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Latest Trends of Sustainable Development

Actions & Challenges of the Korean Industrial Sector in the Transition to Low-Carbon Green Economy

by

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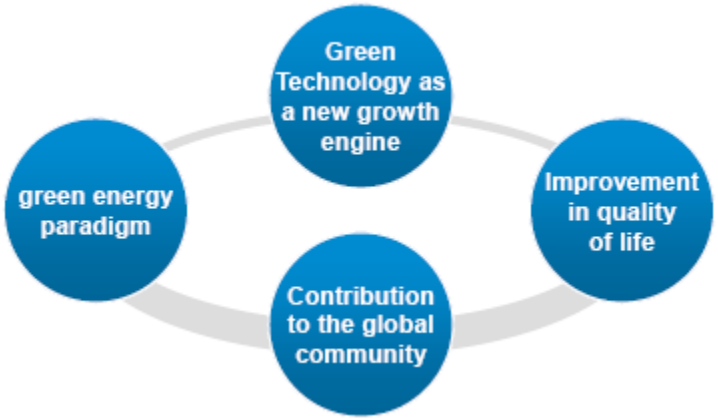
1. Korea's Legal & Institutional Framework on 'Green Growth'

Low-Carbon Green Growth: Creating New 60 Years

- Proclaimed on the occasion of the 60th anniversary of the founding of the nation
- New paradigm to transform Korea into ***quality-oriented growth*** with green technology and green industry as new growth engines
- Objective: To become world's top 7 green powerhouses by 2020

[Core Elements of Green Growth]



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1. Korea's Legal & Institutional Framework on 'Green Growth'

Basic Act on Low-Carbon Green Growth

- Has priority over all relevant laws; Scheduled to go in effect in April 2010

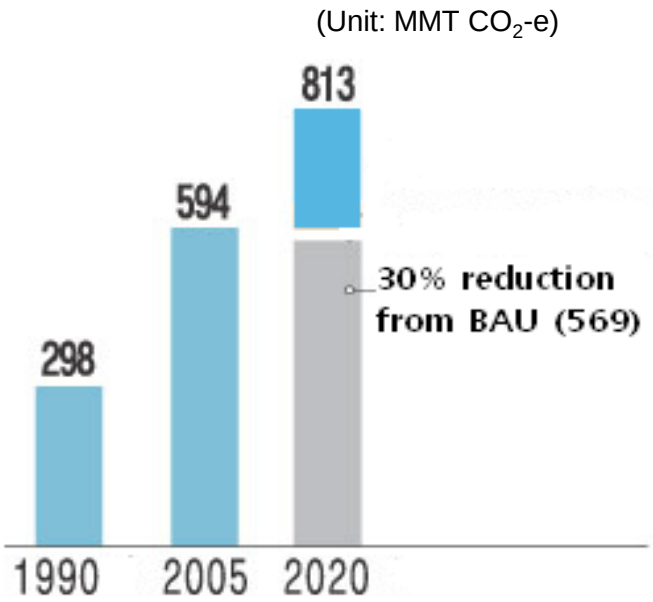
- Key Provisions:
  - Mandates government to foster green industry and the transformation of conventional industry
  - Mandates government to set ***targets for GHG emissions reduction, energy saving and renewable energy supply***
  - Energy-intensive, large CO2-emitting companies responsible for mandatory reporting of GHG emissions

1. Korea's Legal & Institutional Framework on 'Green Growth'

Mid-term Greenhouse Gas Reduction Target

- **30% reduction from the 'BAU' scenario by year 2020**
  - Highest level recommended by IPCC for non-Annex 1 countries

[Mid-term Reduction Goal]



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1. Korea's Legal & Institutional Framework on 'Green Growth'

Investment Plan

- ***2% of Korea's annual GDP*** to be spent to foster green initiatives over 5 years

Core Areas	Budget
• Greenhouse gas emissions mitigation	• $ 10 billion
• Green Technology	• $ 24.5 billion
• Green Industries	• $ 10 billion
• Renewable Energy, Low-Carbon Energy	• $ 3.7 billion
• Green Transportation System	• $ 1 billion

- ***Approx. US$ 200 billion of economic value*** to be generated from the 5-year investment, followed by ***2 million new jobs***

2. Impacts & Implications for Korean Industrial Sector

Promising Signs: noticeable increase in green investment from business

- Top-30 Korean conglomerates responded positively to ***increasing their investment in environment-friendly facilities and R&Ds by 5~20%*** per year

Adverse Effects on Business: 'green growth comes at a high cost'

- Korean Gov't now formulating measures to allocate allowances by sectors and sites

Business sector should come up with own reduction potential by BAT and assess effectiveness of possible reduction measures to minimize economic costs

