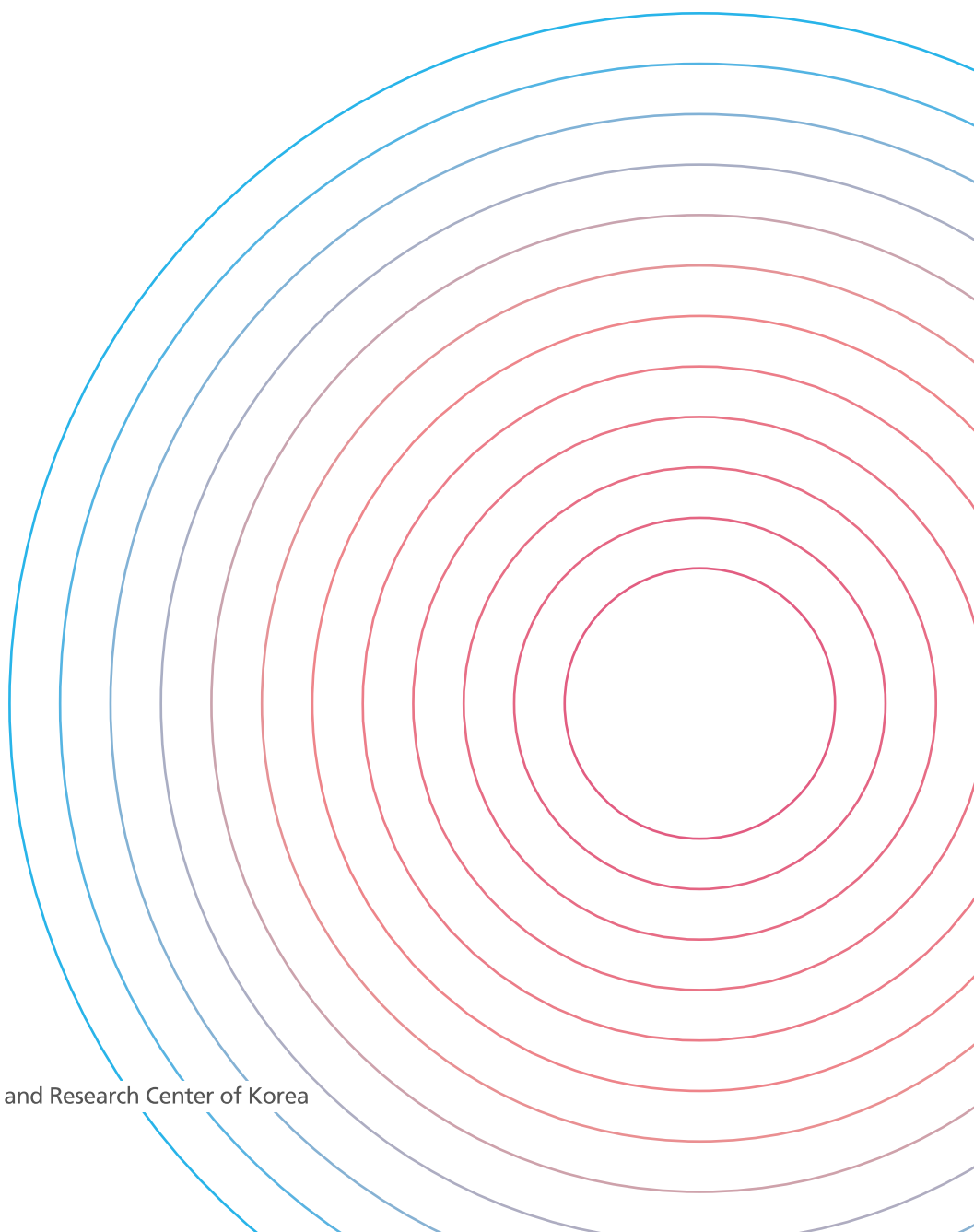




**11th INTERNATIONAL
GREENHOUSE GAS
CONFERENCE**

PROSPECTS FOR CARBON MARKETS in 2030

 Tuesday 8 September 2020
16:00 - 18:00 KST [09:00 - 11:00 CEST]



Ministry of Environment
Greenhouse Gas Inventory and Research Center of Korea

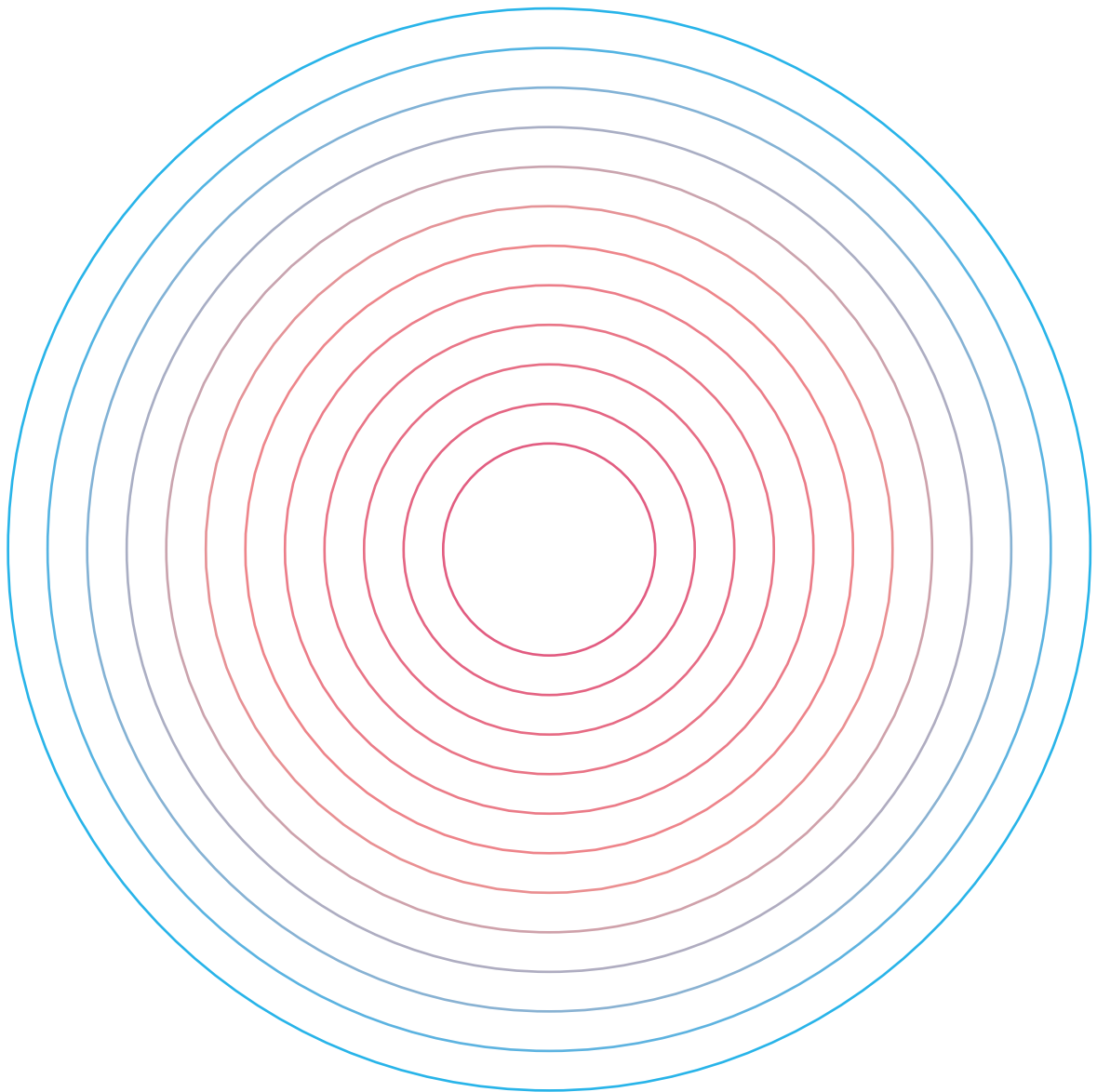


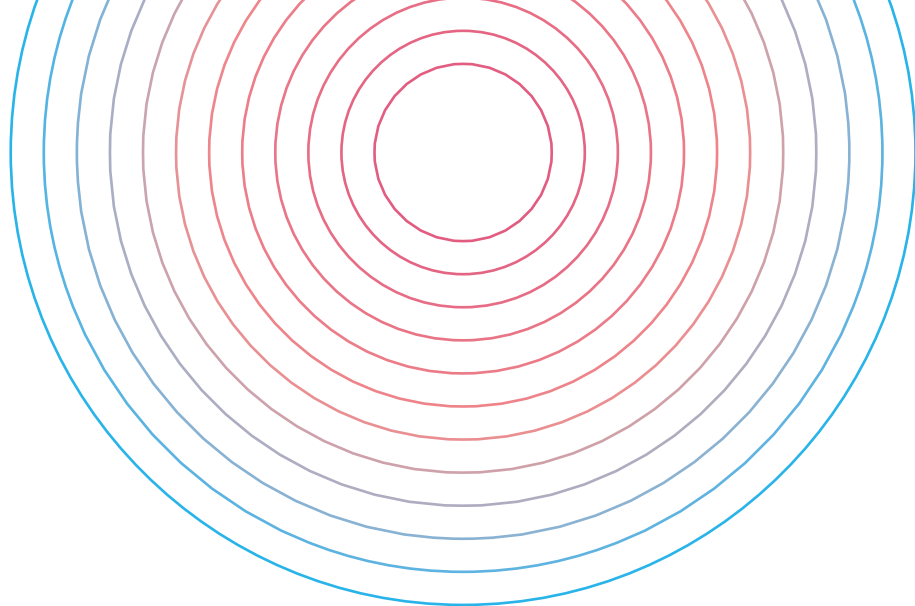
► Design Concept

The colors represent the rate of increase of the earth's temperature.

