

Korea's New National Strategy for Addressing Climate Change

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I. Trends of Climate Change

1. Rising Concerns over Climate Change

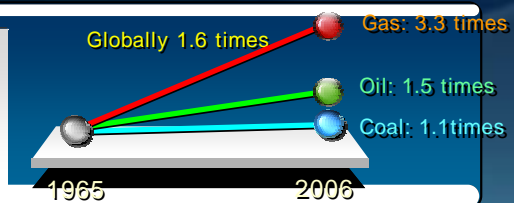
Exponential growth of Fossil Fuel Use

Global Warming

Unusual Weather Patterns

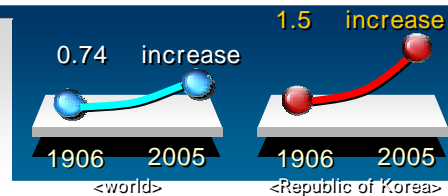
- Fossil fuel use increases dramatically

Increased 1.6 times in last 40 years



- Visible occurrences of global warming

Average temperature of earth's surface increased during the last 100 years



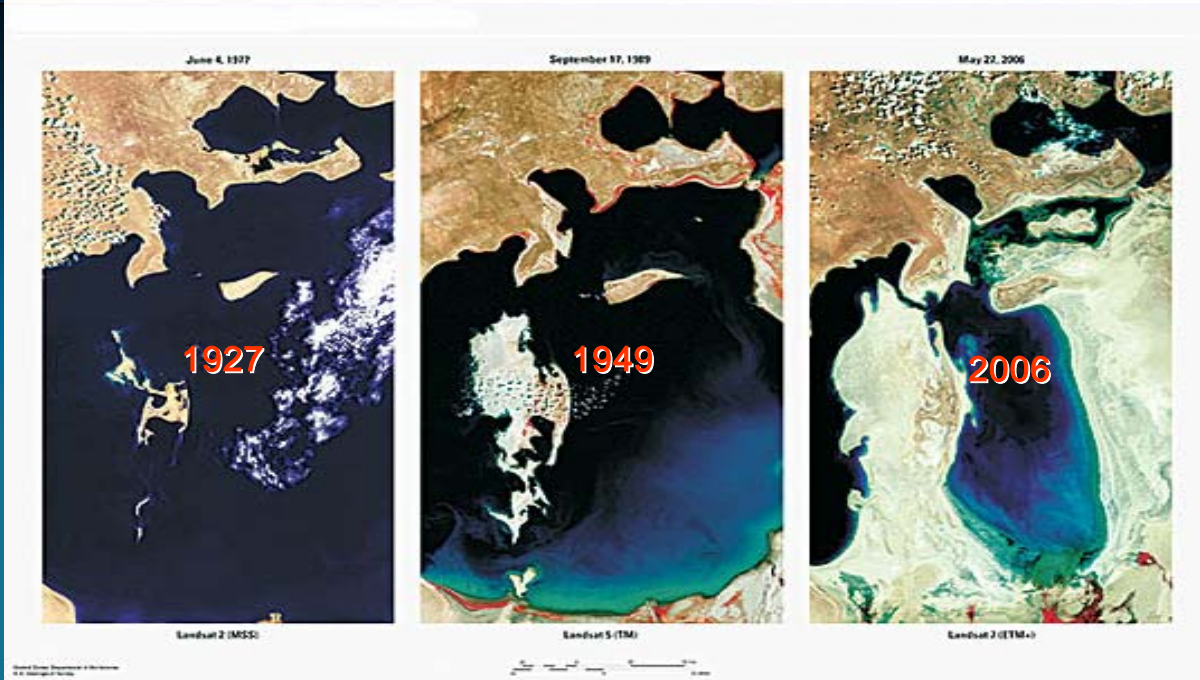
- In the absence of additional efforts**

Estimated rise in temperature up to 6.4 by 2100
(3 increase: 15 million people would face threats of major flood)

Economic cost : 5~20% of GDP
(Preventive measures could bring this figure down to 1%)

