

# Introduction to Korea Emission Trading Scheme; Korean Offsetting program



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# Korean ETS – History and governance

- Nov. 2012: Enforced Act 'Allocation and Trading of Greenhouse Gas Emission Permits'
- Jan. 2014: Established the 1st Master Plan for the Korean Emissions Trading Scheme
- Sep. 2014: Established the National Allocation Plan for the 1st Phase
- Sep. 2014: Legislated 6 codes of regulation for KETS implementation
- Jan. 2015: Official launch of KETS
- Jan. 2017: Established the 2<sup>nd</sup> Master Plan for KETS
- Restructured the governance of KETS
   (Ministry of Environment(2015) → Ministry of Strategy and Finance(2016) → Ministry of Environment(2017)

Governing Entity Ministry of Environment

Competent Authority

#### Ministry of Land, Infrastructure and Transport

 Commercial/Public Building, Airlines

# Ministry of Trade, Industry and Energy

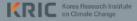
 Manufacturing industry, Power Plants

# Ministry of Agriculture, Food and Rural Affairs

 Food and beverage manufacturing industry

#### **Ministry of Environment**

 Combustor, Landfill, Water/ Wastewater treatment





## Korean ETS – Overviews

- Flexible mechanism: trading, banking, borrowing and offsets
- GHG covered: 6 Kyoto gases (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>)
- Allocation Method: mainly grandfathering (GF) but Benchmark (BM) for some sectors, BM for Aviation (domestic flight only)
- Inclusion thresholds: Corporation > 125,000tCO<sub>2</sub>eq or Site > 25,000tCO<sub>2</sub>eq
- Sectors and entities covered: 26 sub-sectors with 600 entities(as of Feb.2017)

#### Parties for trade

- Only regulated companies + three government owned banks are allowed to trade
- Possibly open to the 3<sup>rd</sup> party from phase 3 (2021~)

#### Banking

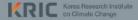
 Unlimited banking of credits (no expiry) – restrictions on banking to be introduced (TBD)

#### Borrowing

 Intra-Phase borrowing up to 10% (20% for phase 1) of credits for certain compliance year

#### Offsets/CDM

- Surrender up to 10% of allocation, except for adipic acids and HFC projects
- Korea domestic CDM credits can be converted to KETS credits
- Offsets from foreign projects directly performed by Korean companies to be allowed, from phase 2



# **Operational Plan by Phase**

	1st Phase (2015~2017)	2 <sup>nd</sup> Phase(2018~2020)	3 <sup>rd</sup> Phase (2021~2025)
Allocation	<ul> <li>100% Free allocation</li> <li>Mainly GF based allocation except for 3 sub sectors (grey clinker, oil refineries, aviation)</li> </ul>	<ul> <li>97% Free, 3% Auctioned</li> <li>Wide application of benchmark</li> </ul>	<ul> <li>Less than 90% Free, more than 10% Auctioned</li> <li>Mainly benchmark based allocation</li> </ul>
Offset projects	<ul> <li>Diversifying domestic and CDM project methodologies</li> <li>Promoting offset projects by reducing entry requirement for small scale projects</li> </ul>	<ul> <li>Promoting domestic offset projects – developing more projects by sector</li> <li>Promoting overseas offset projects – allowing offset credit from overseas projects for compliance</li> </ul>	<ul> <li>Drawing up guidelines on overseas credits in accordance with the Paris Agreement negotiations</li> <li>Diversifying methodologies for overseas projects</li> </ul>
MRV	<ul> <li>Setting up the MRV mechanism</li> <li>Expanding verification bodies/verifiers</li> </ul>	<ul> <li>Revising the emission report from for benchmark based allocation</li> <li>Updating the MRV standards</li> </ul>	<ul><li>Capacity building for verifiers</li><li>Adopting international MRV standards</li></ul>
Trading Market	<ul> <li>Designating the Korean Exchange (KRX) as an allowance exchange</li> <li>Implementing market stabilization measures</li> </ul>	<ul> <li>Launching regular auctions</li> <li>Considering adopting a market maker scheme</li> </ul>	Allowing third party participation in the trading market will be discussed (TBD)
Intl. cooperation and incentives	<ul> <li>International cooperation with EU, China and Japan</li> <li>Incentives for emission reduction facilities</li> </ul>	<ul> <li>Pursuing bilateral cooperation by developing local emission reduction projects</li> <li>Investing auction profits into environmentally friendly projects</li> </ul>	<ul> <li>Consider ETS linkage</li> <li>Diversifying investment portfolios</li> </ul>

