# Korea's ETS and Carbon Market for Green Growth

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# 1. Low Carbon Green Growth

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# Why we need Green Growth ?

- **Overview of Korea's Economy**

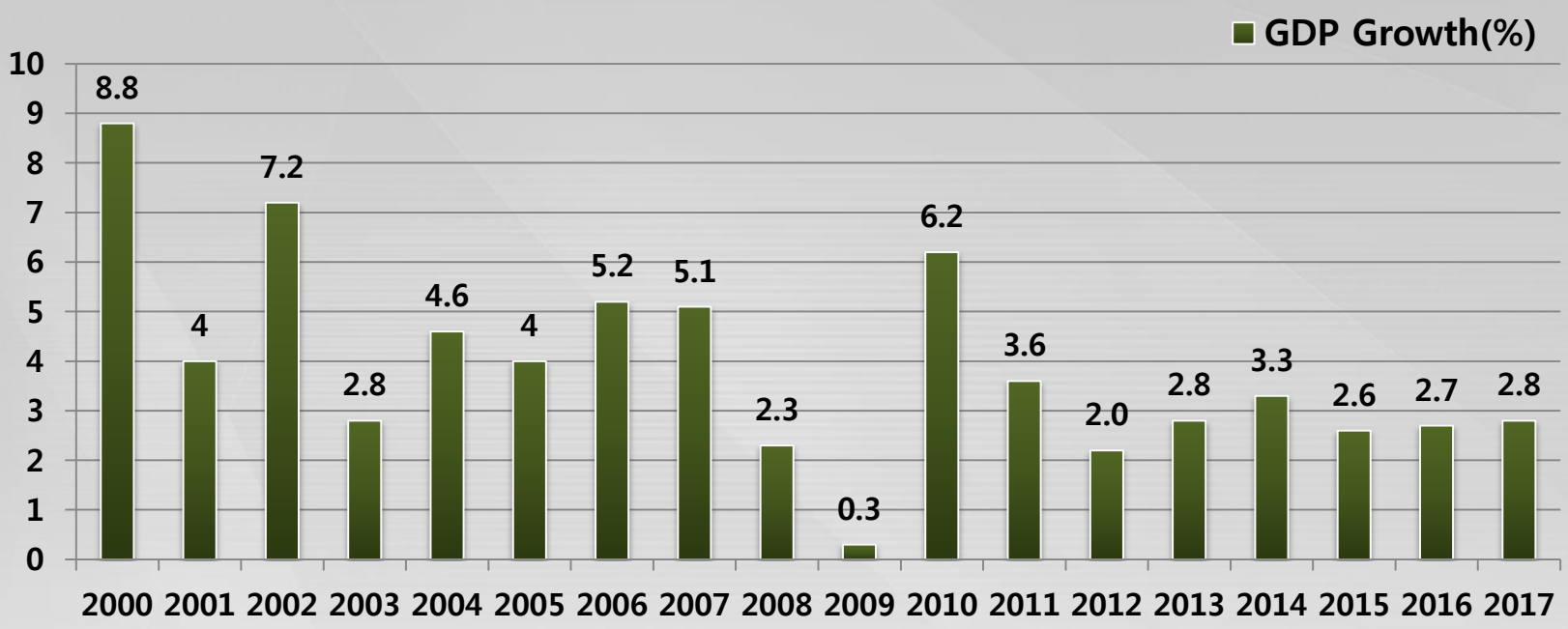
| | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GDP (Trillion USD) | 844 | 951 | 1,049 | 930 | 834 | 1,014 | 1,163 | 1,223 | 1,306 | 1,411 | 1,383 | 1,415 | 1,523 |
| GDP Per person (USD) | 17,551 | 19,707 | 21,653 | 19,162 | 17,110 | 20,756 | 23,749 | 23,179 | 25,890 | 27,811 | 27,105 | 27,608 | 29,742 |
| GDP Growth (%) | 4.0 | 5.2 | 5.1 | 2.3 | 0.2 | 6.2 | 3.6 | 2.0 | 2.8 | 3.3 | 2.6 | 2.7 | 2.8 |

〈Source: World Bank〉

- **14th Largest Economy in the World**
- **Strongly Leading Industrial Sectors**
  - **Electronics, Car Manufacturing and Shipbuilding etc.**

# Economic Slowdown

- **Low Level of Development since 2000**




〈Source: Bank of Korea〉

- **Weak Job Creation and High Unemployment rate**
  - **New Engines for Growth and Employment**

# Green Growth Concepts

- Green Growth provides a set of strategies that aims for continued **economic growth and environmental sustainability** at the same time.