Over time, through our efforts for reducing global GHG emissions,
we can lower this rate to a sustainable level.

This ripple effect is illustrated by the growing circles cooling down.





Program / Time	Speakers & Panelists	
Opening Session 16:00-16:10	Opening Address	Jong Yoon Kim Director of Planning & Administration Team, GIR
Speakers' Session 16:10-17:10	Article 6 Negotiations	Stefano De Clara International Policy Director, IETA
	Prospects for International Carbon Market	Alistair Ritchie Director of Asia-Pacific Sustainability, ASPI
	Emissions Trading System of KOREA: Past and Future	Seung Jick Yoo Professor, Sookmyung Women's University
Discussion Session 17:10-18:00	Panel Discussion	# Moderator William Acworth Head of Secretariat, ICAP # Panelists Eunjung Kim Senior Research Fellow, KLRI Seoyoung Lim Manager, K-eco

SPEAKERS' SESSION

08 **Article 6 Negotiations**

Stefano De Clara

International Policy Director,
International Emissions Trading Association (IETA)

20 **Prospects for International Carbon Market**

Alistair Ritchie

Director of Asia-Pacific Sustainability,
Asia Society Policy Institute (ASPI)

28 **Emissions Trading System of KOREA: Past and Future**

Seung Jick Yoo

Professor,
Sookmyung Women's University

DISCUSSION SESSION

44 **Panel Discussion** # Moderator

William Acworth

Project Manager,
International Carbon Action Partnership (ICAP)

45 **Panel Discussion** # Panelist

Eunjung Kim

Senior Research Fellow,
Korea Legislation Research Institute (KLRI)

46 **Panel Discussion** # Panelist

Seoyoung Lim

Manager,
Korea Environment Corporation (K-eco)



Article 6 Negotiations



Stefano De Clara

International Policy Director,
International Emissions Trading Association (IETA)

Career History

Mr. Stefano De Clara is International Policy Director at the International Emissions Trading Association (IETA). Stefano joined IETA in 2014, initially focusing on the EU ETS and UNFCCC negotiations. He currently heads IETA's international work, covering the implementation of the Paris Agreement, Article 6, and international carbon markets. Leading IETA's Business Partnership for Market Readiness (B-PMR) initiative, he also focuses on emerging carbon markets, particularly in Asia.

Prior to joining IETA he focused on emissions trading in the Academia and for consulting companies. He holds a M.Sc. in Sustainable Development from the Utrecht University and a B.Sc. in Environmental Science from the University of Trieste.

Abstract

Article 6 of the Paris Agreement aims at establishing a framework for countries to cooperate on NDC achievement, including through market-based approaches. Article 6 has therefore the potential to create a unique driver for the use of international carbon markets as well as domestic carbon pricing policies. Research has also shown that Article 6 has the potential to significantly lower the cost of meeting NDC targets, therefore unlocking more ambition at lower costs. Article 6 also provides a unique entry point for private sector engagement in climate action.

Implementing rules for Article 6 are still being negotiated and they are one of the few unresolved issues in UNFCCC negotiations. Attempts at finding agreement on a common ruleset for Article 6 proved unsuccessful both at COP24 in Katowice, when the Paris Rule Book was adopted, and at COP25 in Madrid. The adoption of implementing rules for Article 6 is now on the agenda for COP26, which will take place in November 2021 in the UK.

At COP26, negotiations on Article 6 will likely face the same challenges as in previous years. At the same time, outside the negotiation process, Article 6 pilots and real world implementations of Article 6 approaches are going ahead, and will provide valuable lessons learnt for the UNFCCC process.

This presentation will provide context on the key components of Article 6, its functioning and its economic and mitigation potential. The presentation will also cover the state of play in the Article 6 discussion, outlining the main roadblocks in the negotiations. It will analyze the implications of the COP25 outcome and will reflect on the way forward for the Article 6 negotiations.

Prospects for carbon markets in 2030: Update on Article 6 negotiations

Stefano De Clara – International Policy Director, IETA
8 September 2020



About IETA



- Collective voice of business on carbon pricing, markets and finance
- Global non-profit association
- Policy design, thought leadership, best practices, global capacity building,
- Global Partnerships & Dialogues with UNFCCC, World Bank, OECD-IEA and many more

Climate Challenges, Market Solutions





What's Article 6?



5

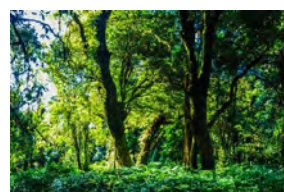
Paris Agreement: An Overview

- Article 2: Long-term goal
- Article 4: [NDCs](#)
- Article 6: [Markets](#)
- Article 8: Loss & Damage
- Article 10: Tech Transfer
- Article 13: [Transparency](#)
- Article 15: Implementation
- Article 3: Progressing Effort
- Article 5: [REDD+](#)
- Article 7: Adaptation
- Article 9: [Finance](#)
- Article 11: Capacity Building
- Article 14: [Global Stock-Take](#)

6

Basics of Voluntary Cooperation in Article 6

- **Article 6.2:** Accounting guidance for reporting of “internationally transferred mitigation outcomes” (ITMOs) with “corresponding adjustments”
- **Article 6.4:** An emissions mitigation mechanism to issue units for programs or activities, building on Kyoto mechanisms (CDM, JI)
- **Article 6.8:** Work programme for non-market approaches to advance cooperation that does not involve ITMOs.



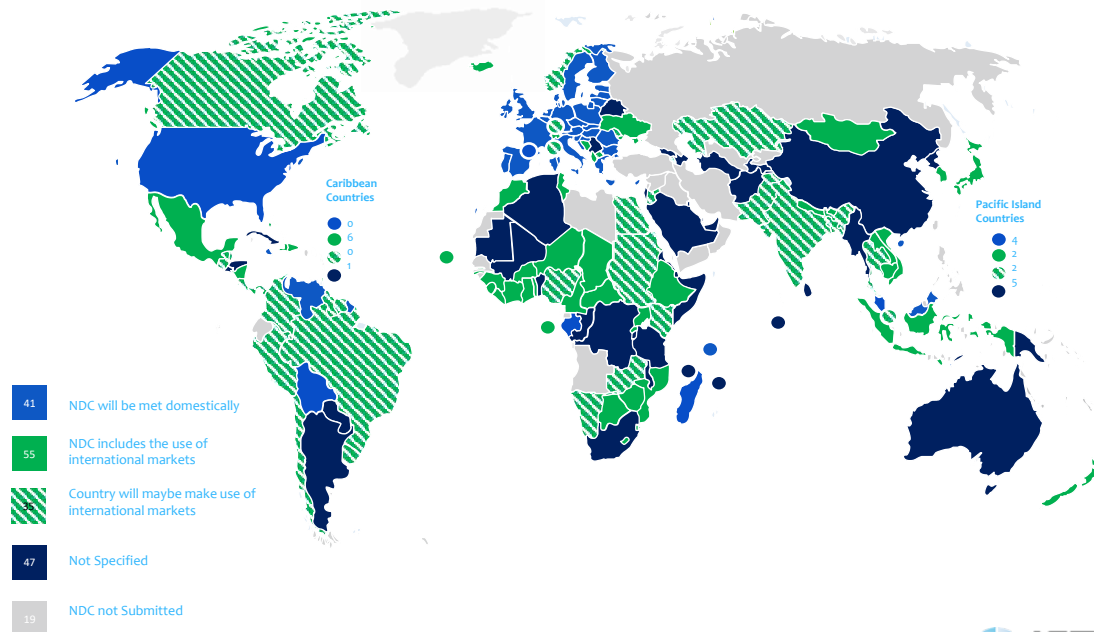
7

Potential of Article 6

- Countries can cooperate on NDC achievement
- Could establish international framework for linkage of carbon pricing policies
- Could facilitate creation of ‘carbon clubs’
- Can reduce mitigation costs, allowing more ambition
- Could help achieving net zero emissions ASAP
- Establishes a new mitigation mechanism available to all who want to use it
- And more...

