

# Carbon Market

## 파리협정과 국제탄소시장

- Implication of the Paris Agreement  
on the International Carbon Market -

28 June 2018

임서영

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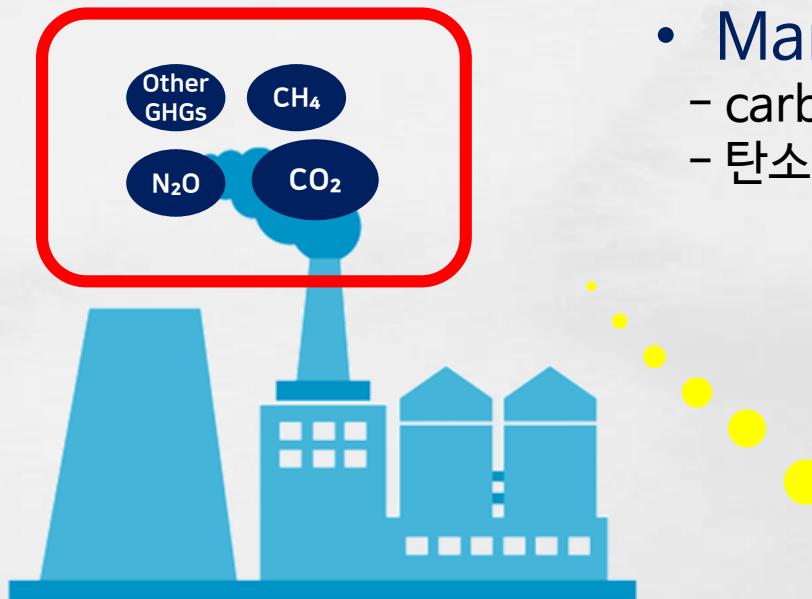


Korea Environment Corporation  
韓國環境公團

# 1. Carbon Market? 탄소시장이란?

## Carbon

- Policy target
  - regulation and management
  - 규제와 관리의 대상으로서의 온실가스



- Market mechanism
  - cost-effective policy
  - flexibility mechanism
  - 비용효과적 & 유연적 정책 집행

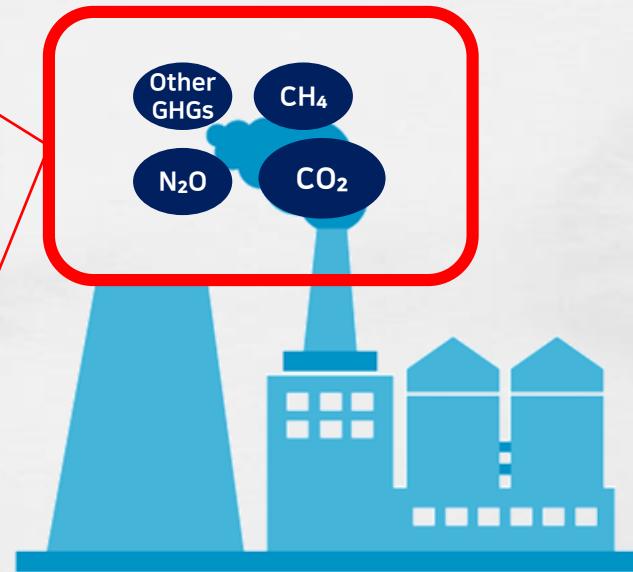
## Market

- Market place(市場)
  - carbon = commodities
  - 탄소라는 재화를 거래하는 시장
- Price on carbon
  - Internalizing all costs relevant to GHG emissions based on Polluters Pay Principle
  - pricing for transaction
  - 오염자 부담원칙에 따라 온실가스 배출에 수반되는 사회적 비용을 감안한 적정 가격 책정이 핵심

## 2. Carbon Pricing 탄소가격제

- Carbon tax(탄소세)
  - A tax levied on each tonne of GHG emission (e.g., \$/tCO<sub>2</sub> e)
  - 배출되는 온실가스 톤당 세금 일정액 부과

- Cap-and-Trade  
(총량제한 배출권거래제)
  - Setting a cap(or limit) on the maximum level of emissions for a given time period, and allocating allowances(permits) for each unit of GHG among firms
  - trading allowances
  - 온실가스 배출허용총량에 대해 배출권을 할당하고, 잉여/부족 배출권은 시장을 통한 거래를 가능토록 하는 제도