- A New Path for Growth
  - Achieving sustainable growth = reducing GHG emission + economic growth from environmental protection

- GHG, Global Warming, Unusual Weather, Global Crisis

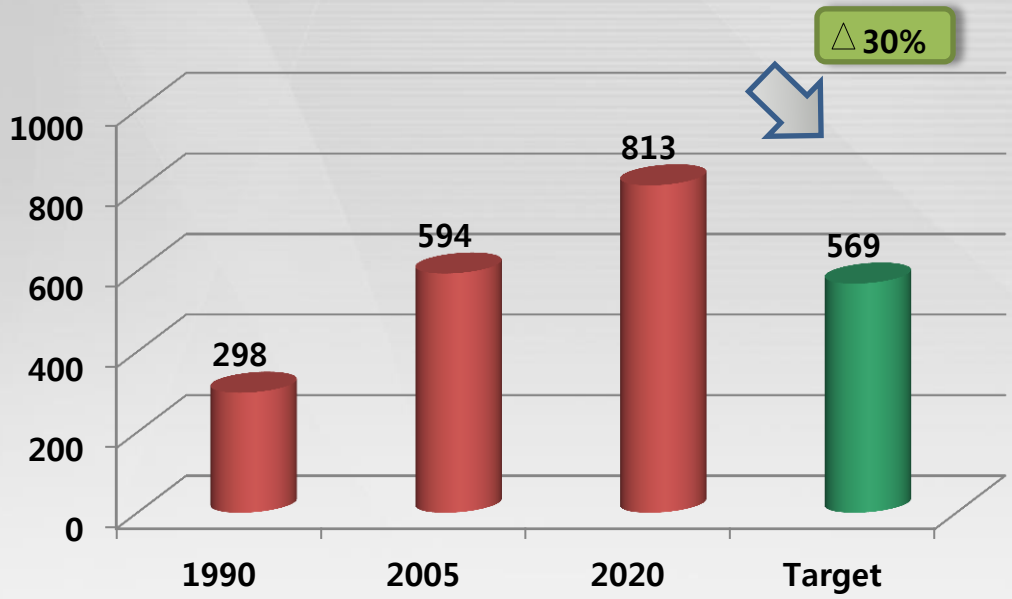
⇨ **The need for New Policy and Legislative Strategy**

# Low Carbon, Green Growth

- **Last 60 years – Economic Growth**
- **Next 60 years – Green Growth**

## Mid-Term Reduction Target

Unit: Million tons of $CO_2$-eq




<Source: Presidential Committee on Green Growth>

# Energy Consumption & New Reduction Target

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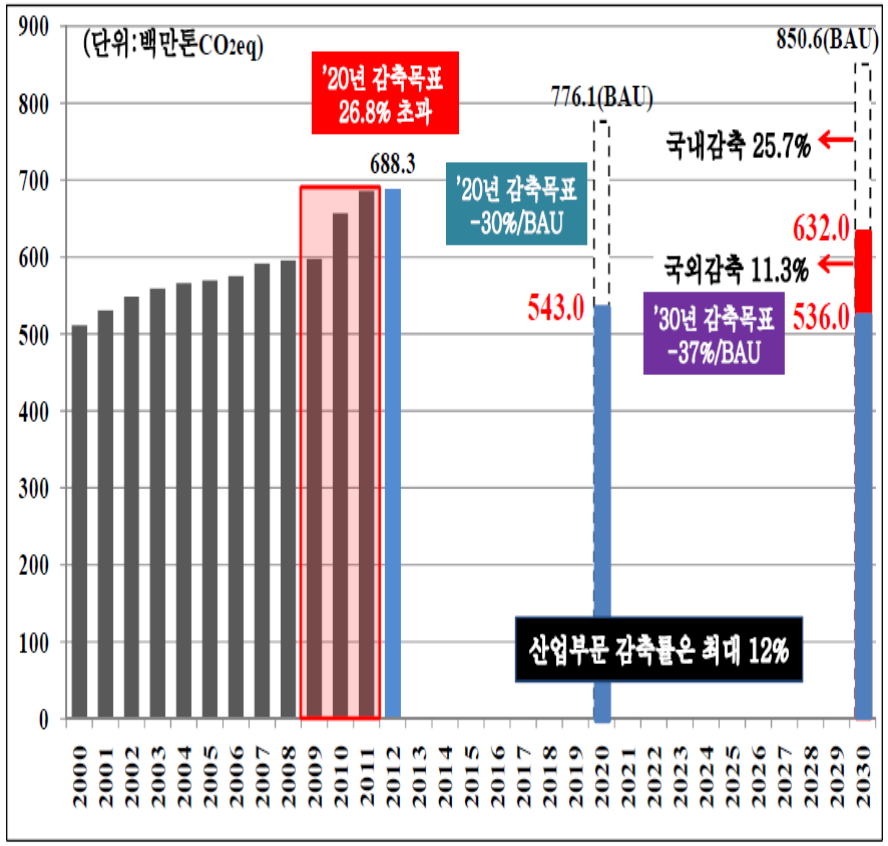
## 에너지 소비 정점 도달의 가능성