8

Market Friendly NDCs



Article 6 pilots

Climate Finance Innovators – Observations from Article 6 pilots

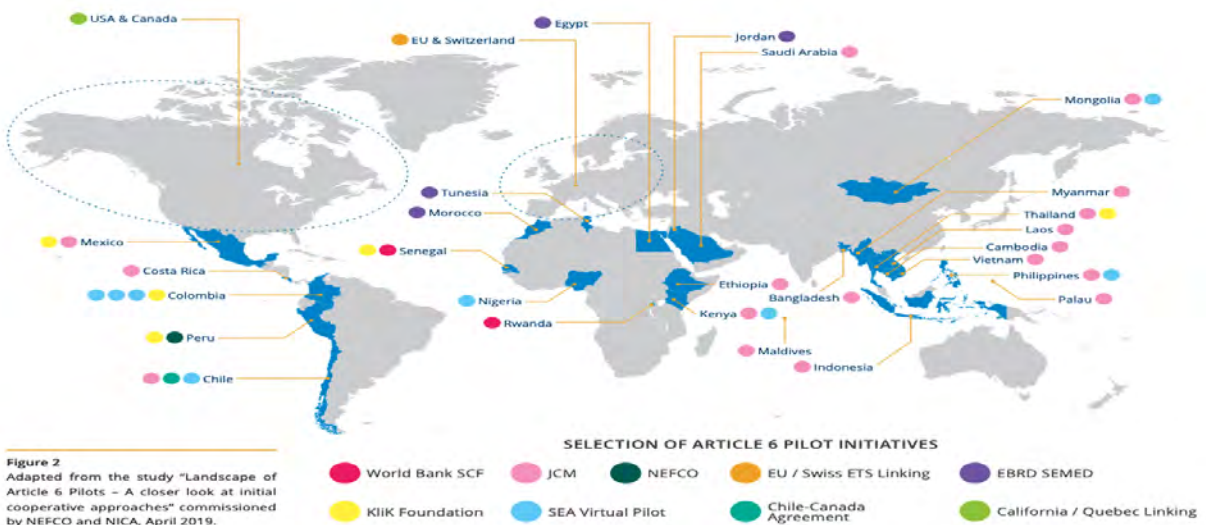


Figure 2
Adapted from the study "Landscape of Article 6 Pilots – A closer look at initial cooperative approaches" commissioned by NEFCO and NICA, April 2019.

Potential of Article 6

- * The economic potential available through Article 6 is significant.
- * Utilizing the economic efficiency gains to enhance ambition offers additional potential benefits
- * Realizing this potential is a major real-world challenge

2030 Potential Article 6 Reduction in Cost (Billions 2015 USD/year)

	Reduction in Cost	Increased Ambition
Fossil Fuels Only	~\$250 billion	5 GtCO ₂ per year
Land Use Only	~\$70 billion	4 GtCO ₂ per year
Combined	~\$320 billion	9 GtCO ₂ per year

13



Where are we?

14



COP24: The Rulebook

Key areas covered by the Katowice Package:

1. NDCs design and accounting
2. Finance
3. Transparency and reporting
4. Global Stocktake
5. Compliance mechanism

.... But NO Article 6!

COP25 Chile-Madrid

- * **Markets:** No outcome on Article 6, again!
- * **Ambition:** Chile-Madrid time for Action: soft language around ambition
- * **Loss and Damage:** limited progress in the review of WIM
- * **CDM Guidance:** procedural outcome
- * **Common timeframes for NDCs:** Rule 16 - no outcome
- * **Transparency framework:** Rule 16 - no outcome

Article 6 Key issues

- * Accounting:
 - * For transfers from inside/outside NDCs
 - * Accounting for non-NDCs uses of ITMOs (eg CORSIA, IMO, etc)
 - * Single year targets and operationalization of corresponding adjustments
 - * Whether to make corresponding adjustments for units produced by the 6.4 mechanism
- * KP Transition (CER units? Activities? Methodologies/ infrastructure? AAUs?)
- * Share of Proceeds and Overall Mitigation of Global Emissions
- * And others...

17



Article 6 after COP25

- * Work will continue in 2020 (and 2021) – rules to be adopted at COP26
- * This will not stop Art6 pilots and international market cooperation in the real world
- * Some Parties stated that will use latest Art6.2 text as guidance for pilots
- * Prominent role for bilateral cooperation, clubs and independent standards
- * Big missed opportunity for Countries looking at the 6.4 mechanism

18



Way forward and COP26

- * No progress expected at the SBs, key issues need political push
- * Important milestone after COP21 and COP24
 - * Start of the 'Paris era'
 - * Completion of operationalisation work
 - * Increased ambition
 - * Will require huge diplomatic effort and a lot of preparatory work
- * Key issues on the table
 - * New NDCs
 - * Submission of Long-Term Strategies
 - * Rules on Market Mechanisms (Article 6)
 - * Adoption of the detailed reporting formats for transparency of action and support
- * Start of discussions on the post-2025 financing goal

19



Thank you!

20



Prospects for International Carbon Market



Alistair Ritchie

Director of Asia-Pacific Sustainability,
Asia Society Policy Institute (ASPI)

Career History

Mr. Alistair Ritchie is Director of Asia-Pacific Sustainability at the Asia Society Policy Institute (ASPI), where he leads and oversees activities on Asian carbon market development and ASPI's overall sustainability portfolio. Alistair is an international expert in greenhouse gas emissions trading systems (ETSs), and a known leader in their development.

He is currently leading a major project to contribute to resolving ETS design challenges and building regional connections of China's national ETS. Previously, he was leader of the European Commission project to support the Korean government's implementation and upgrade of the KETS (the first national ETS in East Asia). He was also the technical lead for the European Commission project to support the development of China's national ETS and led studies to support ETS development in Chinese Taipei. In Europe, Alistair played a key role in improving the EU ETS through managing and directing several projects to support Phase 3 and 4 policy design and implementation.

He has over 25 years of experience in various areas of climate change, energy and air pollution control strategy and policy. Aside from his projects in Europe and East Asia, he has worked in Russia, Saudi Arabia and the U.S. Prior to joining ASPI, Alistair developed and led EU and Asian climate and air pollution policy activities at Ritchie Policy Consulting, ICF and Entec (now Wood Group). He holds a degree in Chemical Engineering from Nottingham University in UK and an MBA from the Open University.

Abstract

The Paris Agreement continues to act as a catalyst for increased climate action. Whilst there is not yet agreement on the rules related to international carbon markets under Article 6, including cooperative approaches and the sustainable development mechanism, progress is underway to support its implementation and its future implications on the development of carbon markets can be discerned.

At the same time, the need to ramp up ambition of the 2030 GHG emission reduction targets in the nationally determined contributions (NDCs) and to take action now is increasingly recognized, to keep the global temperature increase well below 2°C and pursue efforts to limit this to 1.5°C compared to pre-industrial levels. The development of long-term low greenhouse gas emission development strategies to achieve these targets also makes clear the scale of increased ambition required by 2030.

This is all leading to increased interest in carbon pricing mechanisms. Over half of the Parties to the Paris Agreement mention these in their NDCs, indicating that they are planning or considering the use of climate markets and / or domestic carbon pricing to meet their NDC commitments, including emissions trading systems (ETSs).

In East and Southeast Asia alone, China is in the very final stage of preparation of its national ETS, with real operation expected later this year, Korea is preparing for the third phase of the KETS, Thailand and Chinese Taipei have done significant preparation, Indonesia plans to launch a pilot system later this year and a national system by 2024, Vietnam is planning to design a system this year, and there are political developments in the Philippines to establish a system for the biggest emitting sectors.

This presentation will look into how international carbon markets might evolve under the Paris Agreement in 2030, considering where they are now, their current trajectory and the influence of the Paris Agreement and other drivers. This will look at the carbon markets in Asia, Europe and America and consider the implications for policymakers.