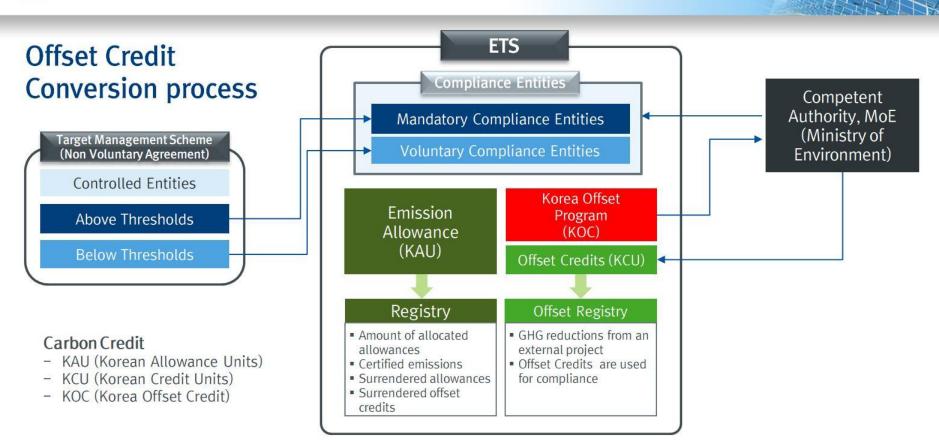




# Part 1

How are the emissions units generated by your programme, mechanism or project?

→ Credits are KOC, KCU and KAU.
KOCs are generated by offset program and...





# Korea Offset Program

The project participant can sells Korean Offset Credit(KOC) to the ETS Compliance entities, which is issued through external projects, purchased KOC can be transferred to KCU or traded from the Carbon market by Compliance entities.

External Projects "External Project" means a project to reduce, sink, or remove GHG emissions using international/national standards outside of the boundaries of the mandatory compliance entities to Article 8 of the ETS regulation.

# 1 Purpose of Korea Offset Program

# Dissemination of Reduction Activity

Dissemination of Emission Reduction in Private Sector & Small Company

#### **Achieving Efficiently**

Achieving efficiently GHG Reduction targets and stabilization of Carbon Market

#### Industrial Development

Sustainable growth by promoting GHG reduction industry





# Linkage between KETS & KOP

#### **Project Participants**

Propulsion of the External projects



Registration of External projects

KOC Issued by Gov.



#### **Project Participants**

Transaction KOC

# Trading Market (OTC & Exchange)





Trading



**Trading** 



Trading Market (OTC & Exchange)





**Trading** 

#### Compliance entities

Use to achieve GHG targets by KCU (up to 10% out of allocation)



Gov. Ministry

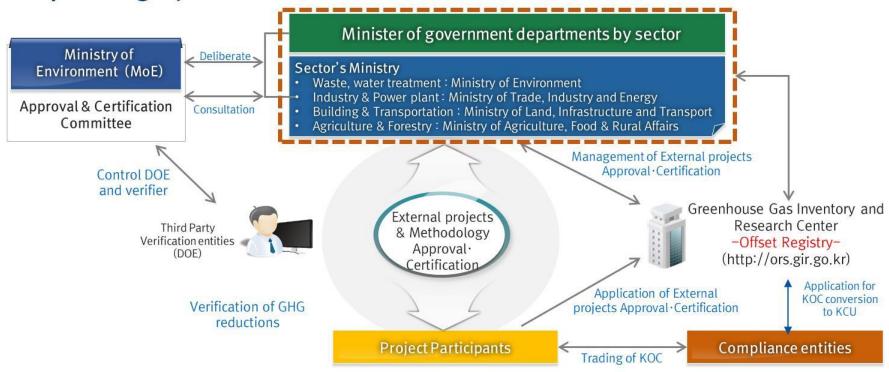
Convert KOC into KCU



Compliance entities

Purchase KOC

# Operating System of the KOP





# **Approved Methodologies**

Nov .2017, Approved! Methodologies are 34 (Gov.: 31, Participant: 3) \*CDM: 211 meths. were adopted

