

Financing Tomorrow's Clean Energy: Role of Carbon Markets

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Outlines

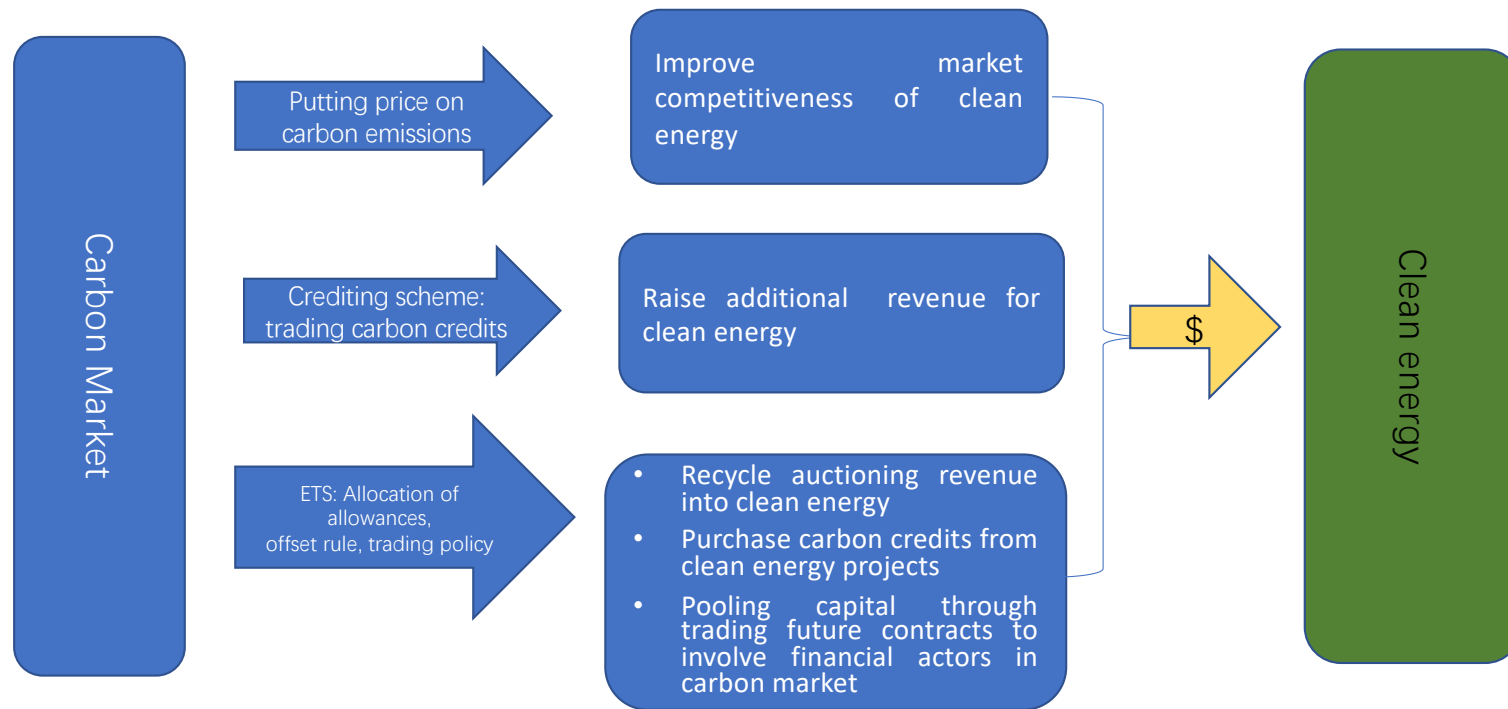
1. What Are Needed for Asia-Pacific Clean Energy of Tomorrow
2. How Carbon Market Impacts on Financing Clean Energy
3. Asia-Pacific Carbon Markets and its impact on Clean Energy Finance
4. Prospect of Carbon Markets for Clean Energy Finance
5. Maximize Leveraging Carbon Market to Finance Tomorrow's Clean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