출처 : 에너지경제연구원 2016년 3월 23일자 보도자료

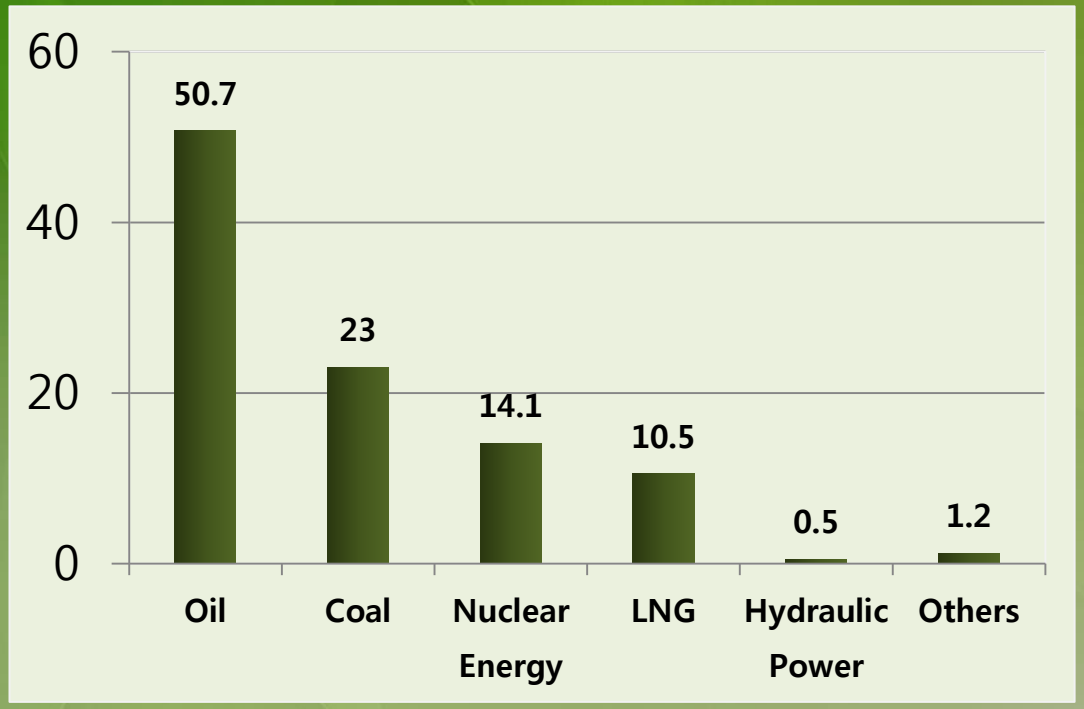


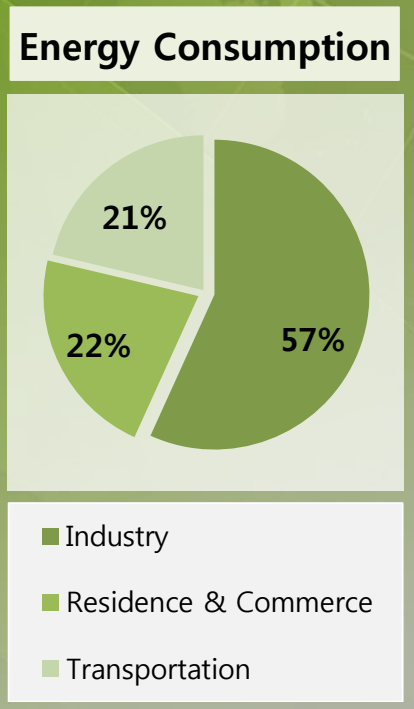
## 한국의 Post-2020 감축목표



# 2. Background of Legislation

- **Energy Consumption within 10th in the World**
- **97% of Energy is Imported**
- **83% of Energy comes from Fossil Fuels**