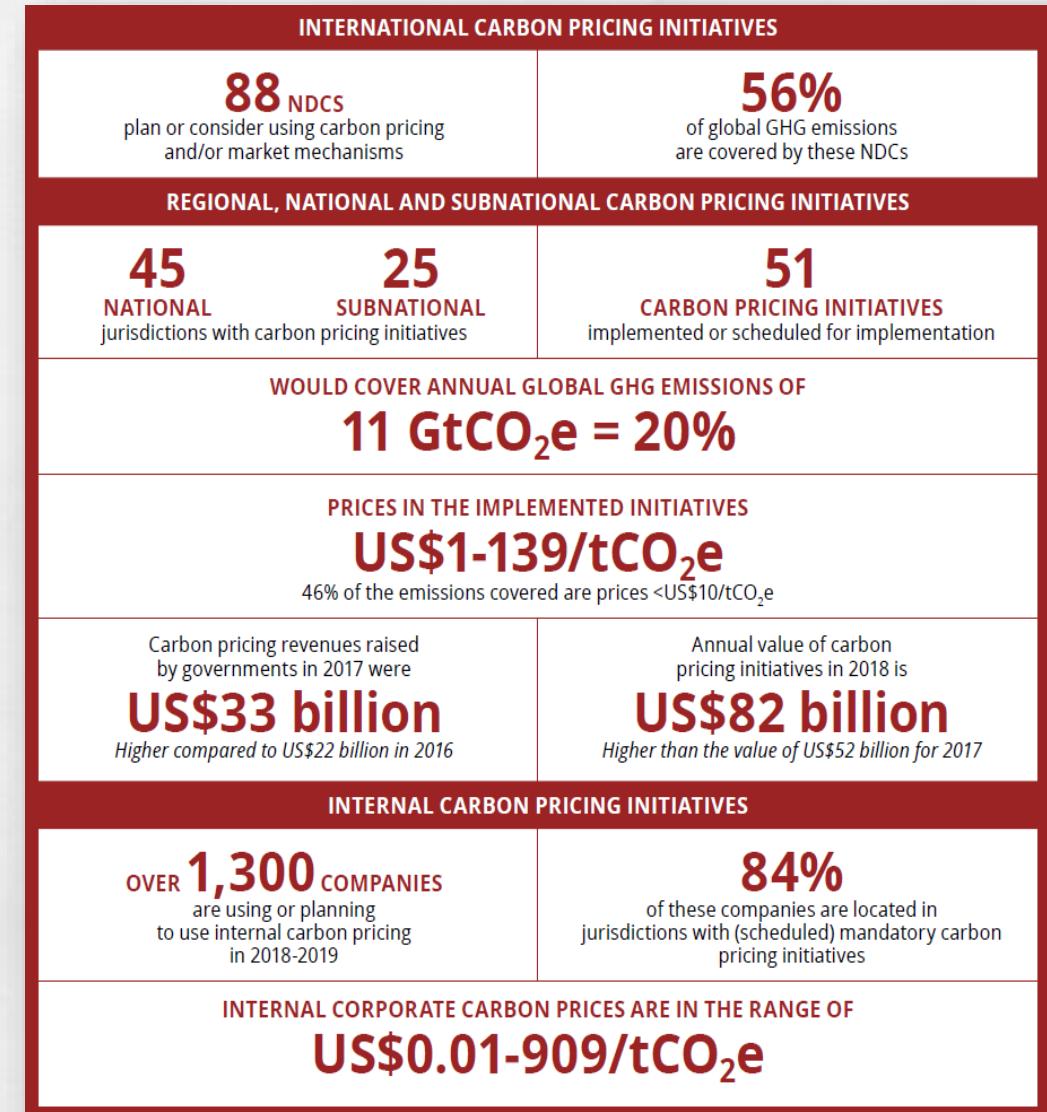
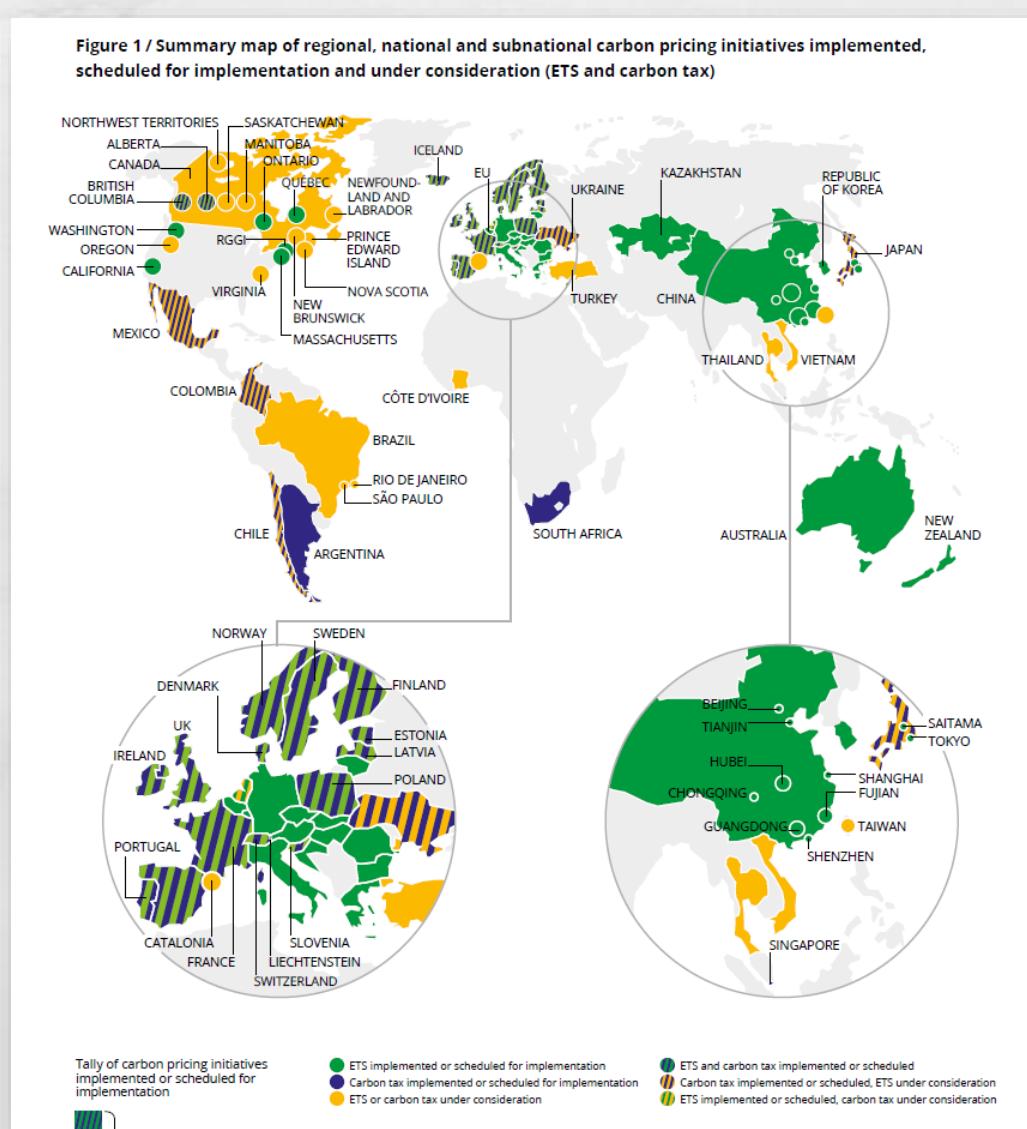
### Carbon tax Vs. Cap-and-trade