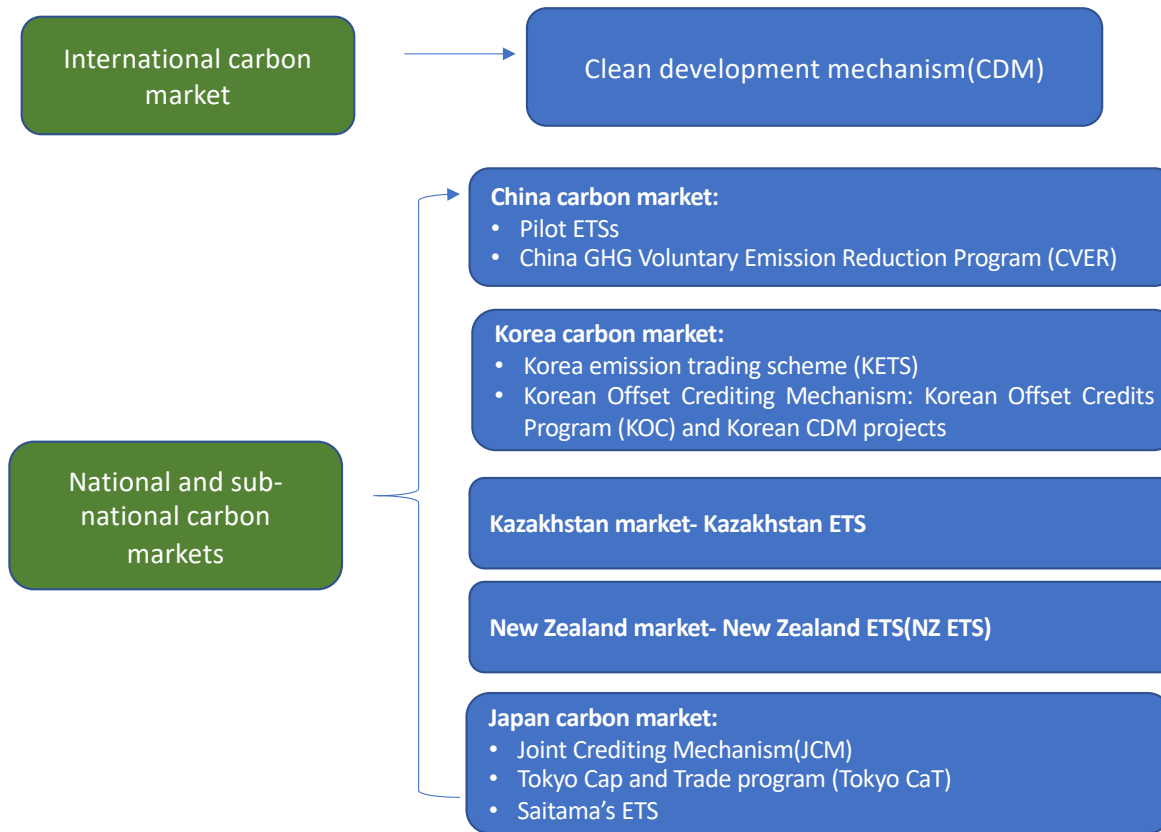
- Three avenues to impact clean energy investment and finance