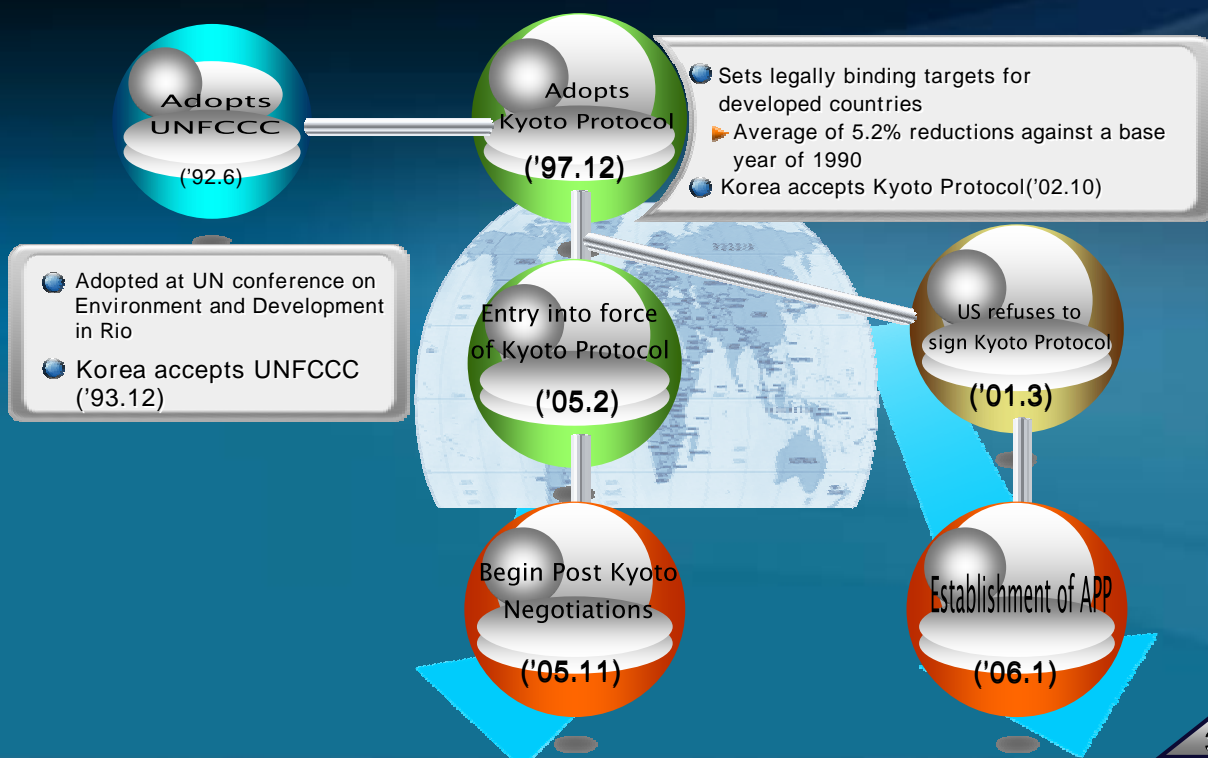
< Consequences of Climate Change >

Diminishing Water – Change of the Aral Sea



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2. International Discussions on Climate Change



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3. Latest Developments

1. Emerging as major international Agenda for 2007

- UN Security Council meeting, Davos Forum, G8+5 Summit
- UN High level meeting('07.9), UN Climate Change Conference ('07.12) for Post Kyoto talks

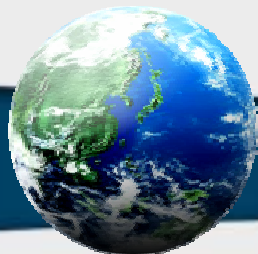
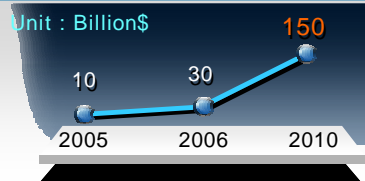
2. New proposals from Bush Administration ('07.9)

- Hosted meeting of the 17 biggest emitters of greenhouse gases
- ▶ Proposes to establish long term targets by 2050



3. International Environment Regulation and strong growth of New Market

- Non-tariff trade barriers for semiconductor and automobile exports
- Growth of Carbon Market