<Source: Korea Energy Management Corp.>

**Korea is Vulnerable to Unstable Energy Prices**

# GHG(Greenhouse Gas) Emissions in Korea

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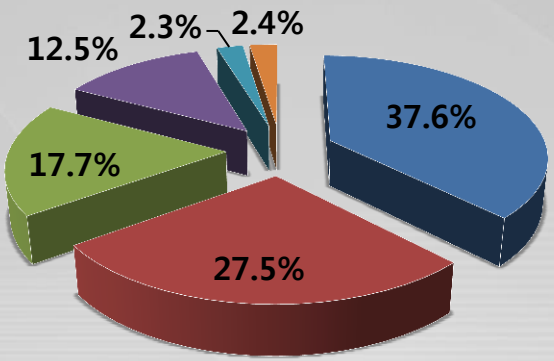
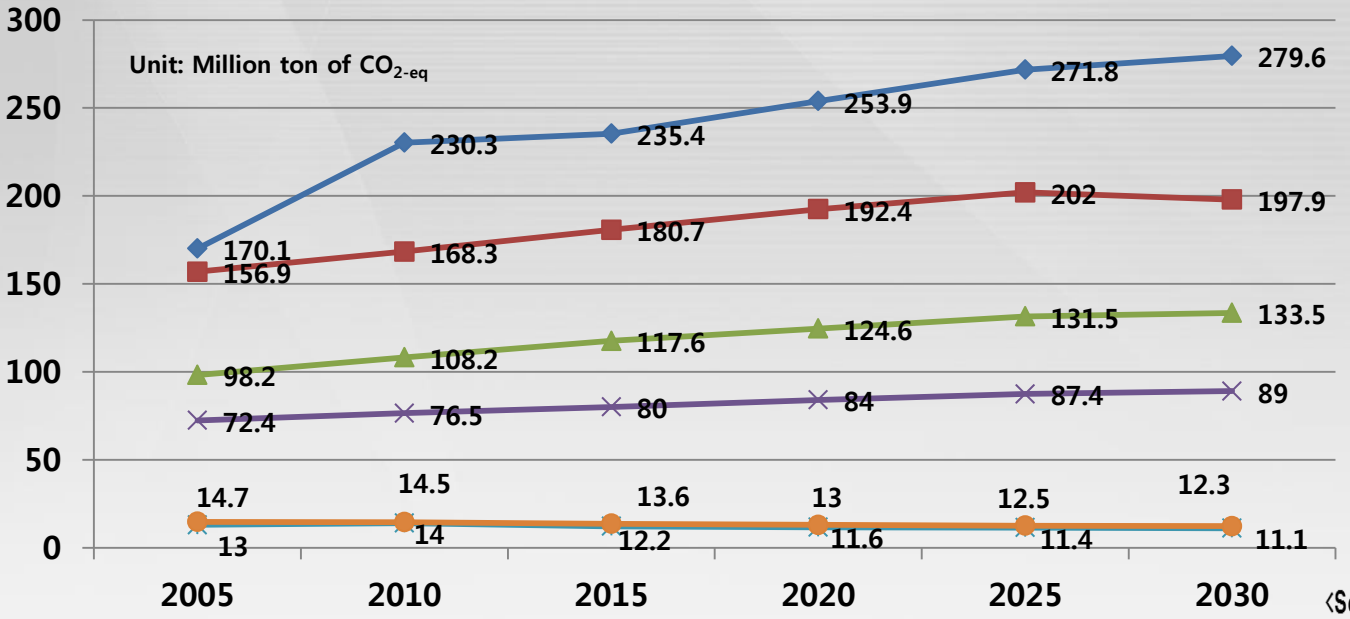
## Percentage of GHG Emissions in 2010