\* Same classification of methodology with CDM



#### Fuel Switch

#### No. of meths.: 5

- Fossil Fuel → Fossil Fuel
- Fossil Fuel → Wood Pellet
- Fossil Fuel → Chaff
- Fossil Fuel → Wood Pellet (Rural)
- Fossil Fuel → District Heating



#### No of meths: 6

- RE power generation
- RE power generation (self-use)
- · RE power generation (self-employed, rural)
- · Solar system
- Solar System (Rural)
- Geothermal system (rural)



#### Waste Heat Utilization

#### No. of meths.: 3

- · Unused heat recovery and utilization
- Unused heat recovery and utilization (rural)

Waste

Unused heat recovery and power generation



#### No. of meths.: 7

- · Installation of power saving facilities
- · High-efficiency facility replacement
- · Replacing high-efficiency lighting in buildings
- · High efficiency lighting replacement
- · Replacing High-efficiency Building Equipment
- High-efficiency thermal insulation materials (rural)
- · Rural LED installation (rural))



#### **Biomass**

#### No. of meths.: 5

- Collective energy heat supply using woody biomass
- · Bio CNG vehicle fuel
- · Sewage treatment plant Biogas recovery
- · Biogas plant (rural)
- · Biomethane city gas supply

### #6 Agriculture

#### No. of meths.: 4

- · Cultivation of circulating water
- Water management during paddy cultivation
- Use slow-release fertilizer
- · By-product fertilizer use

## #7

#### No. of meths.: 1

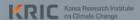
 Production and utilization of thermal energy utilizing waste wood

## #8

#### Forestry

#### No. of meths.: 3

- Afforestation / Reforestation
- Using wood products
- · Forestry restoration Project







# Type of External Project on KOP

	Single Project
Define	Reduction Projects with Single Measure  General: 3,000ton/annual excess Small scale: 100 ~ 3,000ton/annual reduction Micro scale: Less than 100ton/annual reduction
Monitoring Cycle	<ul> <li>General: More than once in 2 years</li> <li>Small scale and Micro scale</li> <li>: Maximum validity period of Certification</li> <li>※ At least once during validity period of certification</li> </ul>
Credit period	<ul> <li>Fixed (Maximum10 year, no Extension)</li> <li>Renewal (7 year + two period extension)</li> </ul>

#### **Bundling Project**

Small scale or Micro scale Reduction project bundled to one project (various reduction measures can be applied)

- Small scale: less than 15,000 ton/annual reduction
- Micro scale: less than 500 ton/annual reduction

Maximum validity period of Certification \*\* At least once during validity period of certification

- Fixed (Maximum10 year, no Extension)
- Renewal (7 year+two period extension)

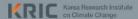
#### Program Project

Project to be implemented in policy by Gov., Local Gov., Public Sector

- · Application a single reduction project
- Program project + CPA(No limit)
- General: More than once a year
- Small scale and Extremely scale : Maximum validity period of Certification
- At least once during validity period of certification

⟨Program project⟩ Within 28 years ⟨CPA⟩

- Fixed (Maximum10 year, No Extension
- Renewal(7 year + two period extension)







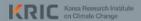
# **External Project approval and certification**

#### External project Registration procedure

	STEP	EXECUTION ENTITY
1	External project application for approval	Project Participant
	Receiving application of External project	Sector's Ministry
	Validation	Sector's Ministry
2	Validation Result	Sector's Ministry
	Review and Response	Project Participant
	Validation Completion	Sector's Ministry
	Ministry of Environment consultation	Ministry of Environment
3	Request for Deliberate	Ministry of Environment
	Approval of Deliberate	Certification Committee
	Notice of Deliberate results & registration	Sector's Ministry