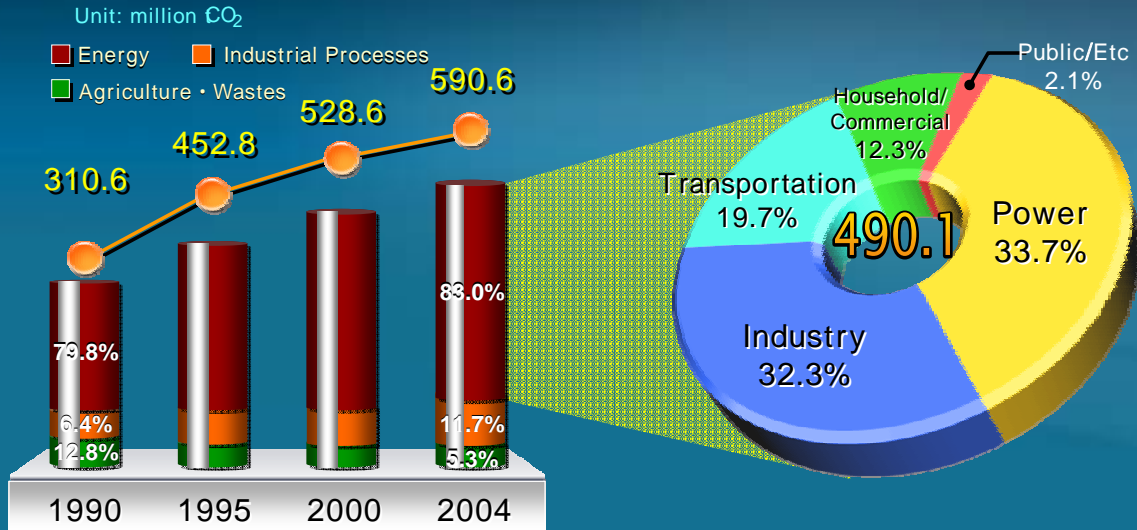


II. Overview of Korea's efforts

1. GHG Emissions in Korea(1)

Total GHG Emissions

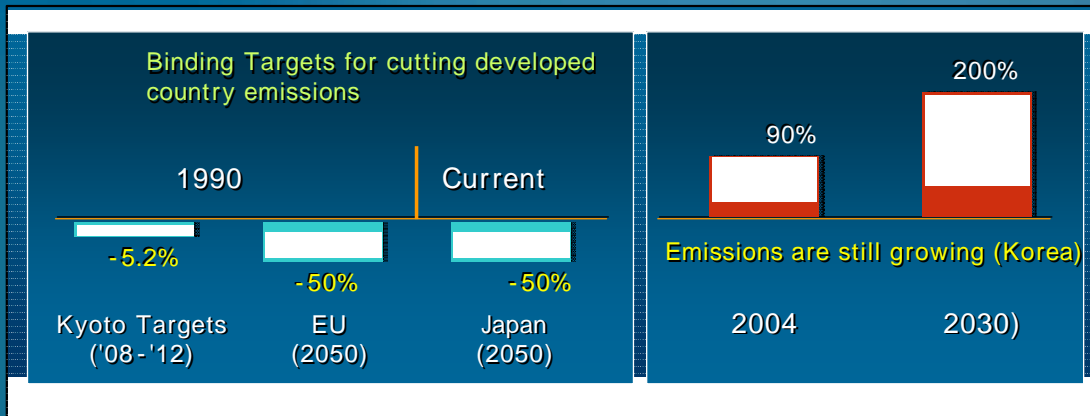
- Total emissions in 2004 (591 million tCO₂) accounts for 3.3% of total emissions of Annex1 countries(17,927 million tCO₂)
- 92.4% increase over 1990 Emissions
- Energy and industry sectors are responsible for 94.7% of total emissions



1. GHG Emissions in Korea(2)

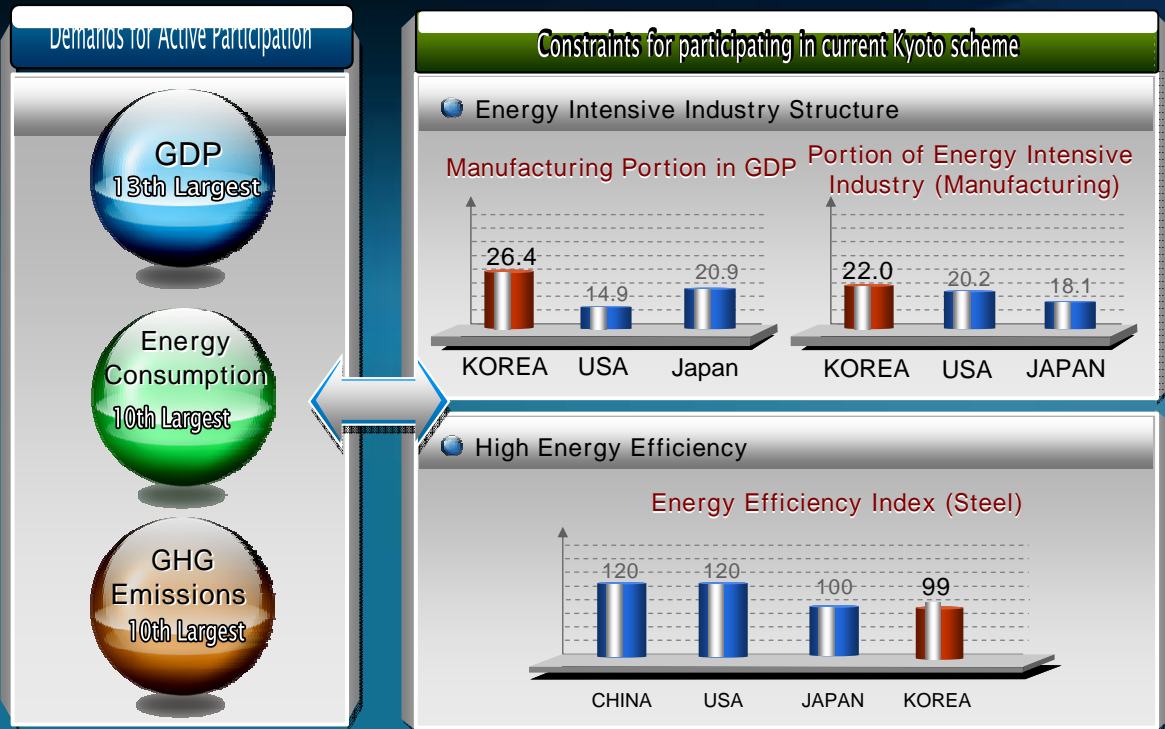
Difficulties of reducing emissions to 1990 level