Energy
Industry
Transportation
Households, BZ, Private
Wastes
Agriculture

〈Source: the International Energy Agency〉




〈Source: the International Energy Agency〉



** The emissions were calculated under the assumption that the annual growth rate is at 4%*

# Procedures for Green Growth

- **Presidential Committee on Green Growth launched in Feb. 2009 as the highest body for deliberation and coordination.**
- **National Green Growth Strategy and Five-Year Plan for Green Growth(2009-2013) prepared in 2008.**
- **President Lee declared Korean MT GHG Emission Reduction Target of 30% BAU by 2020 at Copenhagen in 2009.**
- **Framework Act for Low Carbon Green Growth went into effect in Jan. 2010.**
- **Passed Act on the Allocation and Trading of GHG Emissions Allowances in May 2012.**

# Framework Act on Low Carbon, Green Growth

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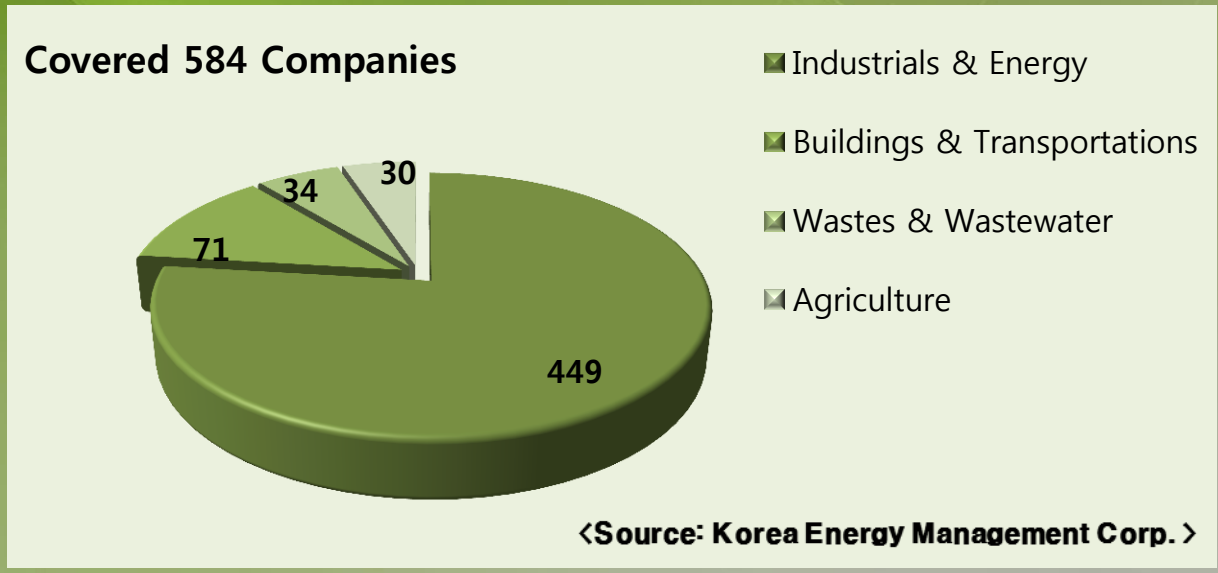
- Preemptive legislation to lead sustainable green growth
- Establishment and enforcement of national strategy and 5 year plan for green growth (Art. 9)
- Presidential Committee on green growth as a government-wide and consistent policy framework (Art. 14)
- Preparing measures for fostering and supporting a green economy and green industries (Art. 23)
- Establishment of mid-term and long-term targets for reduction of greenhouse gases and seeking for measures necessary for accomplishing the targets (Art. 42)
- Establishment of an integrated information management system to develop, verify and manage various information and statistics related to greenhouse gases (Art. 45)

# What is TMS (Target Management System)?

- Framework Act for Low Carbon Green Growth
- Regulating scheme for Large Emitters
  - Targeting More than 68% of total national GHG Emission