#### External project Certification procedure

	STEP	EXECUTION ENTITY
1	Application for certification of GHG reduction	Project Participant
	Receiving application for cert. of GHG reduction	Sector's Ministry
	Certification Review of GHG reduction	Sector's Ministry
2	Notification Cert. review outcomes	Sector's Ministry
	Review and Response	Project Participant
	Certification review completion	Sector's Ministry
	Ministry of Environment consultation	Ministry of Environment
	Request for Certification Deliberate	Ministry of Environment
3	Certification Deliberate	Certification Committee
	Notice of Certification results & registration	Sector's Ministry





# Part 2

What are the features and benefits of the emissions units generated by your programme, mechanism or project, including the means to ensure their quality?

→ Korea Offset Program is very similar to UNFCCC – CDM which is the most popular offset program in worldwide...



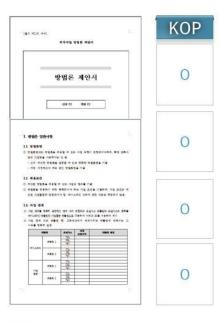


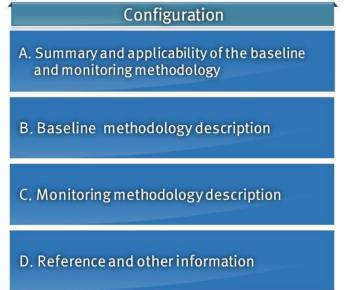
# Korea Offset Program vs. CDM – laws & standards

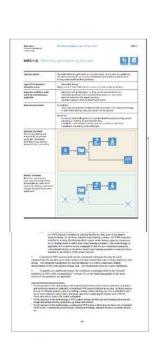
Korean Offset Program		CDM
Framework Act on Low Carbon, Green Growth	FRAMEWORKACT	UNFCCC
Act on the Allocation and Trading of Greenhouse–Gas Emission Permits	ACT	(1997) KYOTO Protocol
Enforcement Decree of the Act on the Allocation and Trading of GHG Emission Permits	ENFORCEMENT DECREE	KYOTO Mechanism (ET, CDM, JI)
Code for Regulations	ENFORCEMENT REGULATIONS	(2001) Marrakesh Agreement
for Validation and Certification of External Project (Additionality, Debundling)	RULES & STANDARDS	Glossary of CDM terms CDM Project Cycle procedure for PA, PoA CDM Project Standard CDM Validation and Verification Standard
-	GUIDELINES	Guidelines for (Additionality, Debundling, Leakage, Common Practice, Investment analysis)

Korean Offset Program requires consistent supplement document, compare to CDM

# Korea Offset Program vs. CDM – Methodologies







CDM

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Both CDM and External Projects apply the same structure and formats



# Korea Offset Program vs. CDM - Baseline identification

#### KOP

- Scenarios that are most likely to occur within the project boundaries in the absence of the KOP project activity
- Identification of alternative scenarios
- Explain identified baseline process
- Explain the best available scenario selection with logical and analytical background and description \* Simplified, but application is very limited than CDM
- Baseline scenarios are in methodologies
- Standard for KOP project (National law) KOP project PDD Guideline

#### Definition of baseline

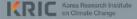
#### Identification of Baseline

Features

Guidance

#### CDM

- The scenario for the CDM project activity that reasonably represents the emissions by sources of GHGs that would occur in the absence of the CDM project activity
- Step1: Identification of alternative scenarios
- Step2: Barrier Analysis
- Step3: Investment Analysis
- Step4: Common Practice Analysis
  - → with approval of CDM additionality
- Baseline consideration varies by the project scale (micro, small and large scale)
- · CDM Tools
  - Combined tool to identify the baseline scenario and demonstrate additionality., etc.