– Relative advantages –

Issue	Carbon tax	Cap-and-trade
Minimize Administrative Costs (행정비용의 최소화)		
Address Uncertainty: price vs. emissions uncertainty (시장가격과 배출량 관련 불확실성 관리)		
Address Uncertainty: flexibility to respond to new info. (신규 정보에 대응할 수 있는 유연성 측면에서의 불확실성 관리)		

Source: Goulder & Schein, "Carbon Taxes Versus Cap and Trade: A Critical Review", 2013

# 3. State of Carbon Pricing 전세계 탄소가격제 도입현황



Source: World Bank and Ecofys. 2018. "State and Trends of Carbon Pricing 2018(May)", by World Bank, Washington, DC.

# 4. K-ETS, Best Alternative? Why? 배출권거래제 도입배경



# 5. Status of the K-ETS 대한민국 배출권거래제 현황(1)

← ..... 1st CP(3yr) →

2015      2016      2017

- Total amount of KAU for the 1st phase  
(1차 계획기간 배출권 총수량)

unit : million KAU(Korean Allowance Unit)

Sector	Industry	Implementing Year			Total Allowances for 1st CP
		2015	2016	2017	
Total Allowances		573.5	562.2	568.5	1,704.2
In-advance Allocation		543.2	532.6	538.9	1,614.7
Reserves					89.4

← ..... 2nd CP(3yr) →

2018      2019      2020

- Starting the 2nd phase(2차 계획기간 개시)
- Finalizing the 1st phase  
(1차 계획기간 배출권 최종 제출: 2018.6.30限)
- Introducing auction, expanding BM allocation and accepting overseas CERs  
(배출권 경매 도입, BM 할당대상 업종 확대, 해외 크레딧 허용)

3rd CP(5yr)

2021      2022      2023      2024      2025

...



# 5. Status of the K-ETS 대한민국 배출권거래제 현황(2)

## ▶ Allowances & Credits tradable(K-ETS 거래단위)



### ASIA PACIFIC



South Korea's environment ministry has finalised rules that will see ETS participants being able to use CERs from international projects to meet 5% of their obligations. Eligibility criteria are strict though, with only CERs generated after 1 July 2016 from projects with a strong Korean ownership component accepted.