Prospects for International Carbon Market

11th International Greenhouse Gas Conference:
Prospects for Carbon Markets in 2030

8 September 2020
Alistair Ritchie

Agenda

- **Paris Agreement and its influence on international carbon markets**
- **Other influences on international carbon markets**
- **Overview of carbon markets**
 - Europe
 - Asia-Pacific
 - America
- **Key policy considerations and challenges**

Paris Agreement and its influence on international carbon markets

- **Ambition levels for GHG emissions reduction**
 - NDC 2030 targets
 - Impacts on 2030 targets of long-term (2050) strategies, including net-zero emissions
- **Carbon pricing policies in NDCs**
 - Explicit carbon prices: emissions trading systems (ETSs) and carbon taxes
 - Implicit carbon prices: standards and mandates
- **Drivers for ETSs under Paris Agreement**
 - Carbon budget based NDCs fit well with ETS cap-setting
 - Linked ETSs would facilitate inflow and outflow of carbon units in NDCs
 - And enable lower cost and / or more ambitious NDCs

Other influences on international carbon markets

- **Economic**
 - Compatibility with economic growth and shocks
 - Protection of international competitiveness
- **Energy and industry transition**
 - Low-cost renewables
 - Coal phase-out
 - Deep decarbonisation in industry

Overview of carbon markets

Europe

- **EU ETS Phase 4 (2021 to 2030)**
 - Key policy to deliver net-zero emissions by 2050
 - Cap-setting: annual reduction increased from 1.74% to 2.2%; further tightening in Phase 4 to help reach net-zero (Plan to increase EU's 2030 GHG reduction target from 40% to 55%)
 - Improvements: MSR, more targeted carbon leakage rules, free allocation aligned to production, Innovation Fund and Modernisation Fund
 - Linkage to Swiss ETS in 2020
- **Proposed EU Carbon Border Adjustment Mechanism (CBAM)**
 - To ensure price of imports more accurately reflects carbon content
 - Potential alternative to free allocation under EU ETS
 - Proposal expected in 2021
- **National level**
 - UK ETS to start in 2021 (cap 5% below share of EU ETS cap to help reach net-zero); linkage to EU ETS being considered; carbon price support for CCUS
 - German National ETS for heating & transport fuels in 2021, complementing EU ETS

Overview of carbon markets

Asia-Pacific (ETSs under implementation)

- **Korea**
 - K-ETS Phase 3 (2021 to 2025) improvements: inclusion of third-party participants in carbon market, expansion of BM-based allocation, increased auctioning (and revenue for GHG reduction projects)
 - Phase 3 Allocation Plan (expected Sept 2020) will confirm allocation and cap-setting details
 - Key issue is pass-through of carbon cost to electricity price
- **Japan (Tokyo and Saitama)**
 - Tokyo and Saitama ETSs now in Phase 3 (2020 to 2024)
 - Coverage includes consumption of fuels, heat and electricity in commercial and industrial buildings
- **New Zealand**
 - NZ ETS launched in 2008
 - Recently reformed to help reach net-zero emissions by 2050

Overview of carbon markets

Asia-Pacific (ETSs under development)

- **China (National ETS)**
 - Operation expected in 2020 for power sector (approx. 3,300Mt CO₂ per year)
 - Followed by aluminium, cement, steel, chemicals, paper, aviation and others
 - Rate-based system initially based on tradeable performance standards
- **Chinese Taipei**
 - Implementation of ETS expected before 2025, in line with a legal requirement
 - Cap-setting to align with national carbon budgets
- **Thailand**
 - Carbon pricing instrument required to be outlined in Climate Change Act in 2021
 - Voluntary ETS since 2015
- **Indonesia**
 - Legal basis for ETS is in place, with implementation by 2024
 - Voluntary pilot ETS for power and industry sectors to start in 2020
- **Vietnam**
 - Legal basis for carbon pricing instrument currently being established
 - PMR program is considering an ETS, carbon fees and a credit program
- **Philippines**
 - Bill to establish ETS conditionally approved

Overview of carbon markets

America

- **USA**
 - California Cap-and-Trade Program: operational since 2012; cap trajectory set through 2030, with formula for the declining cap through 2050
 - RGGI: operational since 2009; annual reduction factors increased; New Jersey re-joined; Virginia and Pennsylvania could join
 - Transportation & Climate Initiative: East Coast regional program starting 2022 to reduce combustion of transport fuels, complementary to RGGI
 - National level: policies depend on outcome of Presidential election
- **Canada**
 - Cap-and-Trade Programs in Quebec (since 2013; proposed reform for '24-'30) and Nova Scotia (since 2019); backstop measures elsewhere
- **Mexico**
 - ETS pilot started in 2020 with full ETS in 2023
- **Colombia**
 - ETS being designed
- **Brazil**
 - ETS being considered
- **Chile**
 - Market mechanism for emission reductions being considered

Key policy considerations and challenges

- **Ambition level**
 - More ambitious reductions required by 2030, especially to help reach net-zero emissions by 2050
 - More rapid introduction, establishment and strengthening of policies needed
 - Cap-setting to reflect low-cost renewables and coal phase-out for sufficient carbon price signal
- **Sectoral issues**
 - Power sector: putting a carbon price on coal power and scaling up auctioning
 - Industry sector: generating funds to support deep decarbonisation
 - Coverage and role: ETS / non-ETS boundary and role of ETS in policy mix
- **Design issues**
 - Alignment with NDC carbon budgets
 - Facilitation of inflow / outflow of carbon units in NDCs
 - Consistency with economic development and responsiveness to shocks
 - Share experiences and identify practical solutions for successful national ETSs, while building foundations for future market connectivity

Thank you

Contact: aritchie@asiasociety.org



Emissions Trading System of KOREA: Past and Future



Seung Jick Yoo

Professor,
Sookmyung Women's University

Career History

Prof. Seung Jick Yoo has played the principal roles in setting the national mid-term GHGs reduction goal up to 2030 as well as the GHGs reduction goal up to 2020 of Republic of Korea. The national greenhouse gas reduction plan up to 2020 was approved by presidential cabinet meeting and announced by former President Lee, Myong-bak in the held in Copenhagen, Denmark in 2009. He has also been deeply involved in the development of national green growth strategies and implementation plan in Korea.

Since he was nominated as the President of Greenhouse Gas Inventory & Research Center of Korea, the principal national agency in management of national and entity level GHG inventories and setting national, sectoral and entity-level greenhouse gas inventory reduction targets, he has been in charge of publication of annual national inventory, national communications and management of entity-level greenhouse gas emission. He designed and implemented the National Emission Permit Trading System (Korean ETS) and developed national permit allocation plan and allocated the permits to the entities in 2014. He, as the President of GIR, developed the national GHGs emission reduction target up to 2030, which was approved the presidential cabinet meeting under Former President Park, Geun-Hye in 2015. After moving to Sookmyung Women's University 20 January 2016, he is teaching the climate change modeling, environmental and energy policies. Prof. Yoo also deeply involved in the national climate change policy setting and implementation as a key member for the Prime minister's committee on Green Growth and the Minister of Environment's advisory committee.

Abstract

In this presentation, the emission permit market experiences of Korean emission trading system are presented in terms of the characteristics of the movements of the prices and volumes of the trades of the permits. In addition statistical analysis of the determinants of the market prices of the permits will be presented. The author will specially investigate the impact of COVID-19 on the Korean emission permit markets quantitatively and qualitatively.

In 2020, Korean government will announce the 3rd phase national allocation plan for 2021 through 2025. The special features of the K-ETS will be explored and their impacts on K-ETS market and its players will be investigated in the presentations.