# Korea Offset Program vs. CDM – Additionality

#### KOP

- The effect of the project activity to reduce anthropogenic GHG emissions below the level that would have occurred in the absence of the project
- Law · regulation/economic additionality
- Under 60,000ton/yr: Legal
- Over 60,000ton/yr: Legal + Economic
- Step1: Law Regulation additionality
- 1a: Identification of alternative scenarios
- 1b: Law · regulation Analysis
- Step2: Economic additionality
- 2a: Identification of Analysis method
- 2b: Cost/Investment/Benchmarking Analysis
- 2c: Financial indicator Analysis
- 2d : Sensitivity Analysis

#### Definition

Additionality

## Assessment

#### CDM

- The effect of the CDM project activity to reduce anthropogenic GHG emissions below the level that would have occurred in the absence of the CDM project
- **Environmental additionality**
- **Economic additionality**
- Technical additionality
- Step1: Identification of alternative scenarios
- Step2: Barrier Analysis
- Step3: Investment Analysis
- Step4: Common Practice Analysis

The Additionality assessment process of CDM project and KOP project is similar.



# Korea Offset Program vs. CDM – Monitoring Principals

Apply international standards (UNFCCC CDM) and ISO standards Consistency, Reproducibility, Transparency, Accuracy, Conservativeness

#### Standard for Validation and Certification of External Projects

Article 26(Monitoring principles) .

- 1. Monitoring methods shall comply with the registered project plan and the approved methodology..
- 2. External projects shall be measured in a manner that minimizes uncertainty.
- 3. Emission Reduction of external Project shall be consistency, reproducibility, transparency and accuracy.
- 4. When estimating the data needed to estimate the amount of emission Reduction from external Projects, the value shall be conservatively applied.

#### Consistency

Apply approved methodologies

#### Reproducibility

Third-party Verification Entity

#### Transparency

Regular monitoring and reporting

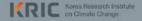
#### Accuracy

Monitoring principle (Measurement)

#### Conservativeness

Estimating; conservatively applied.

Applicable to monitoring principles corresponding to ISO 14064 and UNFCCC CDM standards







# Korea Offset Program vs. CDM – PDD Configuration comparison





KOP do not necessary Local stakeholder consultation & Authorization





# Korea Offset Program vs. CDM - Validation Process & Standard



#### Completeness Assessment

- <sup>™</sup> Competent Authority by Sector (Operating Entity)
- Document Review
- Completeness of Document

Check List

- Evidence
- general requirements (Additionality)

#### **Technical Assessment**

- Competent Authority by Sector (Operating Entity), Technical Expert's advise
- □ Document Review, On-Site Assessment
  - Accuracy of Data

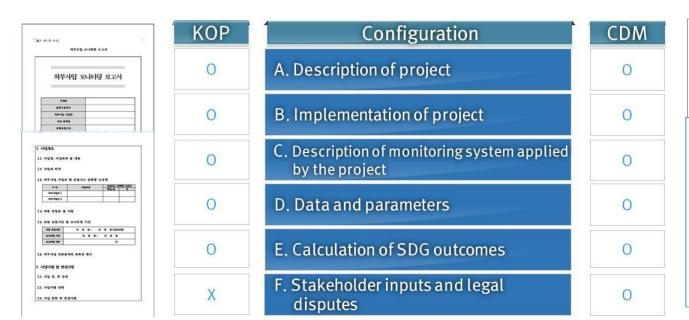
Check List

- Field(On-Site) situation
- Compliance of Monitoring Plan





# Korea Offset Program vs. CDM – Monitoring Report Configuration



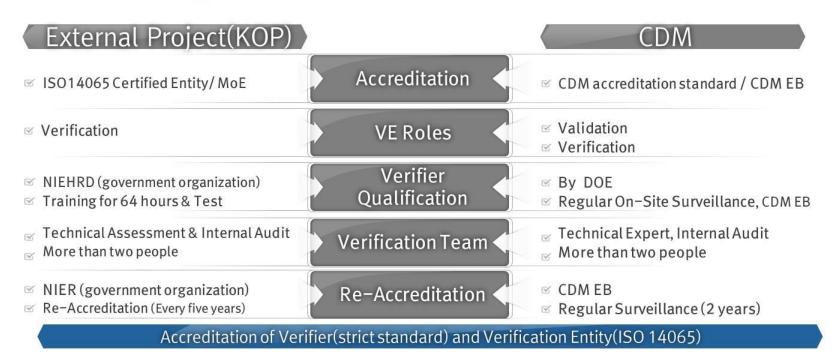


KOP do not necessary Local stakeholder inputs and regal disputes





# Korea Offset Program vs. CDM – Verification



VE: Verification Entity



# Part 3

Where can potential buyers purchase the emissions units generated by your programme, mechanism or project?