- 2004 Emissions : 90.2% increase over 1990 (310 million → 590 million)
- Forecast of GHG emissions in Energy Sector in 2030 : 818 million ton, 231% increase over 1990 emissions



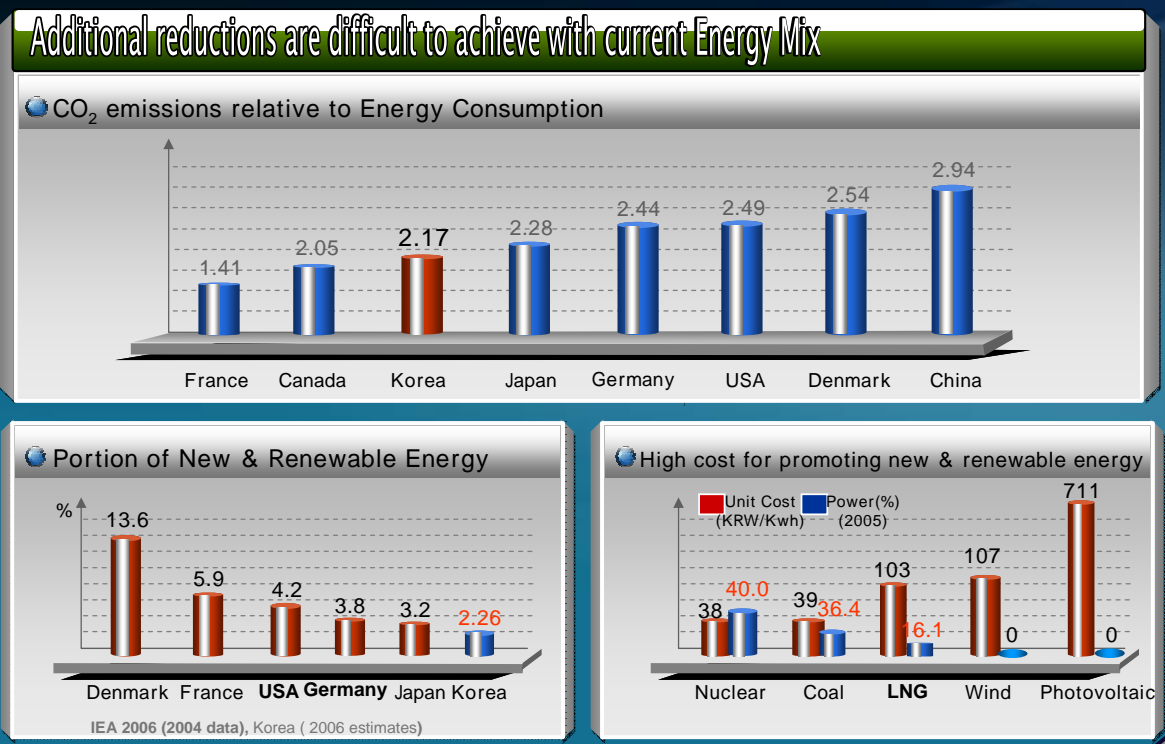
1. GHG Emissions in Korea(3)

National Circumstances for GHG Reductions(1)