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*

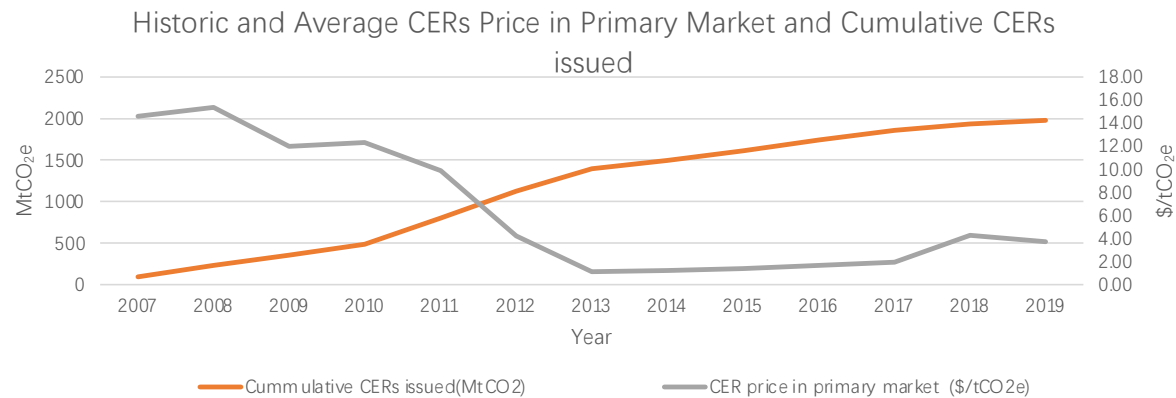
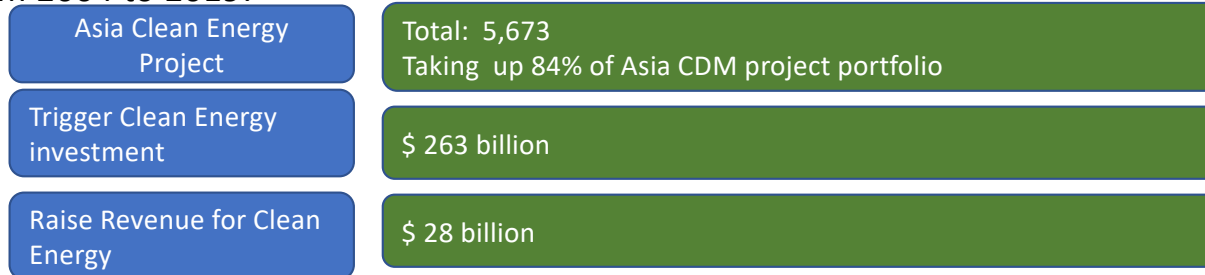
3. 1 Asia-Pacific Carbon Market Landscape



3.2 Impact of Carbon Markets in Asia Clean Energy Finance (CDM)

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

From 2004 to 2019:

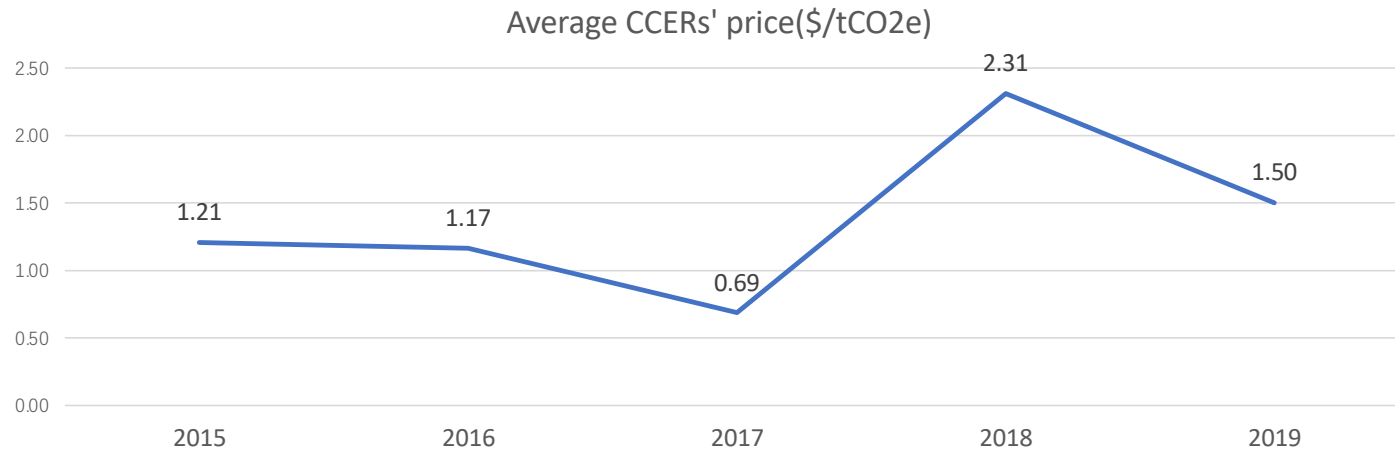


3.2 Impact of Carbon Markets in Asia Clean Energy Financing(PRC)

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

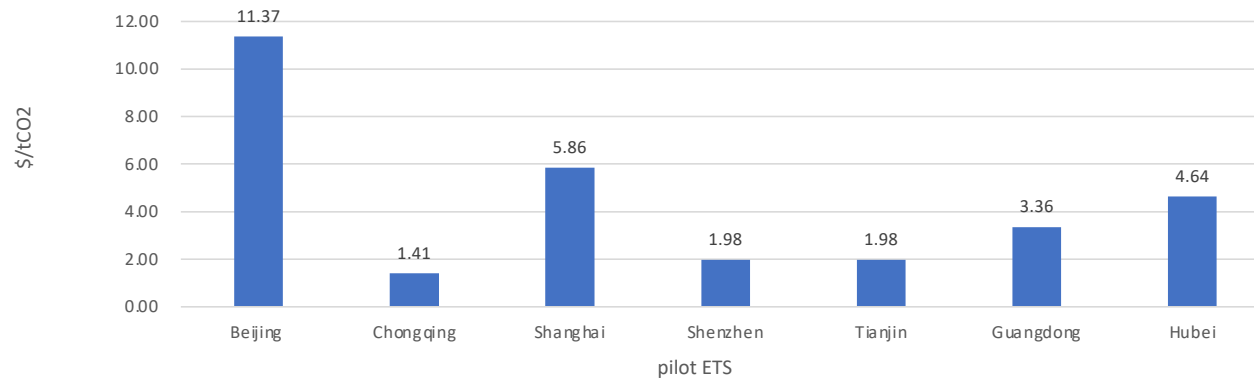


3.2. Impact of Carbon Markets in Asia Clean Energy Financing(PRC)

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)

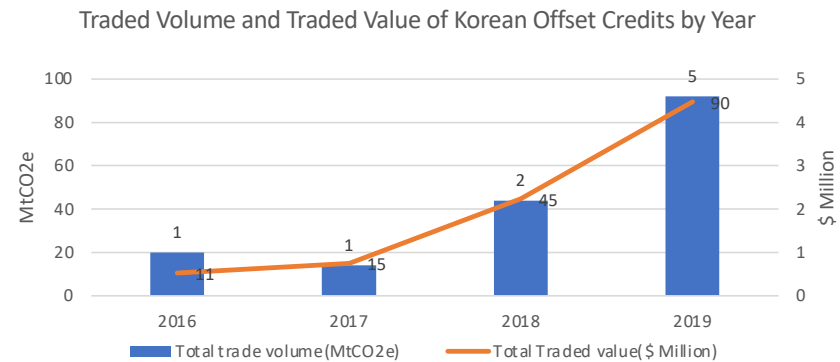
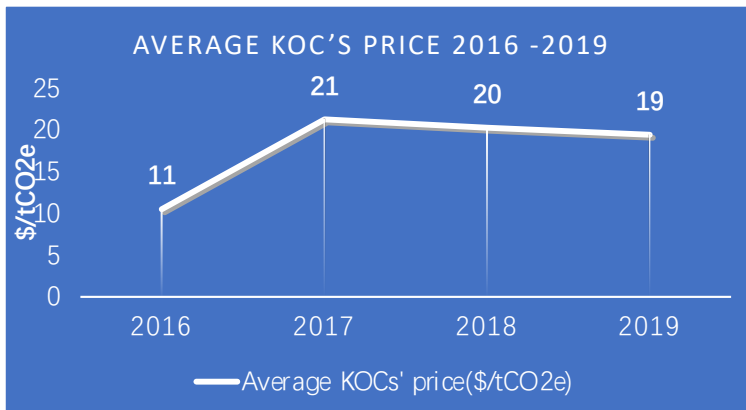
C. Carbon Market in Republic of Korea