→ Trading platform is KRX. But account shall be...

# Part 4

How does your programme, mechanism or project track the use of emissions units?

→ Every, each emission units are traceable through...





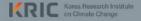
# Eligible buyer & seller for KETS

## KAU: Compliance entities are eligible to buy and sell (until phase 2, 2018~2020)

- Additionally only 3 Public Banks are allowed to open allowance trading accounts on the KETS until Phase 2. (Korea Development Bank, Korea Exim Bank and the Industrial Bank of Korea)
  - ① Purchase directly from other compliance entity ② Purchase futures on an exchange
- From phase 3, can the 3<sup>rd</sup> party be participated? Not Determined Yet!!!

## KOC: Compliance entities, Project developer (project owner), Designated Financial Institution

- To trade KOC as the 3<sup>rd</sup> party, project participation is required
- Designated Financial Institution shall be noticed by MoE (TBD)
- KOC shall be transferred to KCU on the request by Compliance entities





# Buyer and Seller must have an account with the reserve to hold Credits.

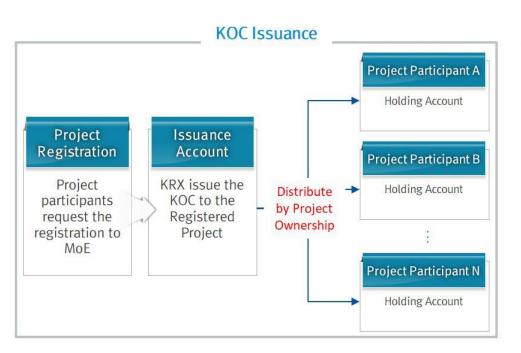
#### Account

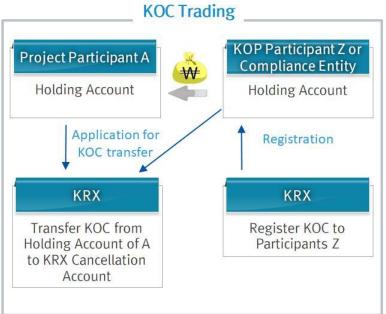
A virtual space opened in the name of the Minister of Environment and offset project participants in order to manage certified offset credits in the registry. Each account is identified with a unique ID number.

Issuance Account	issues certified credits from an offset project. (1 independent account per project)
Holding Account keeps the certified credits of a project participant. (1 independent account per project participant)	
Cancellation Account records the cancellation of transferred credits from a Holding Account. (managed by the Min of Environment)	
Offset Credit Account holds the transferred credits(KCU) owned/obtained by ETS Compliance entities. (1 independance account per entity)	
Forest Deposit Account	sets aside a certain portion of emission reductions from forest projects to prevent the loss of ${\rm CO}_2$ in the forest sector.
Disposal Account	manages the disposal of certified credits owned/obtained by ETS Compliance entities after their transfers to KCUs.



#### **Transaction of Accounts**

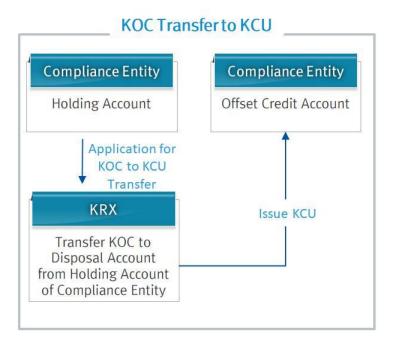








### **Transaction of Accounts**



To trade the KOC, the account should be required.

The account is only open to the Compliance Entity and Offset project participant.