Emissions Trading Systems of KOREA: Past and Future



Seung Jick YOO
Sookmyung Women's University



Content



- Korea GHGs Reduction Targets and Policies
- Emission Trading Systems in Korea
- Allowances Market in Korea
- Quantitative Analysis of K-ETS Market in Korea
- Suggestions for Future Revisions in K-ETS



Content



- Korea GHGs Reduction Targets and Policies
- Emission Trading Systems in Korea
- Allowances Market in Korea
- Quantitative Analysis of K-ETS Market in Korea
- Suggestions for Future Revisions in K-ETS

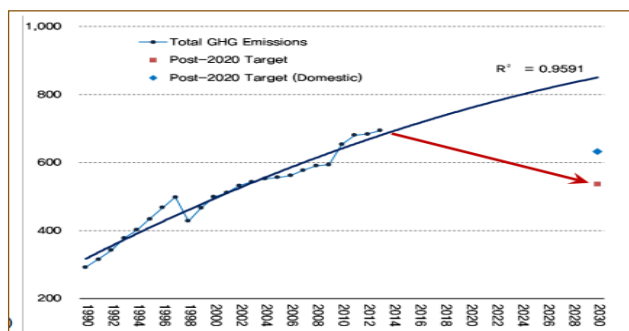
3



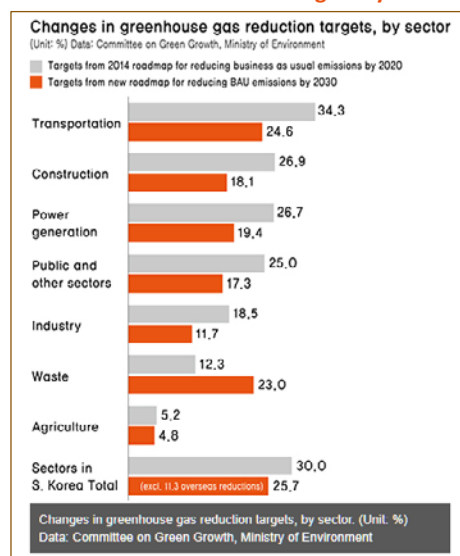
Basic Roadmap of National Greenhouse Gas Reduction Target in 2016



- ✓ To Reduce GHGs emissions by 37% below BAU Projection by 2030 in 2015



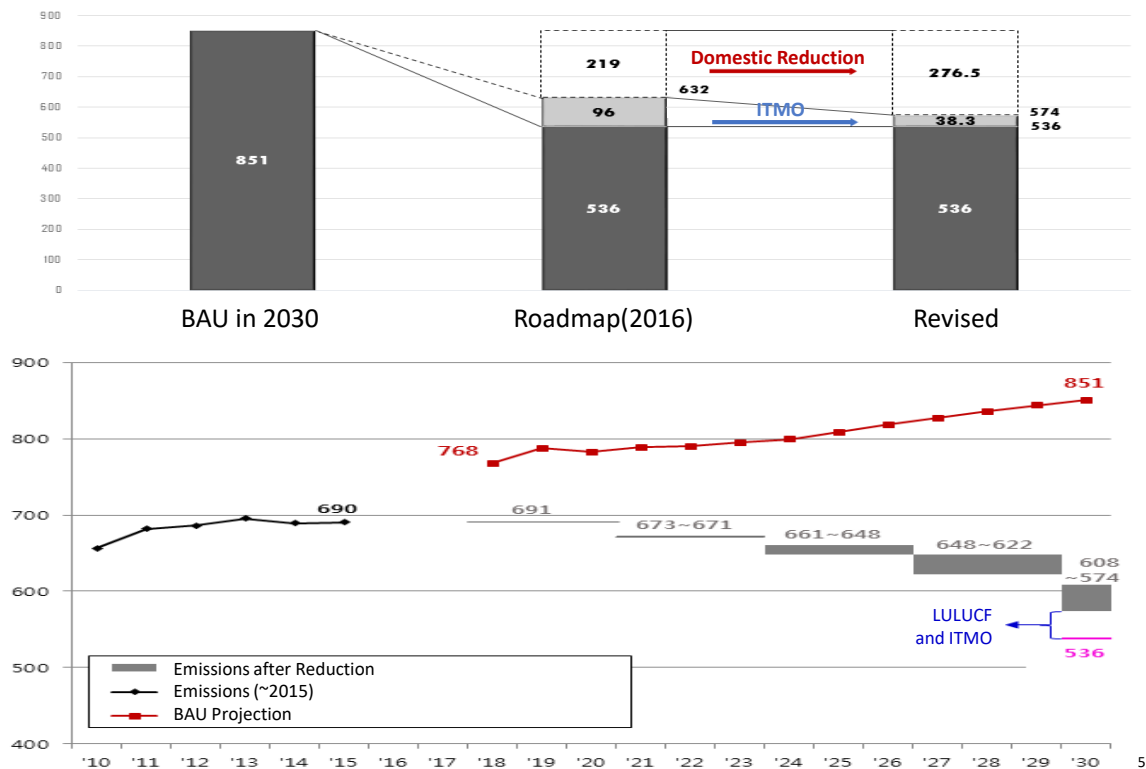
Sectoral GHGs Reduction Targets by 2030



Source: http://english.hani.co.kr/arti/english_edition/e_national/773646.html

4

Revision of National GHGs Reduction Target by 2030 in 2018



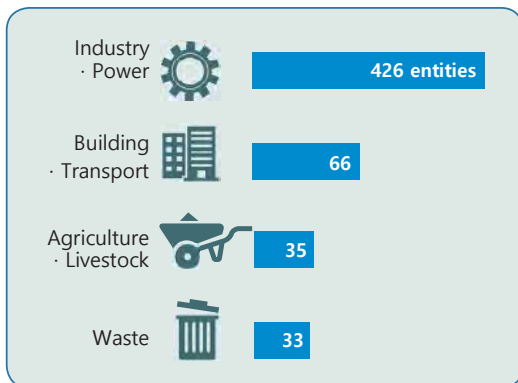
Content

- Korea GHGs Reduction Targets and Policies
- Emission Trading Systems in Korea
- Allowances Market in Korea
- Quantitative Analysis of K-ETS Market in Korea
- Suggestions for Future Revisions in K-ETS

Implementation of GHGs Policies in Korea

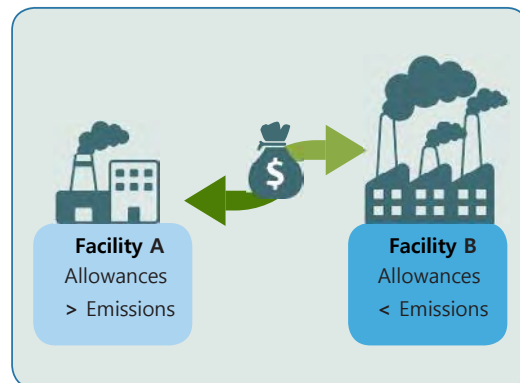
Target Management Scheme(2012~)

- Large GHG emitting & Energy consuming firms are imposed GHG reduction & energy conservation targets since 2012
- 560 controlled entities are subject to reduction as of 2014 (excluding firms subject to ETS)



Emission Trading Scheme(2015~)

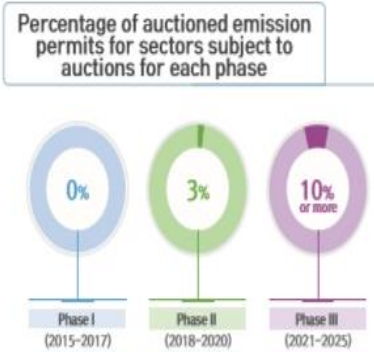
- Market-based policy to achieve GHG reduction targets through trading emission permits allocated.
- 525 companies in Emission trading Scheme in the Phase 1 period ('15~'17)



7

Some Features of K-ETS

- ▶ Foundation from Target Management System
 - ▶ Mandated Submission of Annual GHGs Inventory Report of the Entities from 2007 to GIR
 - ▶ 3rd Party Verifiers with Certification
 - ▶ Submission of Monitoring Plan and Reporting
- ▶ Allocation of Allowance at the Entity Level
 - ▶ Free Allocation of Allowances
 - ▶ Mainly Grandfathering
 - ▶ Increasing Application of Benchmark
 - ▶ Ex: Cement, Petrochemicals, Power Generation...
 - ▶ Gradual Increase in Share of Auctions
 - ▶ 1st Phase (2015~2017): 0%
 - ▶ 2nd Phase (2018~2020): 3%
 - ▶ 3rd Phase (2021~2025): More than 10%

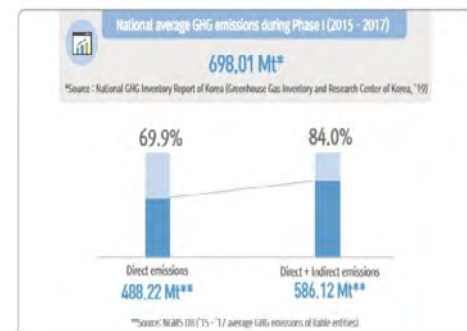
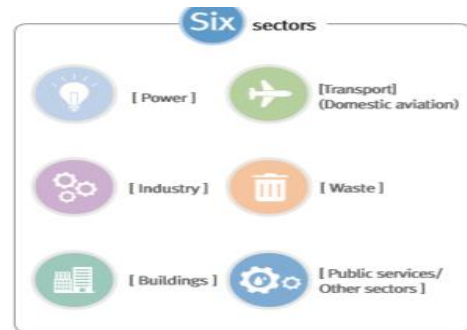


GIR(2020) K-ETS Summary Report, p.10

8

Some Features of K-ETS

- ▶ Coverages
 - ▶ All Sectors:
 - ▶ 6 Greenhouse Gases
 - ▶ Domestic and International Offsets Allowed
- ▶ GHGs in ETS/ National GHGs in 1st Phase
 - ▶ 84% of National Emission Covered by ETS with Indirect Emissions are Included in Allocations
 - ▶ Direct Emissions Only : 70%
- ▶ Penalty for Non-compliance
 - ▶ 3 times the Average of the Market Prices with Maximum of 100,000 Korean Won(\$88)/tonCO₂-eq.