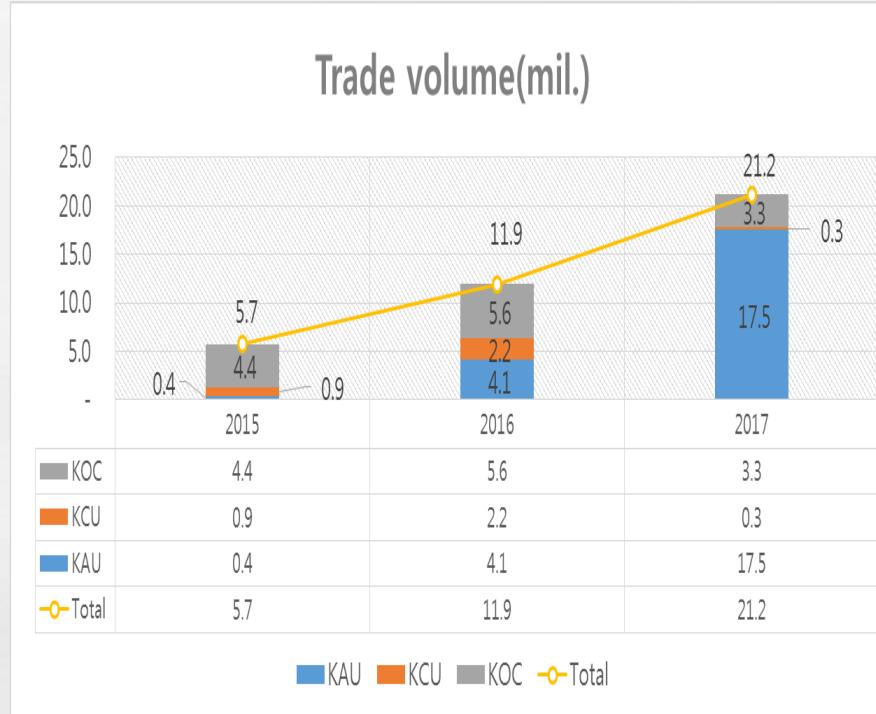
## ▶ Trading at



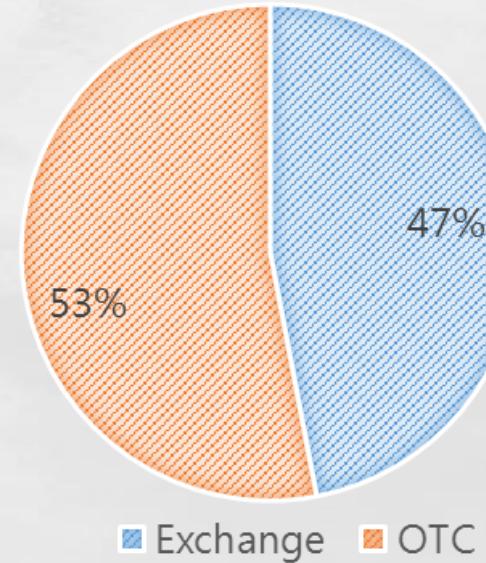
- Acceptance of allowances sourced from GHG reductions from outside the subject entity's installation boundaries  
(*할당대상업체 조직경계 외부에서 발생하는 감축*)
- Acceptance of allowances produced in Korea and from domestic CDM projects or overseas CDM projects engaging Korean Entity(at least 20% of share, from the 2<sup>nd</sup> phase)  
(*2차 계획기간부터 국내 업체(20% 이상 지분 보유)가 해외에서 실시한 CDM 사업에서 발생한 CER도 사용 가능*)
- Limit : **max. 10% (max. 5% for the overseas CERs)** of the total allowances that has to be surrendered  
(*제출해야하는 배출권의 10%까지(해외실적의 경우 최대 5%)만 KCU 활용 가능*)

# 6. K-ETS Market Trends 대한민국 배출권거래시장 현황(1)

- Trade Volume : **38.8 mil.ton** (as of Sep 2017, incl. Exch./OTC)  
(총 거래 규모 : 38.8백만톤('17.9월말, 장외거래 포함))