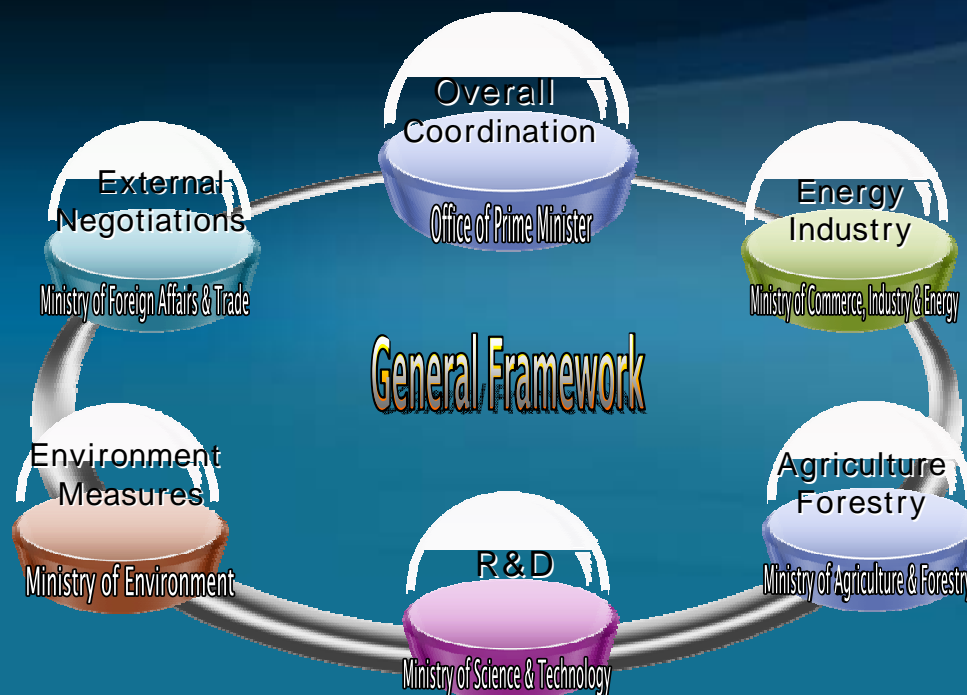
1. GHG Emissions in Korea(4)

National Circumstances for GHG Reductions(2)



2. Domestic Measures for Addressing Climate Change(1)

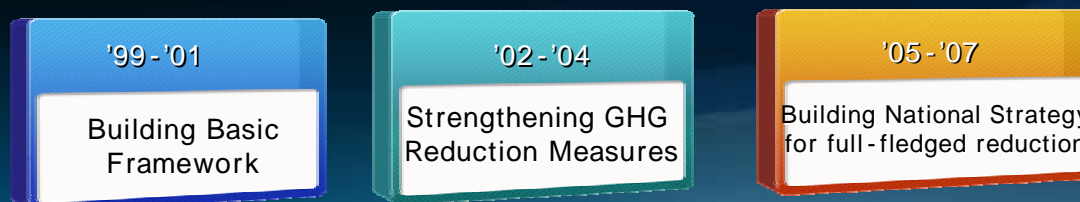
Inter-ministerial Task Force Committee (Chaired by Prime Minister, '97~)



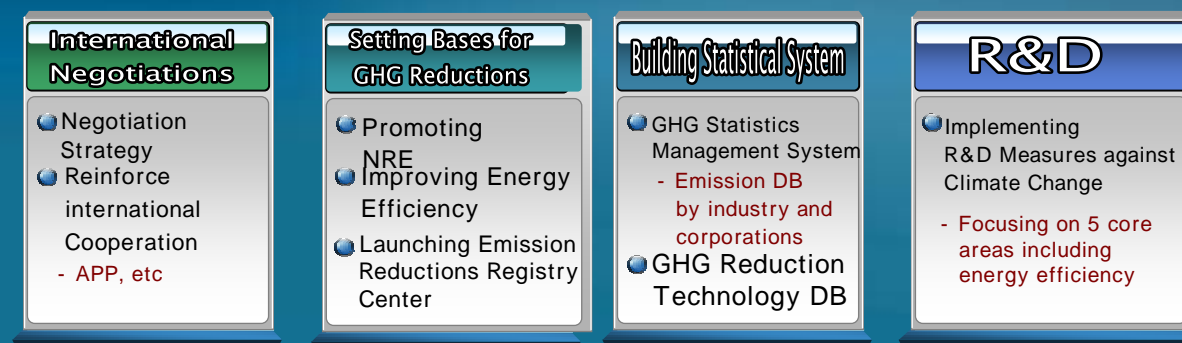
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2. Domestic Measures for Addressing Climate Change(2)

Three 3-year Comprehensive Measures are being taken

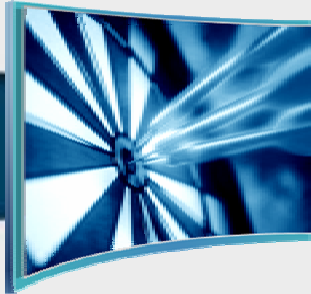


Outcome



Average Annual Increase rate of GHG is on Decline : ('88-'90) 5.7% → ('00-'04) 2.6%

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III. Government's New National Strategy