3. Actions and Achievements by Korean Industrial Sector

Korea's inherent industrial structure

- **Korea's manufacturing portion of GDP: 28.9%** (US: 21%, Japan 14.4%)
  - ➡ main cause of Korea's higher energy intensity

- **Korea's major energy-consuming sectors (ex. oil-refining, steel) already achieved high energy-efficiency levels**
  - ➡ **Marginal abatement cost for GHG emissions in Korea higher** than other countries

Energy Intensity Index	Korea	Japan	EU	US
Steel ('06)	99	100	110	120
Cement ('05)	100	100	-	177
Chemical ('03)	100	100	-	110
Oil Refining ('02)	100	100	-	113

3. Actions and Achievements by Korean Industrial Sector

Manufacturing Sector: Experiencing improvement in energy efficiency

- Constitutes ***54.0% of total energy end-use***
- Recent ***downtrend in energy intensity by 39%*** from 1998 level

Key Drivers to Improvement in Energy Efficiency
Promotion of high value-added products & services
Adjustment of existing structure to lower energy consumption
Expansion of nuclear power in supply chain

3. Actions and Achievements by Korean Industrial Sector

Creating New Growth Engines

- On the corporate level, ***70 companies pledged to invest US$ 4 billion in future green engine projects*** including photovoltaics, fuel cell and green car

Business Case for Hydrogen Fuel-Cell Vehicle Initiative

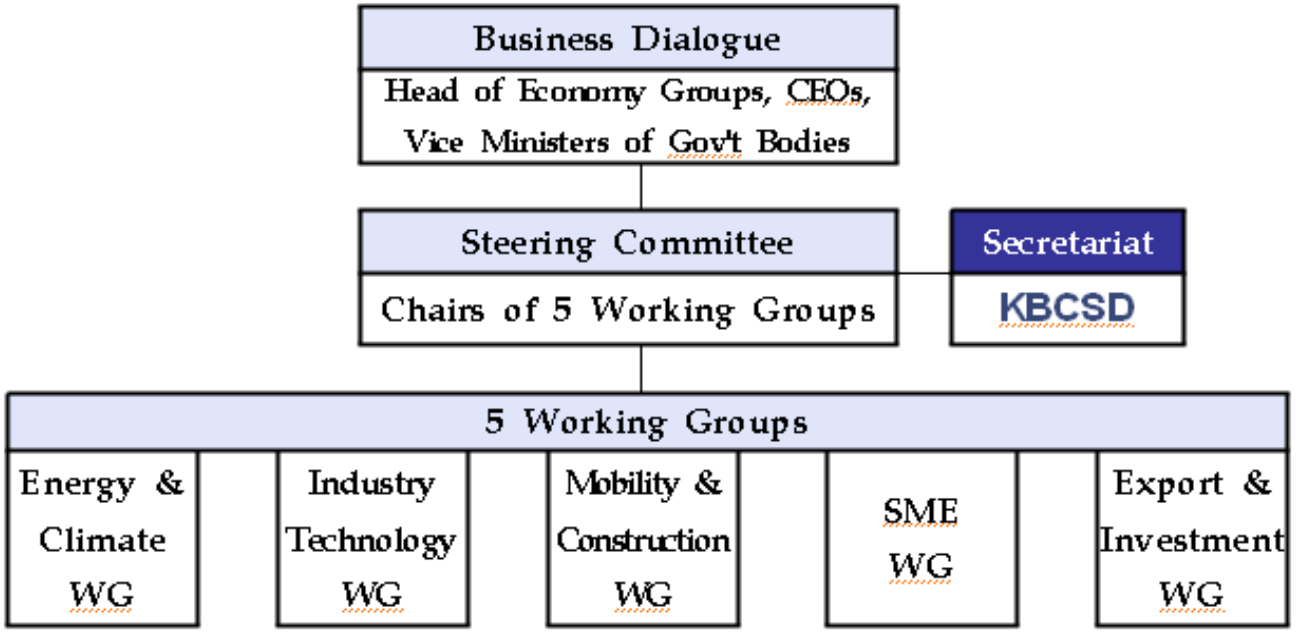
- GS Caltex & Hyundai/Kia Motors joined the nation's plan to be a top-4 green car powerhouse by 2013
- Already achieved world's best hydrogen fuel-cell vehicle technology
- **Expected production inducement effect: $ 760 million by 2018**
- **Expected CO_2 reduction: 0.14 million TOE annually by 2018**

3. Actions and Achievements by Korean Industrial Sector

Key Activities of the KBCSD

- **Designated as the Secretariat for Business Dialogue under the Presidential Committee on Green Growth**

[Structure of Business Dialogue]



