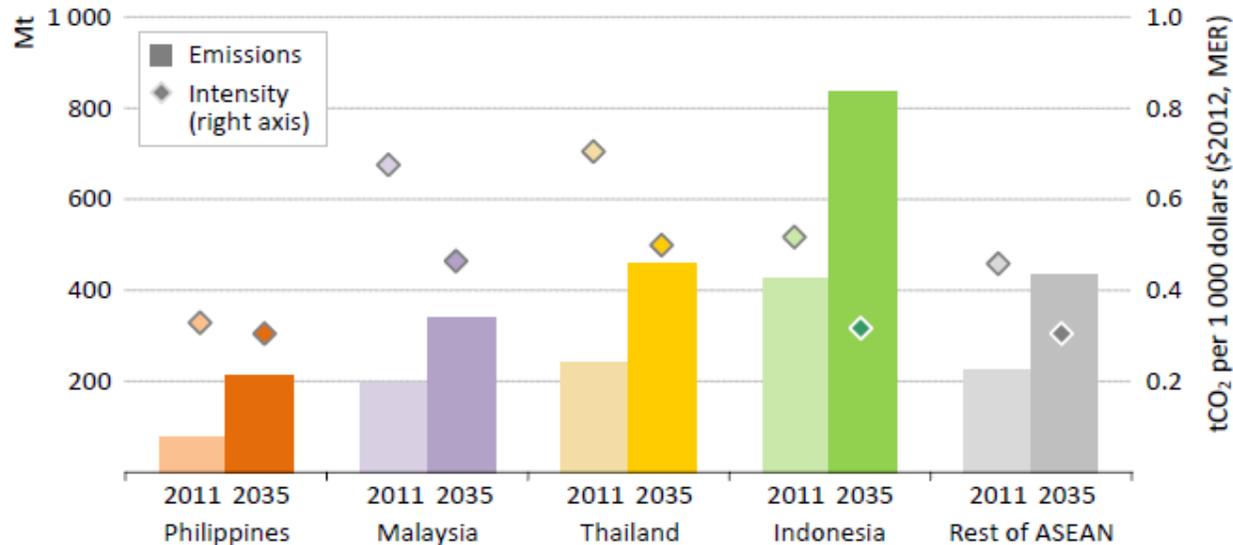


(Source: IEA Southeast Asia Energy Outlook (2014))

# 1. Background *(cont.)*

- Not only short-term financial interest but also long-term and appropriate perspectives such as CO<sub>2</sub> emissions reduction and resilience should be taken into consideration in selecting energy infrastructure.

Figure. CO<sub>2</sub> emissions and energy intensity, 2011 and 2035



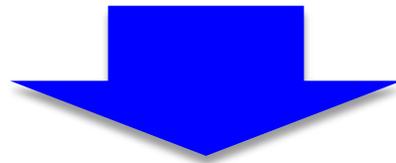
Notes: Mt = million tonnes; MER = market exchange rate.

(Source: IEA Southeast Asia Energy Outlook (2014))

## 2. Bad Practices of Infrastructure Development

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- Delay in construction
- Cost overrun
- Pollution
- Labor issues
- Accidents
- Output lower than initially planned
- Output degradation / Easy breakdown



***Bad infrastructure may hamper economic growth.***

### 3. APEC Guidebook on Quality of Infrastructure Development and Investment

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- At the APEC Ministerial Meeting on November 2014, Ministers recognized that **(i) lifecycle cost (LCC)**, **(ii) environmental impacts**, and **(iii) safety such as resilience to natural disasters** constitute the key elements of infrastructure quality, and agreed the APEC Guidebook on Quality of Infrastructure Development and Investment.

#### **LCC**

- Initial cost
- Maintenance cost
- Operation cost
- Demolition cost
- Disposal cost etc.

#### **ENVIRONMENTAL IMPACTS**

- CO<sub>2</sub>
- NO<sub>x</sub>
- SO<sub>x</sub>
- Particulate matter
- Waste disposal etc.

#### **SAFETY**

- Natural disaster (e.g. earthquake and tsunami)
- Cyber security etc.

## 4. Secure Quality of Infrastructure across Various Sectors

- In 2015, APEC Ministers Responsible for Trade (MRT) emphasized **“the importance of quality infrastructure in mitigating environmental risks and enhancing resilience to natural disasters.”**
- The MRT also encouraged officials to **explore initiatives to secure quality of infrastructure across various sectors.**



## 5. Objectives

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- Based on the spirit of the Guidebook, with a view to developing high quality electric power infrastructure in the Asia-Pacific region, Japan has launched an **Initiative for Enhancing Quality of Electric Power Infrastructure**.
- This Initiative is cosponsored by **the Philippines, Peru, Chinese Taipei and the United States**.
- The Initiative is mainly aimed at **formulating a guideline** for that purpose.
- After the guideline being finalized, **capacity building** for disseminating the guideline will be conducted.

## 6. Scope of the Guideline

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### **TARGET**

Government officials in charge of electricity business and electric power providers including national power companies and independent power producers (IPPs)

### **AIM**

To provide important elements to be considered when developing individual high-quality electric power infrastructure such as power plants and energy transmission and distribution system

### **POSSIBLE ELEMENTS**

The performance of infrastructure (e.g. efficiency, durability, credibility, resilience), externality (e.g. environmental impacts, safety, local involvement), and lifecycle cost

### **COVERAGE**

Whole lifecycle from planning stage to construction, operation and maintenance (O&M), and end-of-life stage.

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## 8. Tentative Schedule

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### 2015

- 29 May Circulate a proposal for the initiative to APEC Energy Working Group (EWG) members ( >>> **endorsed on 8 June** )
- 22 June **APEC Infrastructure Development Workshop** to explain the overview of the initiative <Gyeongju, Korea>
- 25-26 August **This Workshop** <Tokyo>
- 12-14 October **APEC Energy Ministers welcome the initiative** and instruct the EWG to formulate the guideline at the APEC Energy Ministerial Meeting (EMM) <Cebu, the Philippines>

### 2016

- Autumn EWG members agree to the guideline
- Autumn **APEC Ministers welcome the guideline** at the APEC Ministerial Meeting <Peru>
- Year-end Hold **seminars** to disseminate the guideline

## 9. Workshop's Discussion Points

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### **OBJECTIVE**

- ✓ to share each economy's experience in developing electric power infrastructure and to discuss what should be considered in order to ensure its quality

### **DISCUSSION POINTS**

- ✓ Past and/or existing problems related to developing and/or operating electric power infrastructure.
- ✓ Measures to be implemented to overcome these problems
- ✓ Elements which have big impact on the quality of electric power infrastructure
- ✓ Possible collaborative actions in APEC in order to enhance quality of electric power infrastructure

# 10. Workshop's Agenda

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## DAY 1 (25 August)

1. **Bad practices on developing power infrastructure** <KPMG>
2. **Each economy's experience on developing power infrastructure**  
<Each economy>
3. **Advanced case of high-quality electric power infrastructure procurement** <KPMG>
4. **High-quality electric power infrastructure from the perspective of government, electric power companies and private companies**  
<Indonesian Ministry of Energy and Mining; TEPCO; MHPS; CSSC; KPMG>
5. **High-quality electric power infrastructure from the perspective of a financial institution** <ADB>

## DAY 2 (26 August)

6. **Important Elements to be considered to ensure quality of electric power infrastructure** <KPMG>
7. **Discussion by participants**
8. **Site visit** <TEPCO>