GIR(2020) K-ETS Summary Report, p.10

9

GHG Emissions: ETS/National



10



Features of K-ETS



▶ Cap setting

- ▶ Consistency with national GHGs Reduction Target
- ▶ Sectoral(and Industry specific) Reduction Rates Preserved
- ▶ Entity level cap : Proportional Distribution of Sector or Industry Level Cap Based Upon the Amount of the Past 3 Year Emissions
 - ▶ Result in Disparity in the ratio(allocations capped/ allocations applied)
 - ▶ In 2nd Phase of K-ETS(2018~2020), Sector Level Cap applied instead of industry by industry cap.

▶ Indirect Emissions on ETS

- ▶ Rigidity in Cost Pass-through to the Consumer Electricity Prices due to the Regulations
- ▶ Potentials to shift to Electricity from other Fuels w/ Distorted Electricity Price under ETS
- ▶ Additional Allocation of Allowances equivalent to portions of Cost Pass-through in Retail Electricity Prices

11



Features of K-ETS



▶ Banking and Borrowing

- ▶ Borrowing a Portion of Allowances Allowed within a Phase
 - ▶ No Borrowing Between Phases
- ▶ limited banking within and between phases

▶ Reserves

- ▶ Market Stabilization, Market Maker, New Entrants, Voluntarily Participating Entities and Adjustments
- ▶ Market Stabilization Measures
 - ▶ To Stabilize the temporary excessive price volatility and illiquidity in the Market.



GIR(2020) K-ETS Summary Report, p.11

12



Content



- Korea GHGs Reduction Targets and Policies
- Emission Trading Systems in Korea
- Allowances Market in Korea
- Quantitative Analysis of K-ETS Market in Korea
- Suggestions for Future Revisions in K-ETS

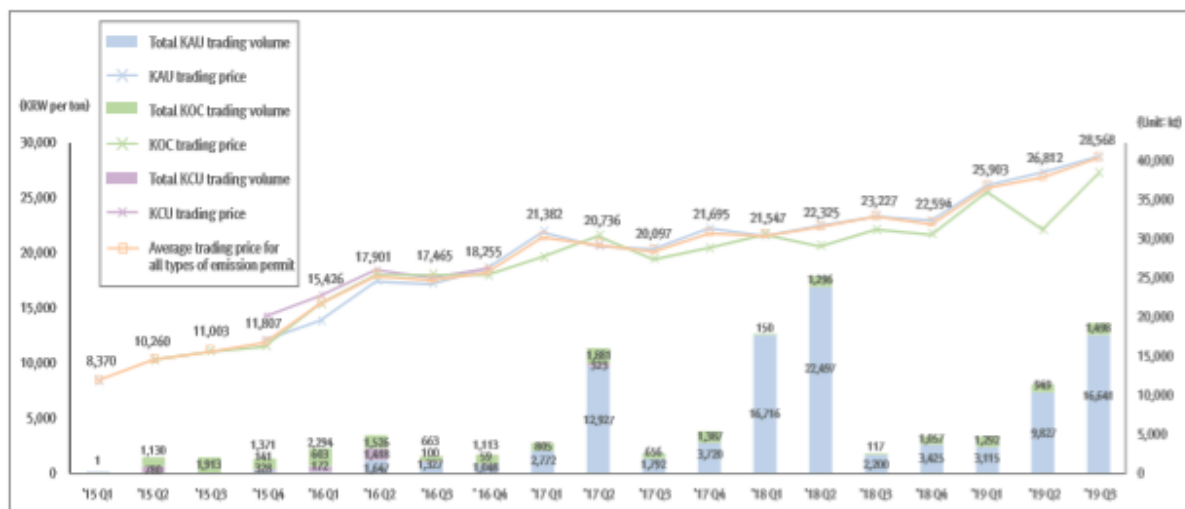
13



K-ETS MARKET('15~'19.3)



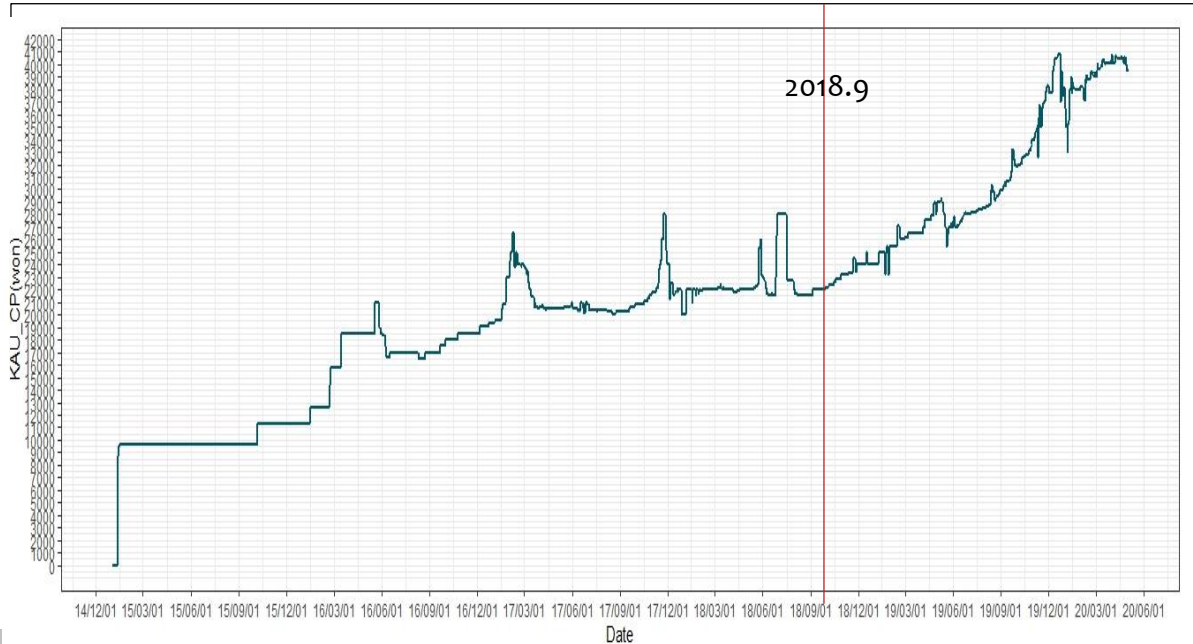
[Figure III -1] Total emissions trading volume and price trends