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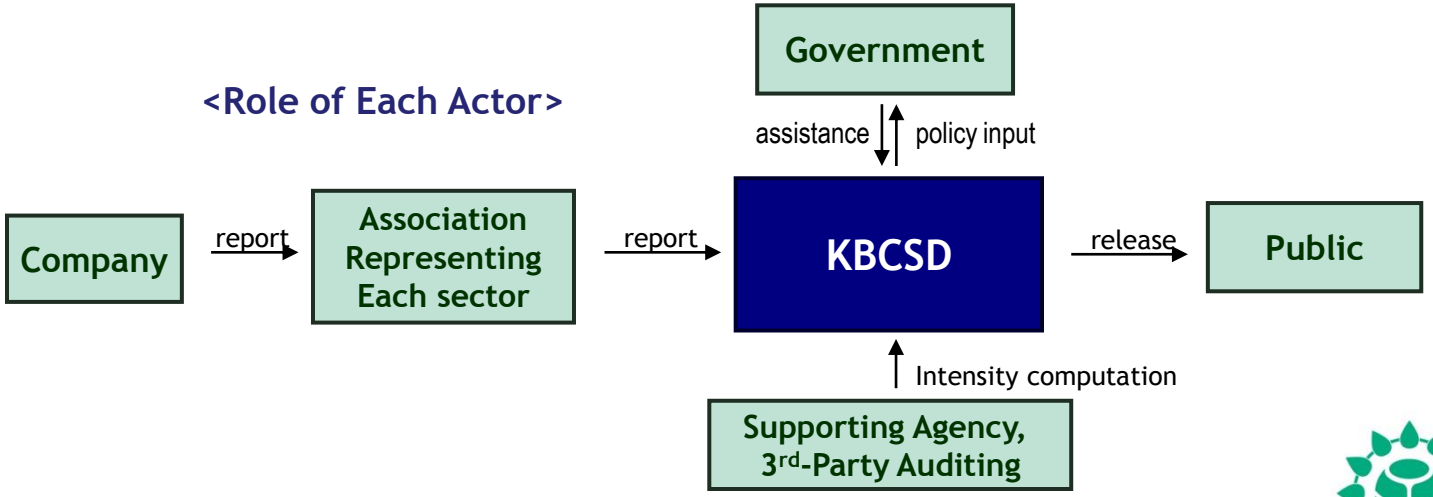
3. Actions and Achievements by Korean Industrial Sector

Focus Areas of the KBCSD

- **Main objectives of the KBCSD in 2010 :**
  - Create more conducive environment for businesses to participate in and verify GHG emissions reduction
  - ***Set up industry-specific inventory system*** to quantify reduction potential, associated costs & actual reduction achievement by sectors

[Structure of Industry-Specific Inventory System]



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3. Actions and Achievements by the Korean Industrial Sector

Key Activities and Focus Areas of the GS Caltex

- **No.3 HOU(Heavy Oil Upgrade) project :**
  - Total investment – around 2.3 billion US dollars
  - Created new jobs of around 3 million, and stimulates the local economy

- **Improve energy efficiency and reduce greenhouse gas emission :**

year	2006	2007	2008	2009
Energy Intensity Index	82.5	85.3	82.0	80.7

- **Invest competitive areas:**
  - Fuel-cell, Bio-butanol, Electrical Double Layer Capacitor, Thin film batteries, Solar power plants in service stations, Hydrogen station, and Smart grid.

4. Challenges & Issues for Improvement

Current Status

- Foundation for low-carbon green economy laid from both public & private sector
- However, challenges remain to ensure we are headed in the right direction

Key Challenges

Challenge 1

- **Flexible, self-regulating framework** needed, to embrace various reduction measures including intensity target relative to value-added
- **Incentive-based instruments** critical

Challenge 2

- **Real changes should come from transportation & household sectors**, as the cost of reducing their emissions is relatively lower

Challenge 3

- **Shift to demand-oriented policies** needed, to speed up green market take-up

5. CBCSD-KBCSD Green Partnership

Proposed Areas of Cooperation

- Embarked on the same journey of creating low-carbon future
- Seoul meeting (Jun. 2009) bet. Korean & Chinese high executives set the momentum for green partnership

➡ **Vast untapped potential for cooperation bet. CBCSD-KBCSD**

5. CBCSD-KBCSD Green Partnership

Proposed Areas of Cooperation

- In the climate change area, cooperate with CBCSD / CEC / WBCSD / Keidanren in response to global sectoral approach

- In technology & market fields, a number of common priority areas in 'Development Plan for Renewable Energy'(China) & 'Next-Generation Growth Engine Project'(Korea)

  ➡ **Promote joint technology development and joint marketing**

  ➡ **Cooperate in facilitating common standards for green technology & green energy pricing mechanism in the region**

- **'Low-Carbon, Green Growth' is not a fixed, but a continuously evolving concept. Therefore CBCSD & KBCSD can maximize mutual cooperation by exploring numerous green growth opportunities tailored to meet our needs and conditions!**

Thank You for Your Kind Attention.

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