- Open to the 3<sup>rd</sup> party (Code for Regulation required by MoE)
- 2) Participate Project (as the investor)





# Serial number assignment

#### **Project SN**

R -	YYYY	-	KR	_	XX	-	XXXXXX	-	P-XX
1	2		3		4		5		6

- ① External Project Registration mark: Fixed value ("R"means "Registered")
- ② Registration year
- 3 State of project operation: State code refer to 'ISO 3166-1 alpha-2'
- 4 Type of External Project
- ⑤ Project register number
- 6 Type of Certified External project

#### **Account SN**

K R	VOP/COP/	-	XXX, XXX, XXX
1	2		3

- ① State for account owner
- 2 Type of project participant
- 3 Serial number

#### **Certified reduction SN**

1	- YYYY -	YYYYMM YYYYMM	- KR-XX -XXXXX	- CDM -	XX,XXX,XXX
1	2	3	4	5	6

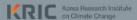
- ① External Project Certification mark: Fixed value "Issued")
- ("I"means

- 2 Issued year
- 3 Emission Reduction Period
- 4 Number of Acceptance for external project (3, 4, 5, 6 of Project SN)
- (Ex, CDM)
- 6 Serial number

### Methodology SN

XXX	-	XXX	_	Ver XX
1		2		3

- 1 Type of project
- 2 Number
- 3 Methodology version



# - francisco de la constante de

## Operate a transparent Registry system

- Ensure ownership to emission reduction
- Maintain a public registry of approved projects
- Issue and track serialized credits generated by projects.



# Public reports include;

- Project Participants Name
- Project Name
- Project Register number
- Certification period
- Monitoring period

- Serial number for certified reductions
- Volumes of Emission reductions
- Monitoring reports
- Verification reports









# Korea Exchange (KRX, www.krx.co.kr)

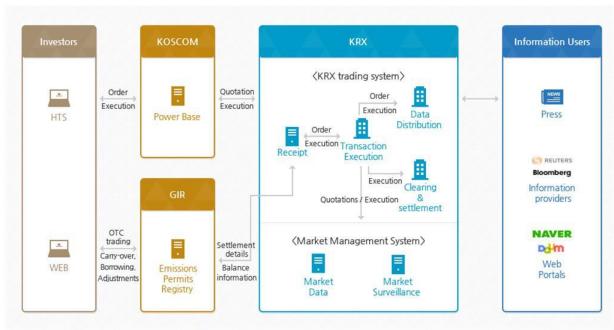
- The KRX was appointed as the venue for emission trading in Korea (Jan. 2014)
- The KRX launched the emission credit market (Jan. 2015)

Operation of emissions credit exchange (Article 22–2 of the Act)	Business of the emissions permits exchange (Article 27 of the Enforcement Decree of the Act)
Members	Launching and operation of the market
Trading method	Competitive trading and auction (for allocation of allowance)
Clearing/settlement	Confirmation of trades, assumption of liability, netting, finalization of settlement details, settlement guarantee, handling of settlement failures, settlement instructions
Dissemination of trading information	Best bid and offer, opening/highest/lowest/closing price, market price are publicly announced on a real-time basis.
Market surveillance	Monitoring/Inspection on abnormal trading activities.
Dispute mediation	Mediation of trading disputes upon application.
Business of members in the market	Matters regarding the receipt customer orders.





### Structure of the KRX Emissions Market



- Investor who have signed up for the membership of the emissions permits market (compliance entity) can submit orders using HTS, and the orders are executed, cleared and settled by KRX Market System.
- Investors (compliance entity) can participate in trading by registering their allocated emissions permits with the GIR emissions registry, and the trades of emissions permits are settled through the KRX's account at the GIR emissions registry and the payment is made through the KRX's account at settlement banks.