1. Basic Directions

Transforming into Climate Friendly Economy Structure



- Setting reduction targets and implementation Plans



- Voluntary Reductions
- Utilizing new opportunities

Existing Reduction Measures

Transforming Energy Supply

- Supplying Low Carbon Energy

Reducing Energy Demand

- Improving Energy Efficiency

Innovative Driving Forces for GHG Reductions

Introducing partly mandatory policy

- Pilot projects in Power Sector
- Government - Industry Agreement

Vitalizing Carbon Market

- CDM
- Incentive
- Carbon Fund

Creating New Markets

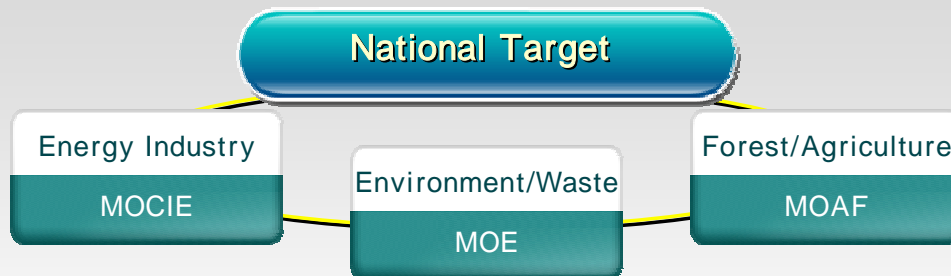
- Developing Low Carbon Technology
- New International Technology Market

2. Core Agenda(1)

● Setting National Reduction Target

through analyzing potential reductions in each sector

- Determining potential reductions in each sector



- Reduction Targets

▶ Considering potentials, cost, policy options in each sector

- Continuously updating by reflecting new technology and policy changes

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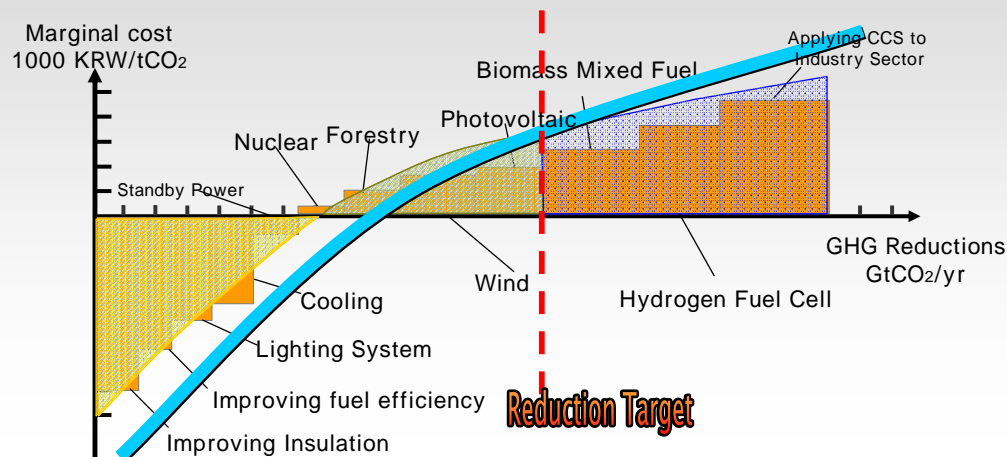
2. Core Agenda(2)

● Setting Phased National Reduction Targets

Analysis of Economic Cost Effectiveness

▶ Prioritizing Reduction Options through B-C Analysis

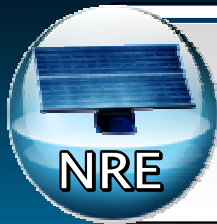
▶ Estimating Marginal Cost and Total Cost Associated with Reductions



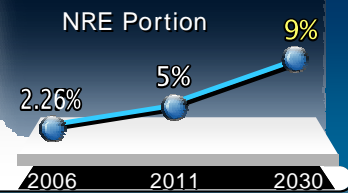
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2. Core Agenda(3)

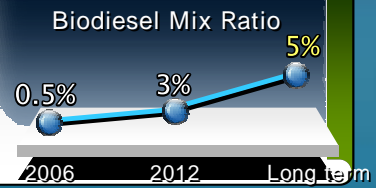
● Building Low Carbon Energy Supply System



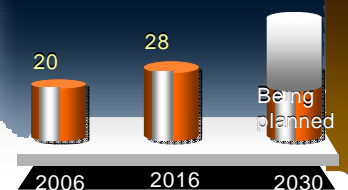
- Focusing on Hydrogen Fuel Cell, Photovoltaic, Wind
 - ▶ Allocated 3,200 billion won by 2011
- Mandatory utilization in public organizations
 - ▶ Providing assistance to bio/waste



- Extending Tax Exemption ('08 ~ '10)
 - ▶ Equivalent to 540 billion won (100% tax exemption)
- Supplying Domestic Fuel
 - ▶ (Increasing Rapeseed Production)



- Determine Appropriate level by 2030
 - ▶ Importance of nuclear power in relation to climate change
 - ▶ Construction of additional nuclear power plants (USA, Japan)



2. Core Agenda(4)

● Reinforcing Energy Demand Management

Improving Energy Intensity

- Improving Energy Intensity
 - ▶ 0.345('06) 0.20('30)
- Disseminating High Efficiency Appliances
- Mandatory Displaying of Warning Label for products failing to meet Standby Power Standards
- Strengthen average fuel mileage policy for automobiles