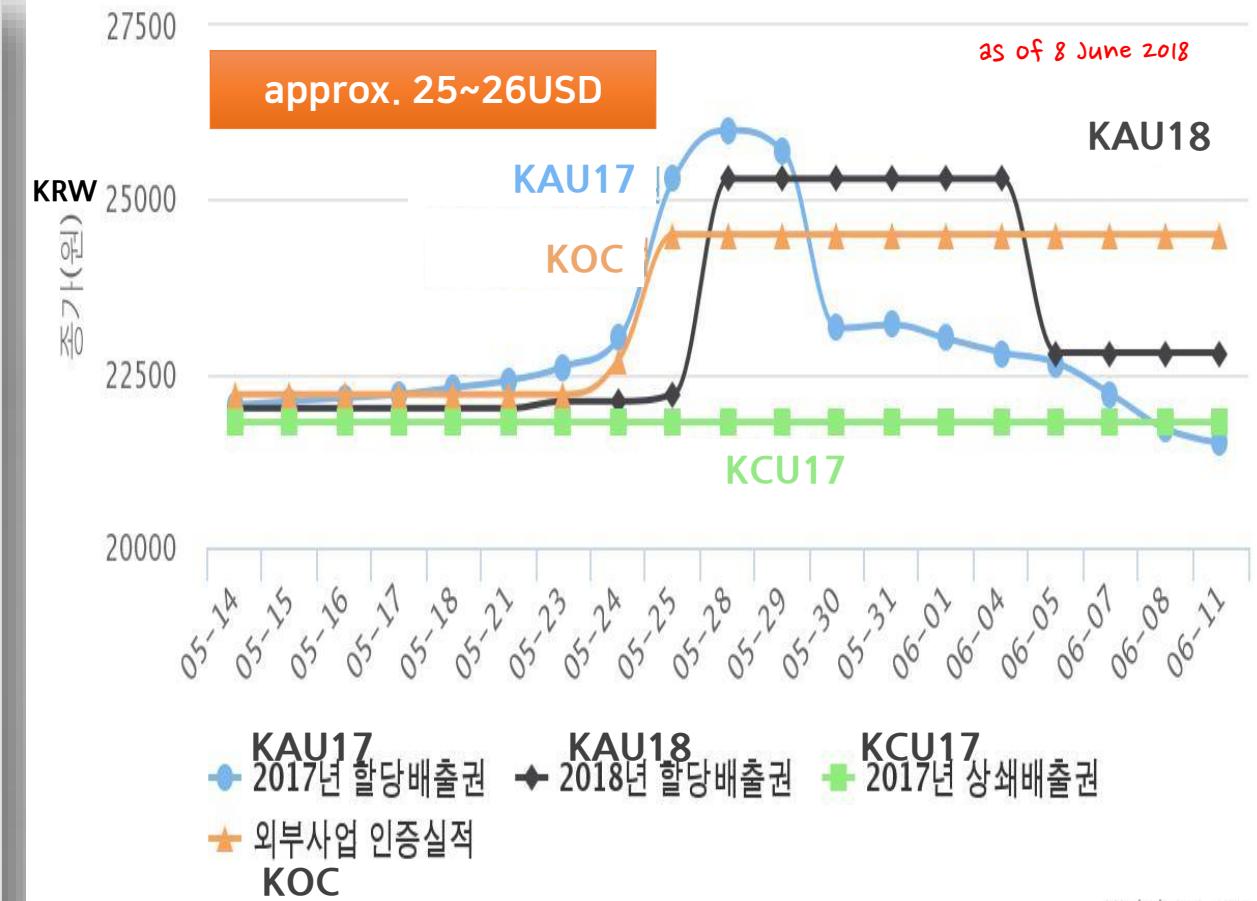
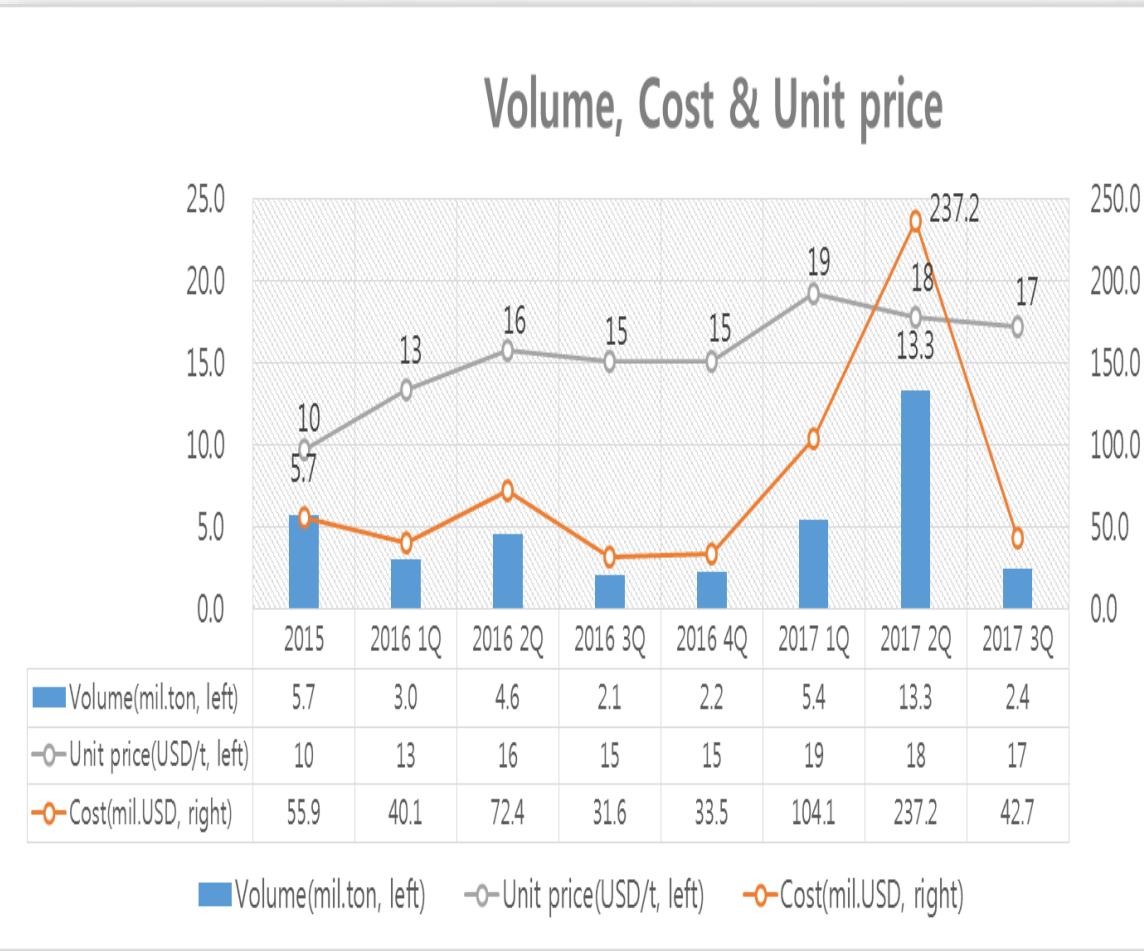
EXCHANGE VS OTC