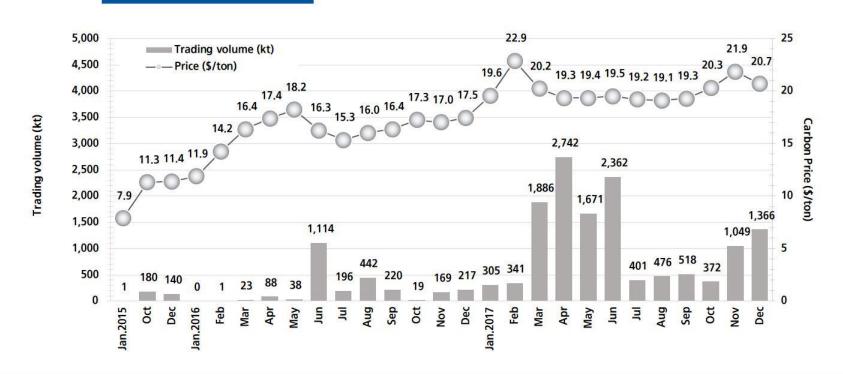
Homepage: www.krx.co.kr



#### ENVIRONMENT



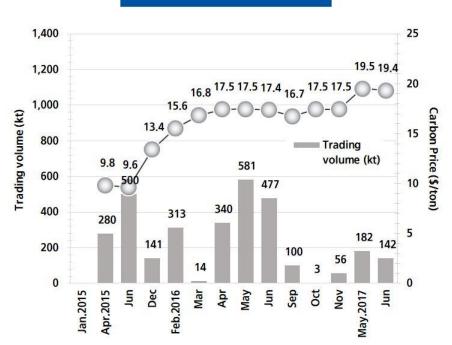
#### KAU



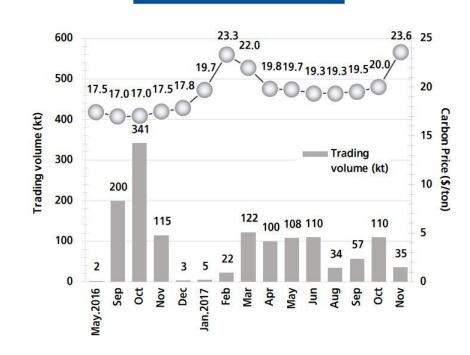








#### **KOC**



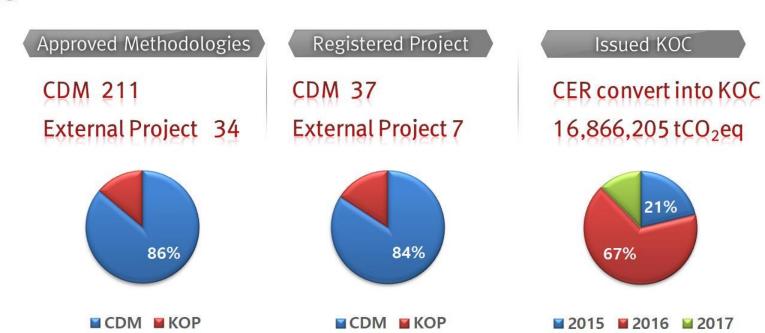


# **General Condition of KOP**

1	Who?	<ul> <li>Project Participants</li> <li>Participants that could manage, implement &amp; operate the project</li> <li>Compliance &amp; Target Management Scheme entities, public &amp; private sectors</li> </ul>
2	When?	<ul> <li>GHG Reduction activity after 14, April 2010 Project (legislation decreed)</li> <li>However, until the 1<sup>st</sup> phase, the project which was started before 14. April 2010 is possible for registration</li> </ul>
3	Where?	<ul> <li>Emission activities shall be outside the boundaries of Compliance entities</li> <li>Outside the organization boundary (emission reporting entity)</li> <li>Public Sectors could develop and implement the offset project</li> </ul>
4	What?	<ul> <li>Project must subjected to the Approval Methodologies</li> <li>If not, new methodology should be prepared and get approval</li> </ul>
5	How?	<ul> <li>Under the Rule &amp; Regulation of the External Project</li> <li>PDD → Validation → Deliberation → Monitoring → Verification → KOC Issue</li> </ul>
6	Why?	<ul> <li>Voluntary GHG Reduction Activities         <ul> <li>Reductions made by laws and regulations are not voluntary</li> </ul> </li> </ul>



# **Registered & Issued KOPs Overviews**



Currently the KOP has more projects & KOC issued from the Korea CDM Projects