Outlines

1. What Are Needed for Asia-Pacific Clean Energy of Tomorrow
2. How Carbon Market Impacts on Financing Clean Energy
3. Asia-Pacific Carbon Markets and its impact on Clean Energy Finance
4. Prospect of Carbon Markets for Clean Energy Finance
5. Maximize Leveraging Carbon Market to Finance Tomorrow’s Clean Energy
1. What Are Need for Asia-Pacific Clean Energy of Tomorrow

• Bring 200 million people access to electricity, and 1.7 billion people access to clean cooking by 2030

• Shift energy system from 85% of fossil fuel share in primary energy consumption to clean energy dominated system

• Increase RE Share in total electricity generation to almost half by 2030 and to 70% by 2040 from 24% in 2019

• Estimated Clean energy investment need :1.3 trillion per year through 2050
2. How Carbon Market Impacts Clean Energy Finance

• Three avenues to impact clean energy investment and finance

- Putting price on carbon emissions
  - Improve market competitiveness of clean energy

- Crediting scheme: trading carbon credits
  - Raise additional revenue for clean energy
  - Recycle auctioning revenue into clean energy
  - Purchase carbon credits from clean energy projects
  - Pooling capital through trading future contracts to involve financial actors in carbon market

- ETS: Allocation of allowances, offset rule, trading policy
  - Improve market competitiveness of clean energy
3. Asia-Pacific Carbon Markets and its impact on Clean Energy Finance

• Asia-Pacific Carbon Market Landscape

• Impact of Carbon Markets on Clean Energy Finance

• Overall Assessment of the Carbon Markets in Clean Energy Finance
3. 1 Asia-Pacific Carbon Market Landscape

- **International carbon market**
  - **Clean development mechanism (CDM)**
    - **China carbon market:**
      - Pilot ETSs
      - China GHG Voluntary Emission Reduction Program (CVER)
    - **Korea carbon market:**
      - Korea emission trading scheme (KETS)
      - Korean Offset Crediting Mechanism: Korean Offset Credits Program (KOC) and Korean CDM projects
    - **Kazakhstan market:**
      - Kazakhstan ETS
    - **New Zealand market:**
      - New Zealand ETS (NZ ETS)
    - **Japan carbon market:**
      - Joint Crediting Mechanism (JCM)
      - Tokyo Cap and Trade program (Tokyo CaT)
      - Saitama’s ETS

- **National and sub-national carbon markets**
3.2 Impact of Carbon Markets in Asia Clean Energy Finance (CDM)

A. International Carbon Market: *Clean Development Mechanism (CDM)*

From 2004 to 2019:
- **Asia Clean Energy Project**
  - Total: 5,673
  - Taking up 84% of Asia CDM project portfolio

- **Trigger Clean Energy investment**
  - $263 billion

- **Raise Revenue for Clean Energy**
  - $28 billion

### Chart: Historic and Average CERs Price in Primary Market and Cumulative CERs issued

- **Cumulative CERs issued (Mt CO₂)**
- **CER price in primary market ($/t CO₂e)**

### Table:

<table>
<thead>
<tr>
<th>Year</th>
<th>Cumulative CERs issued (Mt CO₂)</th>
<th>CER price in primary market ($/t CO₂e)</th>
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3.2 Impact of Carbon Markets in Asia Clean Energy Financing (PRC)

B. Carbon Markets in the PRC

- China Greenhouse Gas Voluntary Emissions Reduction, established in 2014
- Trading units: China Certified Emission Reduction (CCER)
- By 2019:
  - Sparked investment in 684 clean energy projects, with a total installed capacity of 45 GW
  - Share 79% of total CCER project portfolio
  - Accumulative traded value: $259 million

Average CCERs' price ($/tCO2e)

- 2015: 1.21
- 2016: 1.17
- 2017: 0.69
- 2018: 2.31
- 2019: 1.50
3.2. Impact of Carbon Markets in Asia Clean Energy Financing (PRC)

- Seven Pilot Emission Trading Schemes (cover 1.2 billion tCO2e emissions)

- Free allocation, except for Guangdong ETS (auctioning small portion of allowances)
- Auctioning allowances for market stabilization
- Offset rule: offsetting 5-10% of emissions by using CCERs (most sourcing from local projects)
- Trading policy: trading spot contracts only
- Limited Impact on clean energy finance:
  - Raising revenues from auctioning allowances: $137 million
  - From 2013 to 2019: Accumulated traded volume: 395 million tCO2 and traded value: $366 million

2019 Carbon price in PRC seven pilot ETSs
3.2 Impact of Carbon Markets in Asia Clean Energy Financing (Republic of Korea)

C. Carbon Market in Republic of Korea

- Trading unit: KAU
- Auctioning a small portion of allowances: 3% in phase II from 2018 to 2020, and 10% in phase III from 2021 to 2025
- Offset rule: 10% of covered emissions
- Trading policy: trading spot contract only
- Limited impact on clean energy finance:
  - Auctioning revenue: Only $224 million in 2019 through selling 8 millions of KAU