14



Daily KAU Price Movement 2015.1.1~2020.4.30



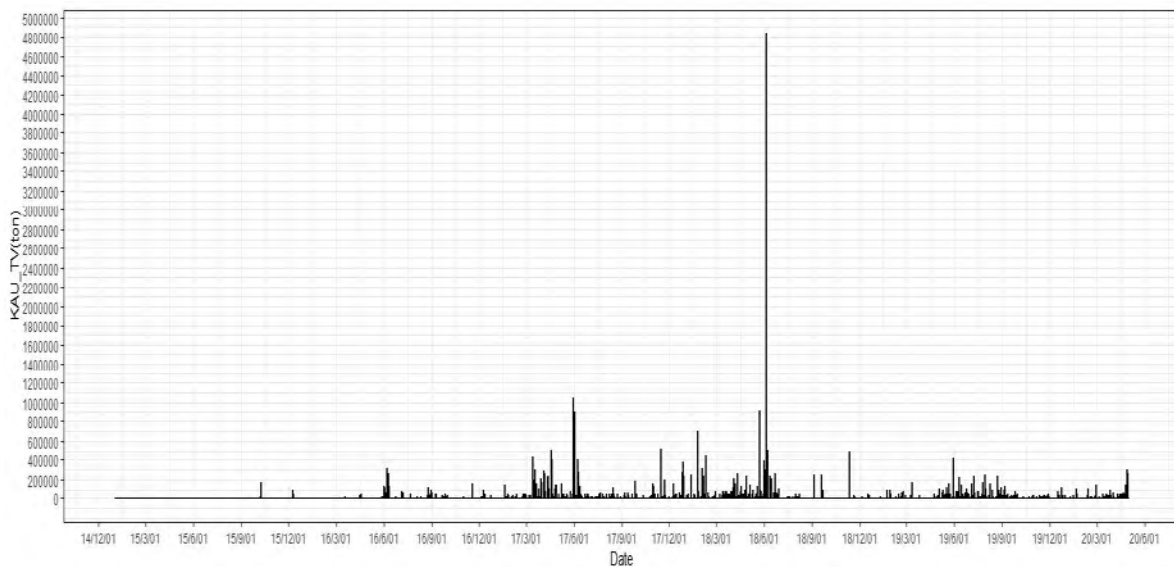
15



Daily Trade Volume 2015.1.1~2020.4.30



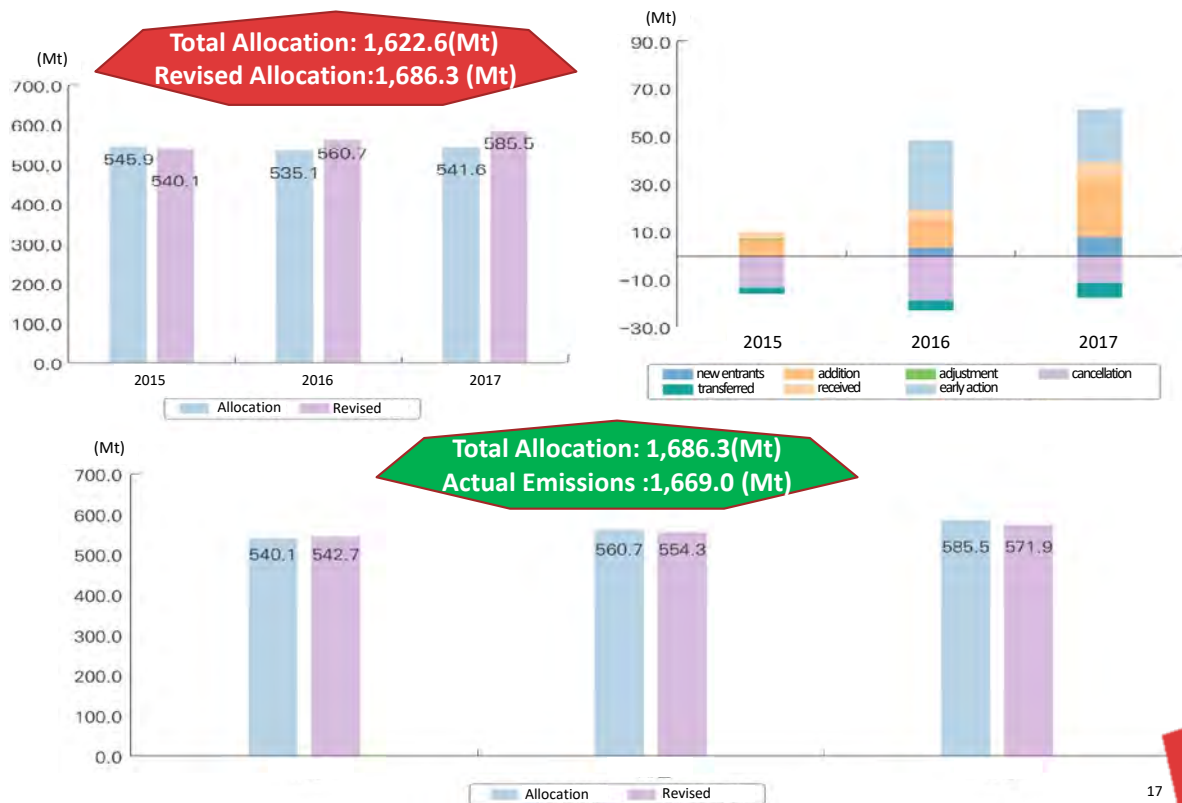
- After September 2018, leveled trade volumes



16

Summary of 1st ETS Period ('15~'17)

Source: Ministry of Environment, Press Brief(07.02.19)



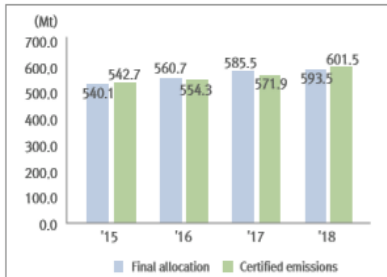
Summary of 1st ETS Phase ('15~'17)

Source: Ministry of Environment, Press Brief(07.02.19)



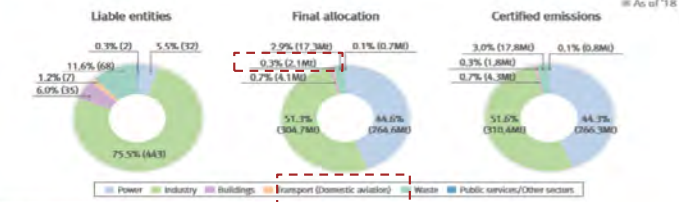
Summary of 2nd ETS Phase ('18)

〈 Final allocation and certified emissions by year 〉



GIR(2020) K-ETS Summary Report, p.07

Distribution by sector



Compliance results

2015	2016	2017	2018
99.87%(521/522 liable entities)	100%(560/560 liable entities)	99.75%(589/591 liable entities)	99.8%(585/586 liable entities)

GIR(2020) K-ETS Summary Report, p.12

Trading market performance



19

Content

- Korea GHGs Reduction Targets and Policies
- Emission Trading Systems in Korea
- Allowances Market in Korea
- Quantitative Analysis of K-ETS Market in Korea
- Suggestions for Future Revisions in K-ETS

20

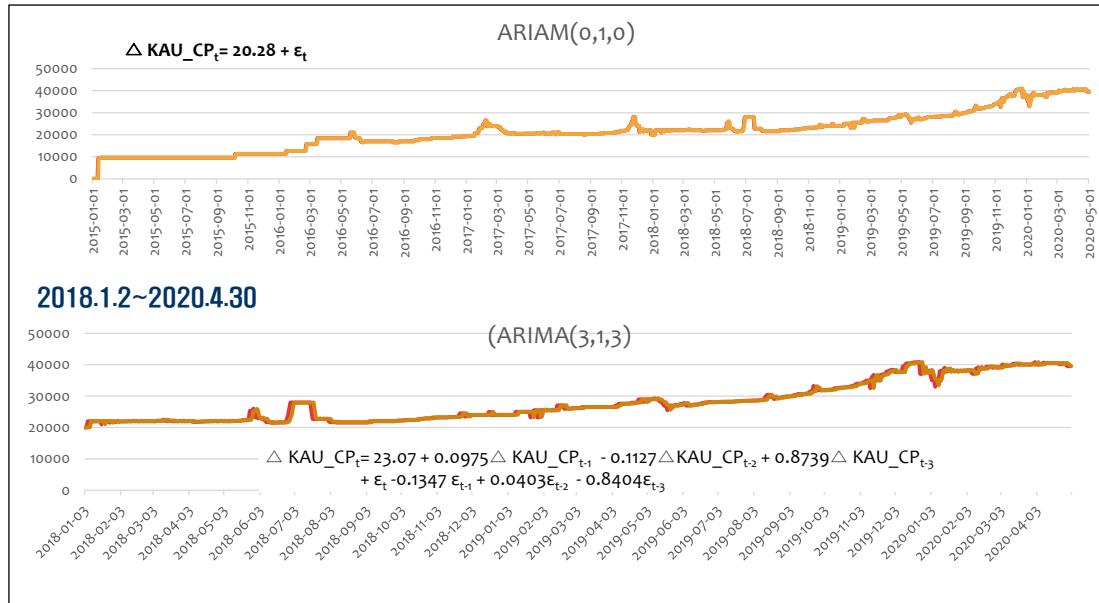


Daily KAU Prices



Time Series Analysis: ARIMA

2015.1.2~2020.4.30



21



Monthly KAU Prices



Regression Analysis

Explanatory Variables

- Montly Mining and Manufacturing Product Index,
- Power Generation Fuel Cost(LNG, COAL),
- Fuel Spead (CD, CS)
- statistically significant in fuel cost and markups.