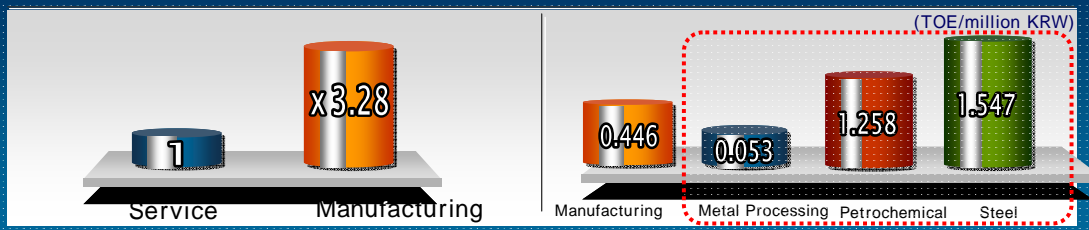
Promoting GHG Reduction Culture

- Inducing Public Energy Saving
 - ▶ Developing global warming index
 - ▶ Implementing "No Driving" Campaigns
- Corporate Monitoring by Civic Organization
 - ▶ Reporting Corporate Carbon Reduction Index
 - ▶ Promoting purchase of low carbon products
- Inducing production of environment friendly products

2. Core Agenda(5)

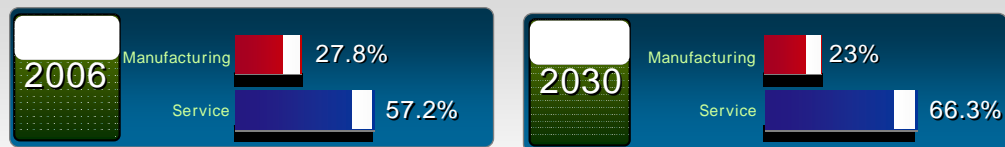
● Industry Gradually Transformed into Low Carbon Structure

Energy Consumption per Value Added



Roadmap for Building Low Carbon Industry

● Increasing the portion of service industry



- Fostering Design, R&D, Marketing and Knowledge based Service Industry
- Developing innovative manufacturing technology ▶ Targeting World's Highest Efficiency

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3. Carbon Market(1)

● Introducing Partly Mandatory Policy & GHG Reduction Programs

Introducing Partly Mandatory Policy

- Mandatory purchase of KCER for those failing to comply with RPA (Renewable portfolio agreement with power plants, etc)



Strengthening Voluntary Agreement

- Objective verification of reductions at VA installations
- Adopting phased Negotiated Agreement



Providing Government Incentives

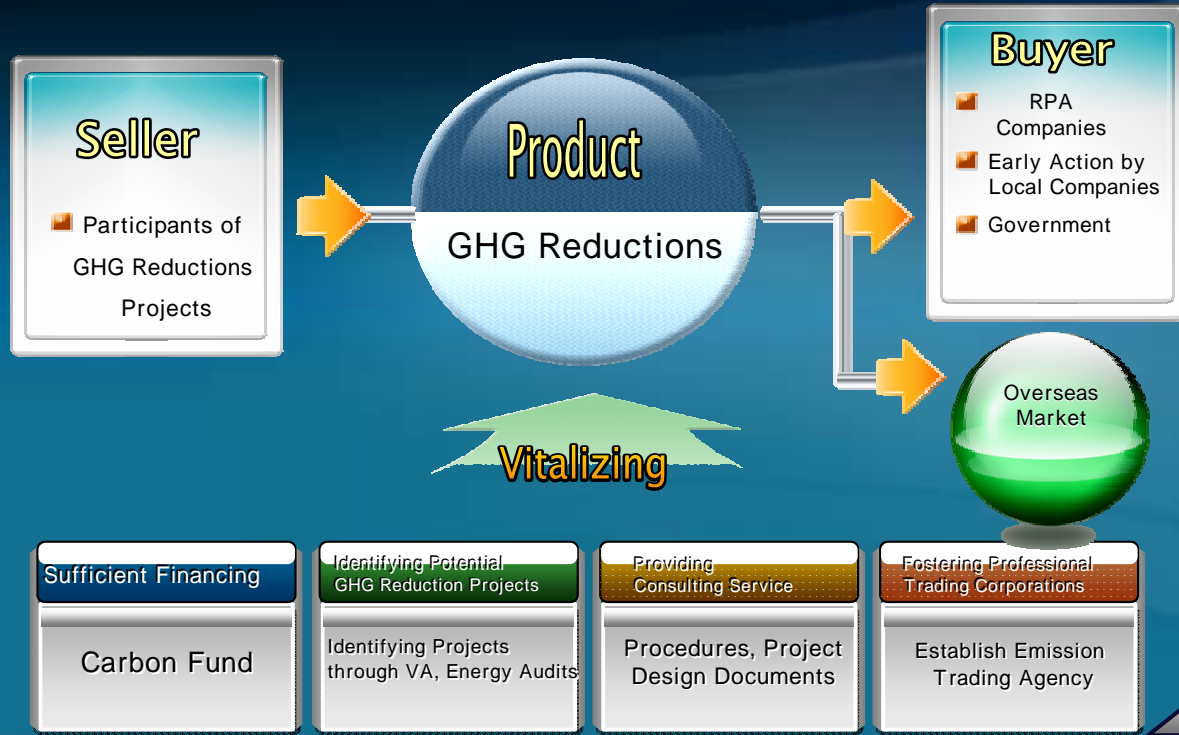
- Purchasing KCER (5000won/KCER)