- (2015) 5.7 mil. → (2016) 11.9 mil. → (2017) 21.2 mil.
  - (KAU) **22.0(57%)** mil. (KCU) **3.4(9%)** mil. (KOC) **13.4(34%)** mil.

# 6. K-ETS Market Trends 대한민국 배출권거래시장 현황(2)

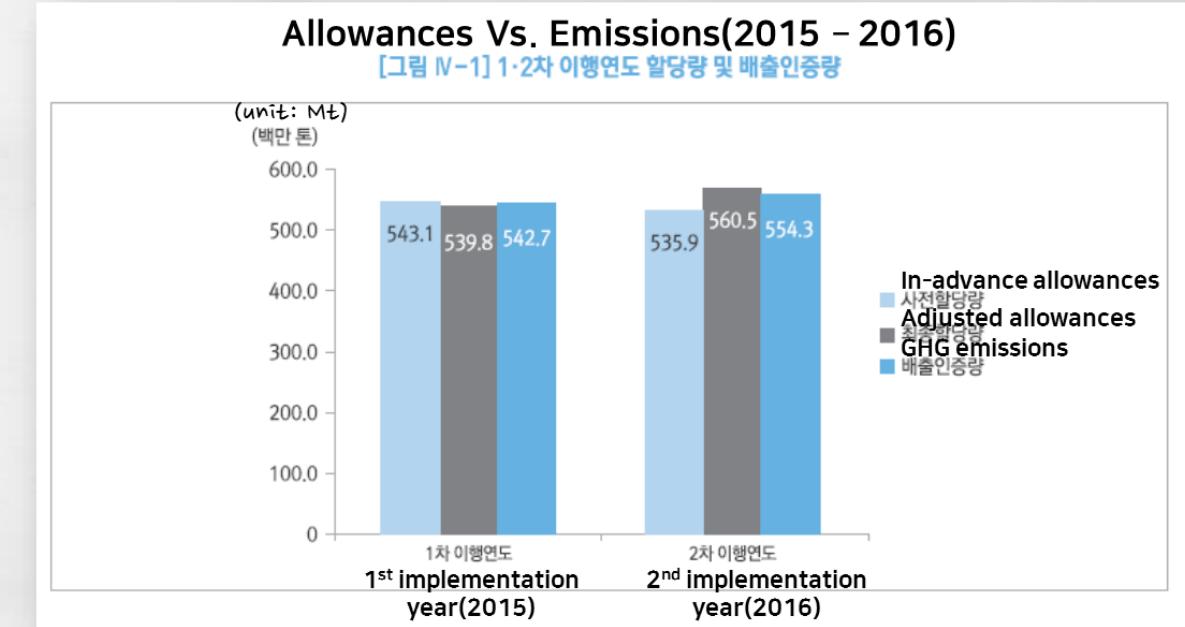
## Unit price(USD/ton) (배출권 거래 가격 추이)