Korea Emission Trading Scheme (KETS), established in 2015

- 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 KAUs

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

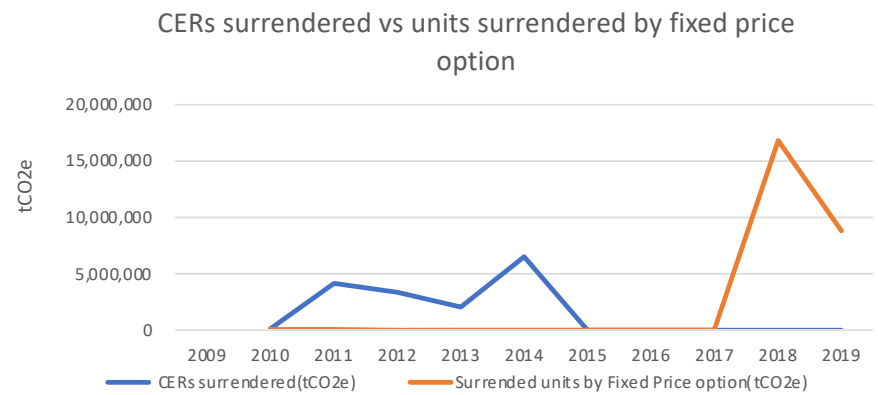
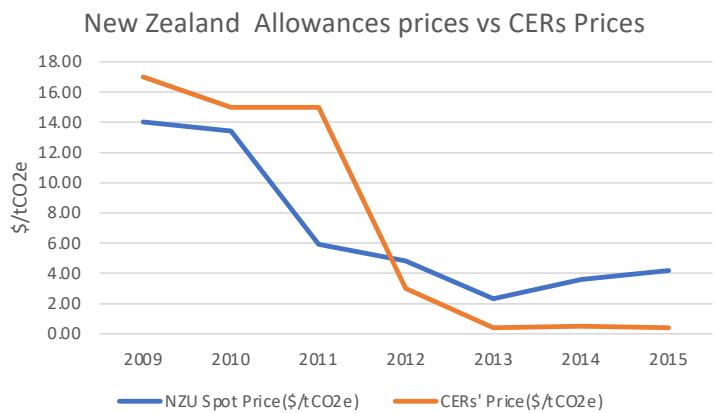


3.2 Impact of Carbon Markets in Asia Clean Energy Financing (New Zealand)

D. New Zealand ETS

New Zealand ETS,
established in 2008

- 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



3.2. Impact of Carbon Markets on Asia Clean Energy Financing (Japan)

E. Japanese Carbon Market

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

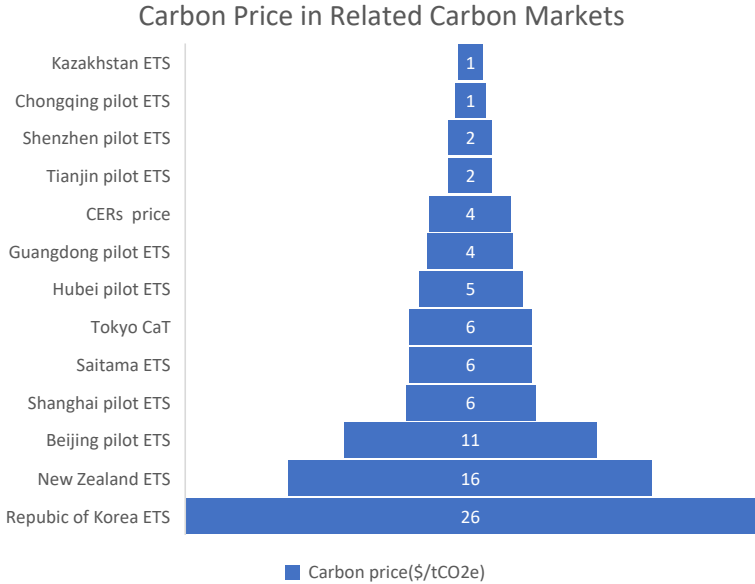
- No auctioning of allowances
- Offset rule: allow offsetting emissions through four types of credits, including clean energy
- Trading policy: only trade allowances leftover and credits in the end of compliance year
- Mobilized investment in 1,481 clean energy projects by 2019
- Limited impact on clean energy finance, only 500,000 MtCO₂e of credits were issued