- A Precursor to Emissions Trading Scheme

# ETS (Emissions Trading Scheme)

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1. Lower Regulations, More Incentives

2. New Regulatory Methods for GHG Reduction

3. The Consideration for Industry or Company

⇨ **Incentive not only by Government, but also by Market**

# 3. Characteristics of Legislation

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# Major Enacted Acts for Climate Change

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- Framework Act on Low Carbon, Green Growth
- Sustainable Development Act
- Sustainable Transportation Logistics Development Act
- Energy Act
- Energy Use Rationalization Act
- Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy
- Integrated Energy Supply Act
- Natural Environment Conservation Act
- Clean Air Conservation Act
- Conservation and Management of Marine Ecosystems Act
- Support for Environmental Technology and Environmental Industrial Structure
- Smart Grids Act
- Green Buildings Act
- Act on the Allocation and Trading of Greenhouse Gas Emission Allowances

# Procedure of TMS

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## Designation of Controlled Entities

- Installation emitting over 25,000 tons of $CO_2$-eq/year in 2011
- Extending TMS coverage; 20,000 tons of $CO_2$-eq/year in 2012 and 15,000 tons of $CO_2$-eq/year in 2014 gradually

## Set Target

- Based on average of last 3 years emission records

## Submission of Implementation Plan

- In the entity's own facilities during one year

## Evaluation of Performance Record

- Not comply with the target → Fined under 10,000 USD

# Act on Korean ETS

## Procedure

- Basic Planning → Allocation Plan → Designation of Entities → Allocation of Allowances → MRV (Monitoring · Reporting · Verification) → Submission of Allowances

## Free Allocation of Emissions Units (Addenda Art. 2)

- Over 95% during the 1st & 2nd phase
- Allocation for future phases will be determined by Presidential Decree

## Flexibility of the Scheme (Art. 28)

- Banking within same phase or 1st year of next phase
- Borrowing within the same phase only and 10% of emissions allowances that shall be surrendered

# Act on Korean ETS

## Participants of ETS (Art. 8)

- Entities designated to Installation or Entities emitting on average during the latest three years not less than 125,000 tons of $CO_2$-eq or 25,000 tons of $CO_2$-eq/year respectively among Controlled Entities in Art. 42 of the Framework Act
- Voluntary Participants

## Relationship with the existing TMS

- When a business entity is designated according to ETS, TMS shall not applied

## Start Date & Duration of Phases (Addenda Art. 2)

- The 1st phase starting from Jan. 1 2015
- Each phase lasting for 5 years except 1st & 2nd Phase for 3 years

# Act on Korean ETS

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## Methods for the allocation of emissions allowances

- Both grandfathering and benchmarking are available
- The calculation formula for allocation shall be determined in allocation plan

## Standard for 100% free allocation

- If the relevant industry falls under any of the followings; ① more than 5% of gross value added & above 10% of trade intensity, ② more than 30% of gross value added, ③ above 30% of trade intensity③ above 30% of trade intensity

## Recognized scope and limits of Offset

- An external project that can be recognized as setoff be a GHG reduction within 10% of the surrender limit of the emissions allowance
- Overseas offset shall be within 50% of the surrender limit of the total offset emissions allowances

# KRX Emissions Market

## □ '16-17 KAU Trading Emissions

- '16 - USD 15 ('15 – USD 10)
- '17 June - USD 20

(Trading Amount '15.1.~'16.6 :
4.26(KAU 1.62+KCU 2.65) million tons)

### The Reason for Lack of Trading

- The Period to Surrender the Emissions
- The Uncertainty of New Carbon Market
- The Application for the Banking and Borrowing
- Penalty & no more surrender
- Market Stability Reserve (1.4 billion tons)