# 7. K-ETS Key Outcomes & Challenges 운영성과 및 개선사항(1)

## ▶ Key Outcomes(운영 성과)

구분	'14년(A)	'15년(B)	'16년(C)	전년 대비 증감률		(unit: Mt) (단위: 백만 톤)
				'15년(B/A)	'16년(C/B)	
				Avg. rate of change '14~'16년		
Direct Emissions 직접 배출량	469	457	467	-2.57%	2.14%	-0.24%
Indirect Emissions 간접 배출량	95	93	94	-1.61%	0.27%	-0.67%
Total Emissions 전체 배출량	564	551	561	-2.40%	1.83%	-0.31%



# 7. K-ETS Key Outcomes & Challenges 운영성과 및 개선사항(2)

## ▶ Key Challenges(개선 필요사항)

- ◉ **Allocation** BM 방식 할당 확대를 통한 공정한 할당 도모
  - ✖ **BM**
    - (1st CP) 3 sectors : Cement, Aviation, Refinery
    - (2nd CP) 3 sectors + α (under review)
  - ✖ **GF**
    - Consideration of GHG reductions during the baseline period
    - ※ GF drawbacks : the more reductions made, the less allowances allocated

- ◉ **Auction** 유상 할당(경매) 개시에 따른 준비 철저

1 <sup>st</sup> CP (2015~2017)	2 <sup>nd</sup> CP (2018~2020)	3 <sup>rd</sup> CP (2021~2025)
Free Allocation (100%)	Auction (3%)	Auction (up to 10%)

- ✖ **Revenues** 경매 수익 등 저탄소 기술에 투자하여 선순환 체제 구축
  - invested in clean and low carbon technologies

## ◉ NDC under the Paris Agreement

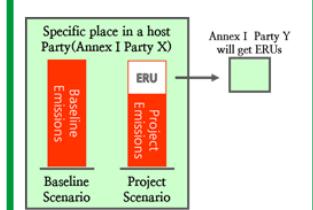
- ETS : Key policy measure ⇒ 국가 NDC 달성을 주요 수단  
국제적 규칙(협정 제6조)  
for NDC implementation 적정 반영 필요
- From 3<sup>rd</sup> CP, Total Cap should reflect NDC  
(well below BAU for higher ambition)
- Cooperative approaches in the Region



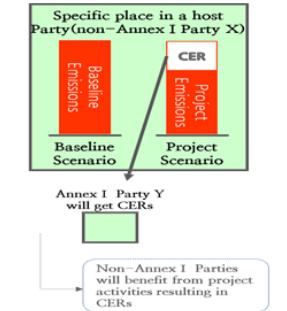
# 8. From Kyoto to Paris 국제적 논의 동향(교토의정서와 파리협정)

## Kyoto Protocol

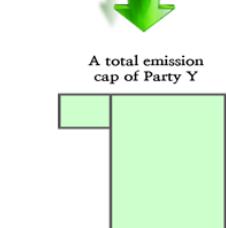
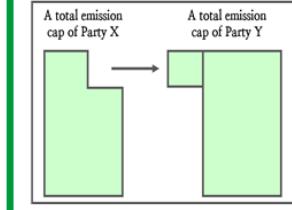
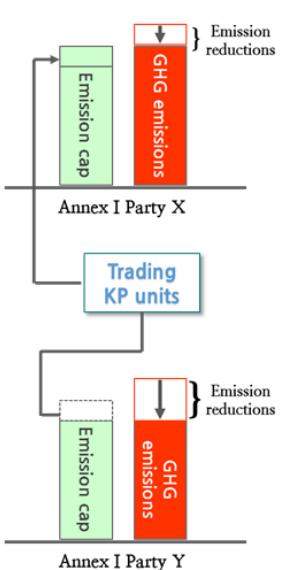
### Joint Implementation (Art. 6)



### Clean Development Mechanism (Art. 12)



### International Emissions Trading (Art. 17)



Ref. IGES, CDM in CHARTS ver. 28

## Paris Agreement

### Art. 6.1

- voluntary cooperation
- allow for higher ambition
- promote sustainable development & environment integrity

### Cooperative Approaches (Art. 6.2~6.3)

### the Mechanism (Art. 6.4~6.7)

### Non-Market Approaches (Art. 6.8~6.9)

# 9. Overview of the Art.6 파리협정 제6조 개요

## Art. 6.1

▶ voluntary, higher ambition, SD, EI 자발적 참여, 강제의무 상향, 지속가능발전, 환경건전성 등

### 협력적 접근법 Cooperative Approaches - Art. 6.2~6.3 -

- ▶ bottom-up / voluntary basis
- ▶ Internationally Transferred Mitigation Outcome(ITMO) towards NDC
- ▶ promote SD
- ▶ ensure EI & transparency
- ▶ robust accounting – no double counting
- ▶ authorized by participating Parties