Saitama's Emissions Trading Scheme, established in 2011

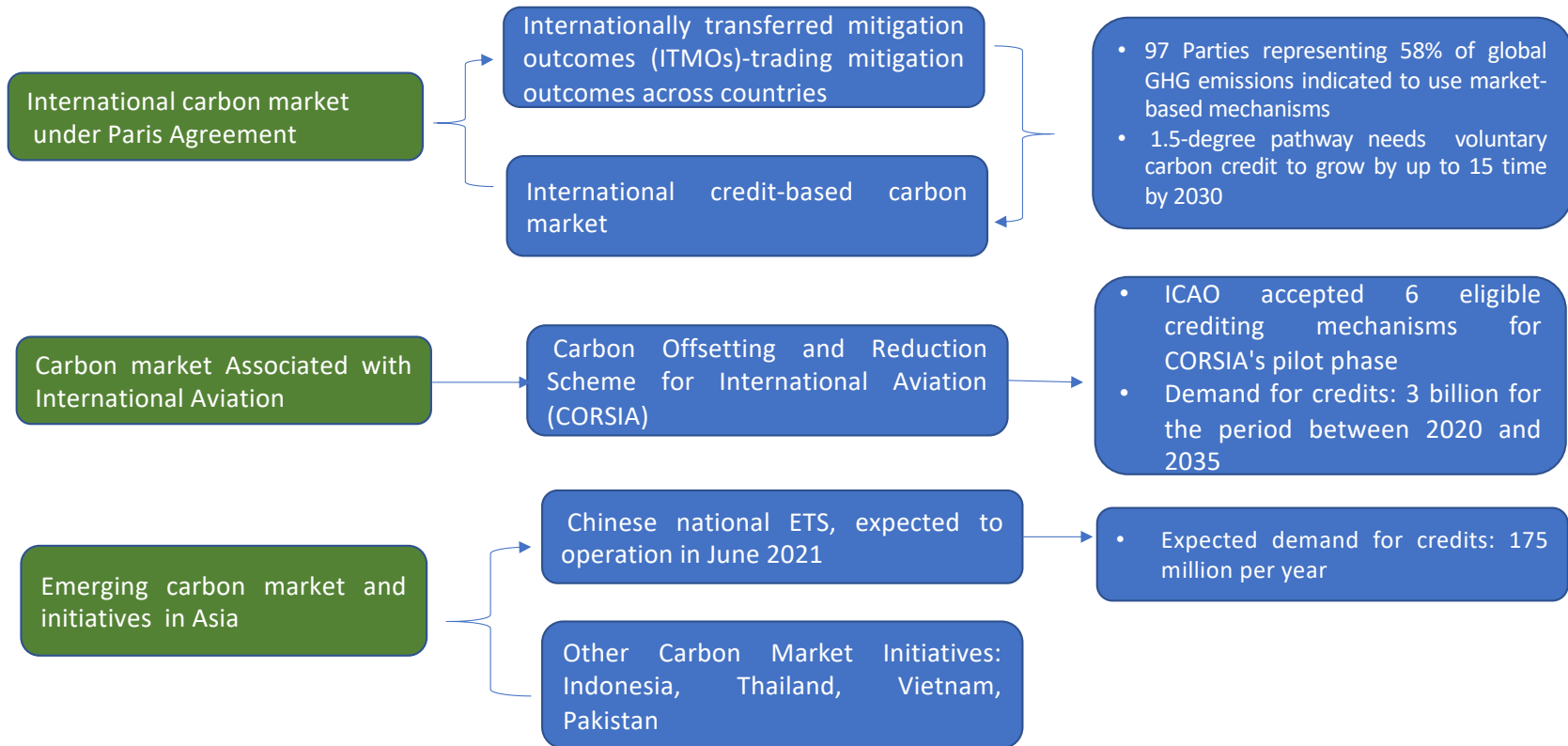
- No auctioning of allowances
- Offset rule: allow offsetting emissions through five types of credits, including clean energy
- Trading policy: only allow to trade allowances leftover and credits needed in the end of compliance year
- By 2019, triggered 680 clean energy projects and issued 6.2 MtCO₂e 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



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

- Carbon 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
 - ✓ Predictable climate policy on carbon market
 - ✓ expanding carbon market through carbon markets linkage
 - ✓ synergizing carbon market and climate finance