Korea Emission Trading Scheme (KETS), established in 2015

Korean Offset Credits Program (KOC) Established in 2015

Trading unit: KOC
By 2019, triggering 461 KOC projects and issuing 16 million KOCs (68% from clean energy project)
Low traded volume and traded values: trading 5 million KOCs with traded value of $9 million in 2019

Average KOC’s Price 2016 - 2019

Traded Volume and Traded Value of Korean Offset Credits by Year
3.2 Impact of Carbon Markets in Asia Clean Energy Financing (New Zealand)

D. New Zealand ETS

- Free allocation and starting auctioning from late 2020
- No limit on use of credit to offset emissions
- Fixed price option (FPO): $18 tCO₂e from 2010 to 2019, $23/tCO₂e in 2020 onward
- Limited impact on both domestic and international clean energy finance
  - From 2010 to 2019, Collecting revenues through FPO: $464 million
  - From 2010 to 2015, contributing $58 million to CDM projects in developing countries

New Zealand ETS, established in 2008

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**New Zealand Allowances prices vs CERs Prices**

- NZU Spot Price ($/tCO₂e)
- CERs' Price ($/tCO₂e)

**CERs surrendered vs units surrendered by fixed price option**

- CERs surrendered (tCO₂e)
- Surrendered units by Fixed Price option (tCO₂e)
### 3.2. Impact of Carbon Markets on Asia Clean Energy Financing (Japan)

#### E. Japanese Carbon Market

<table>
<thead>
<tr>
<th>Mechanism</th>
<th>Description</th>
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| Joint Crediting Mechanism, established in 2012 | - A bilateral crediting mechanism between Japan and partner developing countries
  - Mobilize 51 clean energy projects by July 2020 |
| Joint Crediting Mechanism Fund, established in 2014 | - Total amount: $71.1 million for supporting ADB’s DMCs to use advanced low-carbon technology
  - Allocated $31.6 million to five projects, with three clean energy projects out of the five |
| Tokyo Cap and Trade Program (Tokyo CaT), established in 2010 | - No auctioning of allowances
  - Offset rule: allow offsetting emissions through four types of credits, including clean energy
  - Trading policy: only trade allowances leftover and credits in the end of compliance year
  - Mobilized investment in 1,481 clean energy projects by 2019
  - Limited impact on clean energy finance, only 500,000 MtCO2e of credits were issued |
| Saitama’s Emissions Trading Scheme, established in 2011 | - No auctioning of allowances
  - Offset rule: allow offsetting emissions through five types of credits, including clean energy
  - Trading policy: only allow to trade allowances leftover and credits needed in the end of compliance year
  - By 2019, triggered 680 clean energy projects and issued 6.2 MtCO2e of credits from renewable energy projects |
3.3 Overall Assessment of Asia-Pacific Carbon Markets in Clean Energy Finance

- Low Carbon price
- Dominant Role of the International Carbon Market
- Limited Role of the Domestic Carbon Market
- Less Encouragement of Private Sector Engagement in Domestic Carbon Market
- Uncertainty of Policies on the Carbon Market
4. Prospect of carbon markets for Asia clean energy finance

- **International carbon market under Paris Agreement**
  - Internationally transferred mitigation outcomes (ITMOs)-trading mitigation outcomes across countries
  - International credit-based carbon market

- **Carbon market Associated with International Aviation**
  - Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

- **Emerging carbon market and initiatives in Asia**
  - Chinese national ETS, expected to operation in June 2021
  - Other Carbon Market Initiatives: Indonesia, Thailand, Vietnam, Pakistan

- **Parties and mechanisms**
  - 97 Parties representing 58% of global GHG emissions indicated to use market-based mechanisms
  - 1.5-degree pathway needs voluntary carbon credit to grow by up to 15 time by 2030
  - ICAO accepted 6 eligible crediting mechanisms for CORSIA’s pilot phase
  - Demand for credits: 3 billion for the period between 2020 and 2035
  - Expected demand for credits: 175 million per year
5. Maximize Leveraging Carbon Market to Finance Tomorrow’s Clean Energy

• Establishing Long-Term Climate Ambitions and a Compatible ETS Cap
• Predictable Policies on the Carbon Markets
• Linking Carbon Markets in Asia and the Pacific
• Giving full play to the role of the carbon market in pooling capital
• Using Carbon Finance for Further Mitigation Actions by Government
Key Message

- Caron market could incentivize clean energy investment and finance through improving market competitiveness of clean energy, raising additional carbon revenue
- International carbon market plays a dominant role in Asia clean energy finance
- Clean energy investment and finance are highly linked to carbon prices
- Uncertainty of climate policy are weakening the role of carbon markets in clean energy finance
- International carbon markets and emerging domestic carbon initiatives creates greater potentials for clean energy finance
- Implications for giving a full play to carbon market in clean energy finance
  - Raising climate ambitions
  - Predicable climate policy on carbon market
  - expanding carbon market through carbon markets linkage
  - synergizing carbon market and climate finance