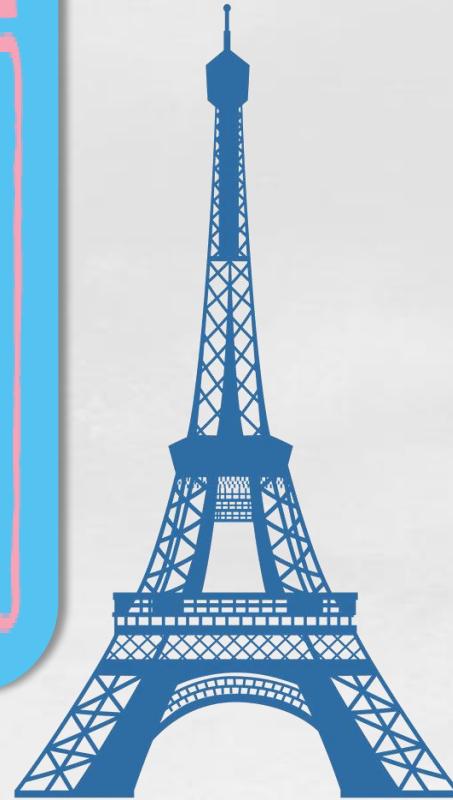
### 신규 메커니즘 the Mechanism - Art. 6.4~6.7 -

- ▶ top-down / authority & guidance of CMA
- ▶ Mechanism : contribute to the mitigation of GHGs & support SD
- ▶ participation of public & private entities (authorized by a Party)
- ▶ deliver overall mitigation in global emissions
- ▶ no double usage of emission reductions
- ▶ share of proceeds



### 비시장 접근법 Non-market Approaches - Art. 6.8~6.9 -

- ▶ integrated, holistic and balanced approaches
- ▶ mitigation + adaptation + finance + technology transfer + capacity-building
- ▶ framework for non-market approaches



# 10. Market perspective of the Art. 6 파리협정 제6조-탄소시장?



- A6 enables the creation of an international carbon market rather than market itself <sup>1)</sup>
- ITMO can be recognized as a carbon commodity
- 파리협정 제6조는 그 자체로 탄소시장으로 보기는 어려우나, 새로운 탄소 재화로서 ‘국제적으로 이전된 감축결과물(ITMO)’을 명기하여 2021년 이후 새로운 국제탄소시장을 만들어내는 창구가 됨

1) Ref. Andrei Marcu, Governance of Article 6 of the Paris Agreement and Lessons Learned from the Kyoto Protocol(May 2017)

# 11. A6 negotiation 파리협정 제6조 협상동향(1)

## ● Internationally agreed standards & guideline for the A6

- SBSTA mandate(adoption @ CMA1-3(COP24, 2018))
- 파리협정 제6조 관련 규정문서

### 1/CP.21 para 36 21차 당사국총회 결정문 제36항

- The guidance referred to under the Art. 6.2 including guidance to ensure that double counting is avoided on the basis of a corresponding adjustment  
협력적 접근법(6.2조)에 관한 지침 **guidance**

### 1/CP.21 para 37~38 21차 당사국총회 결정문 제37~38항

- rule, modalities and procedures for the mechanism established by Art. 6.4  
신규 메커니즘(6.4조)에 관한 규칙, 방식, 절차 **RMP**

### 1/CP.21 para 39~40 21차 당사국총회 결정문 제39~40항

- undertake a work programme under the framework for non-market approaches to sustainable development referred to in Art. 6.8  
비시장 접근법(6.8조) 프레임워크 下 작업프로그램 착수 **work programme**

# 11. A6 negotiation 파리협정 제6조 협상동향(2)



# 12. Regional Cooperation btw Korea-China 한-중 협력방안

## UNFCCC negotiation 국제협상



EIG



LMDC, G77 & China

- Key role for adoption of the A6 rules @ COP24
  - ⇒ Diversity of NDCs w/ environment integrity
  - ⇒ International cooperation for higher ambition
- 협정 6조 관련 규정 문서 시한 내(COP24) 채택을 위한 노력 필요
  - ⇒ NDC의 다양성과 협정 6조의 환경건전성 보장
  - ⇒ 감축의욕 상향을 위한 협정 6조의 활용(국제협력 측면)

## Regional Carbon Market 지역탄소시장

- Possibility of ETS linkage in the region
  - ⇒ (Challenge) Asymmetry of the market coverage
  - ⇒ (longer-term cooperation) Linking for offset credits, sectoral approach, unitary allocation system etc.
- 지역내 탄소시장 연계 방안
  - ⇒ (선결사항) 비대칭적 시장
  - ⇒ (장기적 협력) 상쇄크레딧으로 상대국 배출권 인정, 동일 부문에 대한 할당, 단일 할당 시스템을 통한 연계 등
- Joint investment and/or mechanism
  - ⇒ JI-like cooperation
- 감축사업에 대한 공동 투자 및 개발
  - ⇒ 공동이행제도 방식의 협력사업 추진