CD: Clean Dark Spread

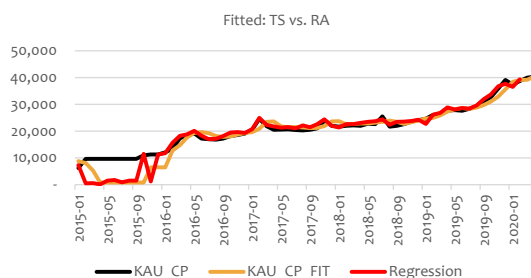
$$CD_t = WA_SMP_t - (FUP_FC_t * \frac{1}{p_{coal}} + KAU_{t-1} * EF_{coal})$$

CS: Clean Spark Spread

$$CS_t = WA_SMP_t - (UP_LNG_t * \frac{1}{p_{gas}} + KAU_{t-1} * EF_{gas})$$

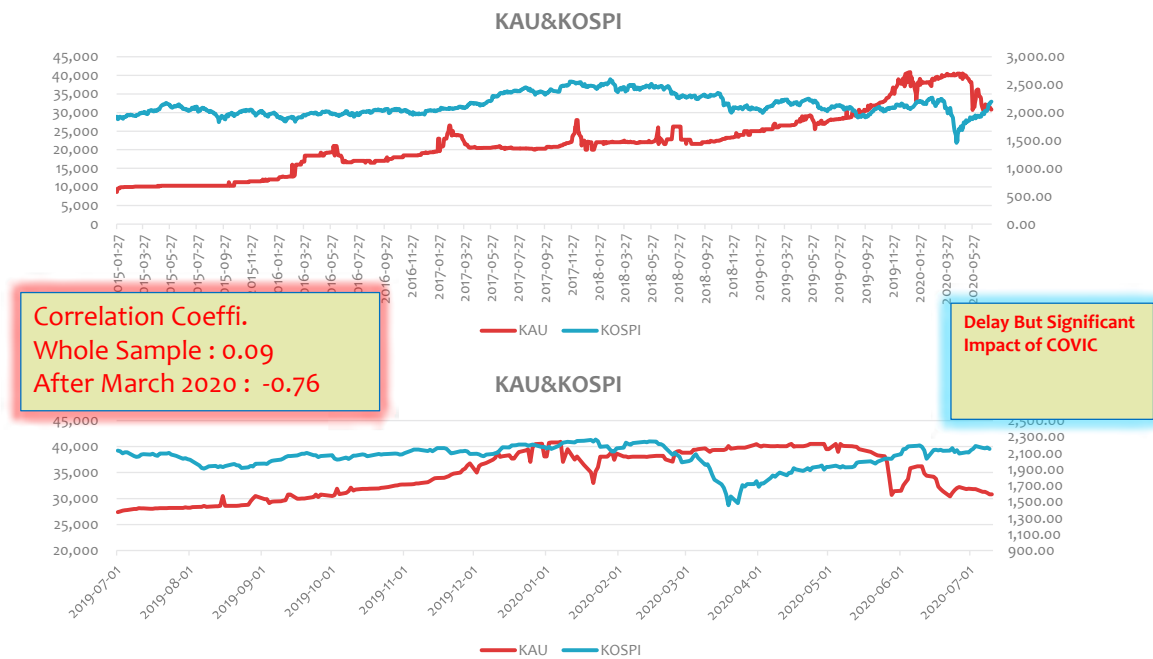
```
dynlm(formula = KAU_CP ~ MMPI + cd + cs + UP_LNG + FUP_FC)
Residuals:
    Min       1Q   Median       3Q      Max
-11521.0  -967.4   -286.9    959.1  10104.6
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.709e+06  2.073e+06   1.306   0.197
MMPI         1.230e-03  9.423e-04   1.306   0.197
cd          -1.672e+03  1.406e+02  -11.890 < 2e-16 ***
cs           1.592e+03  2.036e+02   7.817 1.55e-10 ***
UP_LNG       3.248e+03  4.150e+02   7.828 1.49e-10 ***
FUP_FC       -4.778e+03  4.019e+02  -11.889 < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 3049 on 56 degrees of freedom
(1 observation deleted due to missingness)
Multiple R-squared:  0.9189, Adjusted R-squared:  0.9117
F-statistic: 127 on 5 and 56 DF, p-value: < 2.2e-16
```



22

○○○ Impact of COVID 19 on K-ETS(KAU) ○○○



23



Content



- Korea GHGs Reduction Targets and Policies
- Emission Trading Systems in Korea
- Allowances Market in Korea
- Quantitative Analysis of K-ETS Market in Korea
- Suggestions for Future Revisions in K-ETS

24



Revisions



- ▶ 3rd party participations allowed in 3rd Phase(2021~2025)
- ▶ Change made in Criteria in Trade Exposed and Carbon Intensive Industries
- ▶ Futures and Derivatives Markets
 - ▶ Details and Market Stabilization Measures Improved
- ▶ Increase in Share of Allowances Auctioned to XXX%
- ▶ Regulations in Banking
 - ▶ Dynamic Cost Minimization and Price Stabilization
- ▶ Indirect Emissions Allocation with Full Pass Through on Electricity Price

25



Thank You for Attentions!!

sjyoo@sookmyung.ac.kr

26

DISCUSSION SESSION

Moderator

William Acworth

Head of Secretariat,
International Carbon Action Partnership (ICAP)

Panelists

Eunjung Kim

Senior Research Fellow,
Korea Legislation Research Institute (KLRI)

Seoyoung Lim

Manager,
Korea Environment Corporation (K-eco)

Moderator



William Acworth

Head of Secretariat,
International Carbon Action Partnership (ICAP)

Career History

Mr. William Acworth co-leads the Carbon Markets and Pricing team at adelphi. In his role as Head of the Secretariat of the International Carbon Action Partnership (ICAP), he works together with more than thirty governments around the world to advance carbon pricing as a key tool on the path to decarbonizing our economies. Over the past half decade, William has led ICAP's work on building capacity for emissions trading as well as key projects within ICAP's technical dialogue. Recently his focus has been on industrial decarbonization as well as carbon pricing implementation in Latin America and East Asia. Prior to joining adelphi, William worked as a research associate in the climate policy team at the German Institute for Economic Research (DIW Berlin) as well as with the Potsdam Institute for Climate Impact Research. He began his career in Australia, where he held positions with ACIL Allen Consulting as well as the Australian Bureau for Agricultural and Resource Economics, where he advised State and Commonwealth governments on climate policy. William holds a first class honours degree in Resource Economics from the University of Sydney, Australia, as well as a Masters of Public Policy from the Hertie School of Governance in Berlin, Germany.

Panelist



Eunjung Kim

Senior Research Fellow,
Korea Legislation Research Institute [KLRI]

Career History

Dr. Eunjung Kim is currently the Senior Research Fellow, and has researched for Climate Change policy and Legislation at Korea Legislation Research Institute. Since 2005 she had also been the Senior Researcher for The Institute for Comparative Legal Studies, Sungkyunkwan University prior to this she has worked as a Legal Specialist for the Ministry of Justice, Korea, and as a researcher for BK21 SKKU Global Business Research Group. She has achieved a Doctor of Law [2011], Master of Law [2004] and Bachelor of Law [2001] from Sungkyunkwan University, Korea, as well as an LL.M [Banking & Financial Law Program] from Boston University, US, in 2008. Her areas of scholarly interest are climate change, emissions trading systems, energy law, corporate financial law and insolvency law. Recent publications and awards include 'The Legislative Study for the Integrated Management of Air Pollutant' [2019]; 'Legal Study for Improvement of SDGs Implementation System' [2018]; 'A Strategy for the Implementation of Commitments under the UNFCCC for Sustainable Development' [2017]; 'The Implementation of Climate Change Mitigation Policy after Paris Agreement' [2016]; 'Study on Accounting Standards for Emissions Allowances and Social Welfare Effects' [2014]; 'Study on legislation regarding the linking of the international carbon market 2 – focused on EU and Korea' [2013]; 'Study on legislation regarding the linking of the international carbon market – focused on NZ and Korea' [2012], and an Award from the Minister of the Ministry of Environment [2016].

Panelist



Seoyoung Lim

Manager,
Korea Environment Corporation [K-eco]

Career History

Ms. Seoyoung LIM is a Manager from Department of Climate Action, Korea Environment Corporation [K-eco] which is a public agency under the Ministry of the Environment of the Republic of Korea.

Since she joined K-eco in January 2006, she has been taking in charge of diverse environment policies including Korea Emissions Trading System and international cooperation programmes such as Seoul Initiative Network on Green Growth for Asia and the Pacific region. In addition, she has participated in international environmental conferences including Rio+20 Summit and United Nations Framework Convention on Climate Change as a government delegate. In particular, she has been in charge of the Article 6, international carbon market, of the Paris Agreement negotiation since 2016.

She published 'Handbook on Paris Rulebooks [2019]' and participated in publishing 'Understanding the Paris Agreement [2020]' as a co-author. She holds a M.A in Public Policy from Graduate School of Public Administration of the Yonsei University, Republic of Korea.





**11th INTERNATIONAL
GREENHOUSE GAS
CONFERENCE**

SECRETARIAT

Email. igc2020@thewelcome.co.kr

Tel. +82-2-6203-2531

Web. igckorea.kr



Ministry of Environment

Greenhouse Gas Inventory and Research Center of Korea