# 4. Conclusion

# Low Carbon Roadmap 2030

- **Response for Climate Change =**
  **Economy + Environment + Society Issues**

  - Climate Change + Energy + New Engine + Resilience + Safety

  - Low Carbon Economy = Sustainable Development Goals

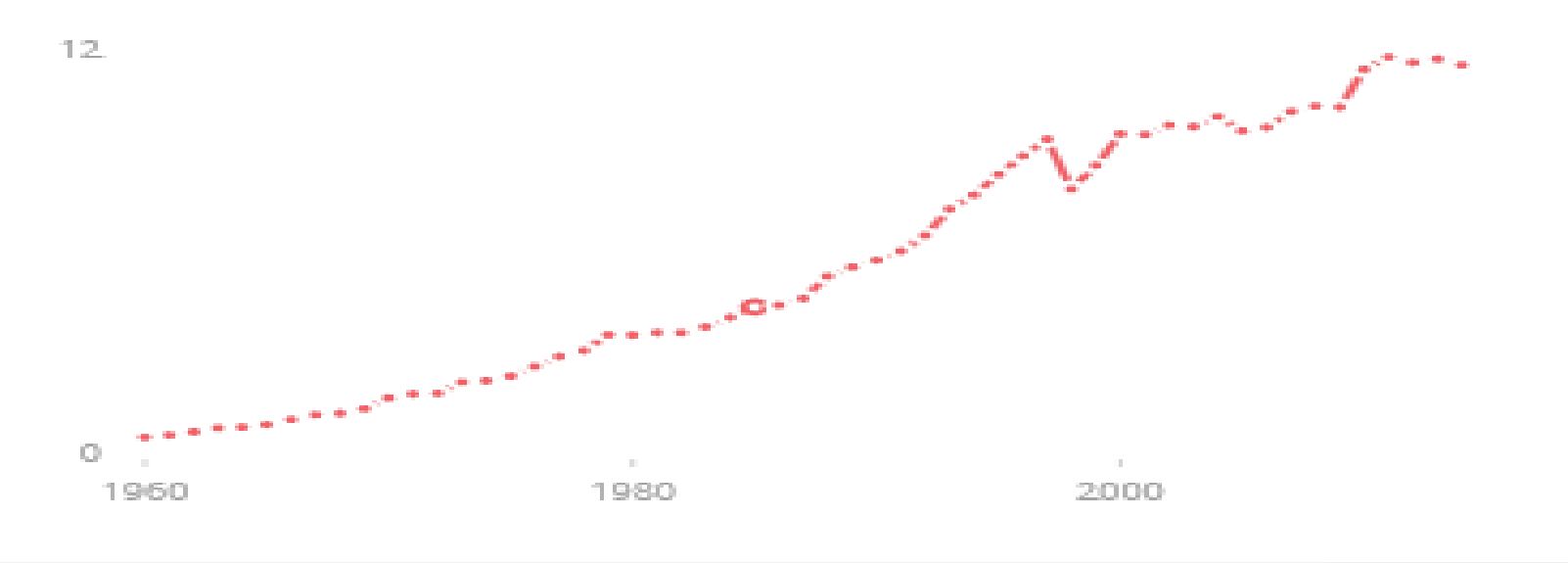
- **Industry / Finance / Energy / Transport**

  - New Technology (Digital/ Smart)
  - Eco-Friendly
  - Convergence

# New Renewable Energy Supply Goal

- upto 20% no later than 2030
  - Power sectors 13.4%
  - Wastes(29.2%)/ Wind power(18.2%)/ Bio(17.9%)/ Solar(14.1%)

<CO2 Emissions ratio>



## ✓ Development of Green Technologies and Industries

- Rapid increase in government R&D investment (2.3 billion USD in 2011)
- Improvement of Green technologies (77.7% compared to advanced countries in 2011)
- Rapid increase of investment in green industries by 30 largest conglomerates
- Growth of new and renewable energy industry: employment 3.7 times, sales 6.5 times, exports 7.3 times from 2007 to 2010

## ✓ Green Technologies and Industries

- The world's largest tidal power station (2011, Shihwa)
- The world's largest plant for batteries for electric vehicles (2011)
- Lithium Battery (2nd in the world), LED(2nd)

## ✓ More Investment

- Biomass development BZ
- New Renewable Energy BZ(Wind, Son, LFG)
- Changeable Energy Effective BZ
- Semi-Conduct, Chemistry Industrials

# After 2020 in Korea

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- **Improvement in Public Awareness**
  - Eco-Friendly Daily Life
  - Economic Development
  - Global Diffusion of Green Growth

- **Emissions Trading should be**
  - Incentives for new technologies
  - More reduced GHG Emissions than others
  - Facilitation Linkage with international carbon markets



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