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3. Carbon Market(2)

● Establishment of Carbon Market



3. Carbon Market(3)

● Vitalizing Carbon Market : Operation Plan(1)

KCER Supplies

The diagram shows the flow from 'Conducts GHG Reduction Project' (Project Developer) to 'Issue KCER' (Government) and 'Verification' (KEMCO). A bar chart shows the volume of KCER units from 2007 to 2011: 100 (07), 180 (08), 270 (09), 360 (10), and 460 (11).

Securing Demand

- Government**
 - Allocate budget for 100% KCER purchase
 - '07(5billion won), '08(9billion won)
- Linking with Overseas Market**
 - Exporting KCER to CCX, CDM Markets
- Mandatory Utilizing of NRE at Public Organization**
 - Failing to achieve the initial objective
 - Mandatory purchase of KCER

3. Carbon Market(4)

● Vitalizing Carbon Market : **Operation Plan(2)**

Trading Price

- Fluctuating with EUA price shifts (Base price at 5,000won)
 - ▶ Designate EUA forward price with 2008 Dec delivery as index price (Agreement with ECX)

< EUA vs. GHG Reductions >



1. Climate Change Issues & Environmental Management



2. Risks Associated with Climate Change – Individual Sector

Power, Energy Intensive Industries : Mandatory GHG Reduction

Power	Rising needs for NRE, clean energy, energy efficiency
Petrochemical	Unit cost increase Decrease in production
Steel	Already achieved high energy efficiency High marginal cost for reduction
Cement	High reduction cost due to outdated installations & absence of effective reduction technology

Manufacturing : New Environment Regulation

Automobiles	25% reduction for all EU bound exports by 2008
Semi-conductors	More than 10% PFC reductions (relative to 1997) by 2010
New Environment Regulations are expected to be imposed on exports	

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3. New Business Opportunities From Climate Change

Temperature Rising

Insurance

Climate related products

Construction

New heating & cooling technology

Clothes

Cool Biz industry

Appliances

New model of refrigerators, air conditioners

Carbon Market

Finance

Managing carbon fund, developing & Investing carbon related financial products

Corporate

Investing in high profit yielding CDM projects

Consulting Firms

Providing consulting services on technology, financing, emission trading

Low Carbon Technology Development

Automobile Industry

Developing hybrid automobiles

NRE Industry

Photovoltaic, wind power new technology

Power Industry

Developing IGCC, CCS technology

Climate Change : Threat opportunity (survey on major global corporation : CDP FT500)

- Both opportunities and threats (87%)
- Change in corporate profits : -25% ~ +10.6%

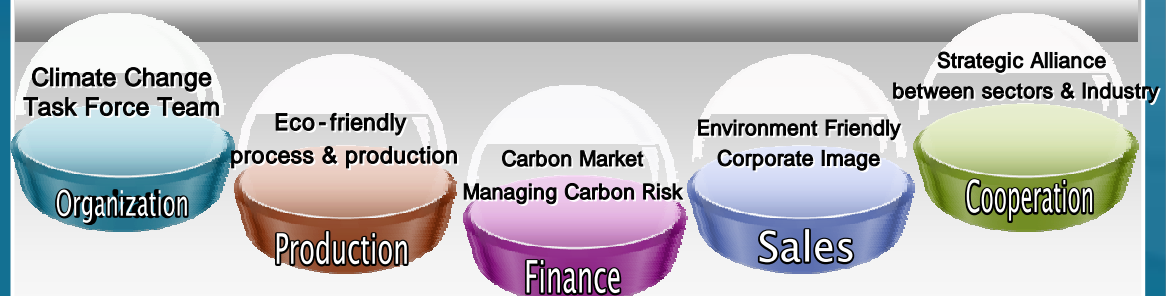
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4. Corporate Response(1)

Change in Management Philosophy

- Implementing voluntary corporate emission targets
- Cost Effective Corporate Internal Emission Trading System
 - ▶ BP, Shell, SK Energy, LG Chemical, Power companies
- Investing in reduction project and technology developments

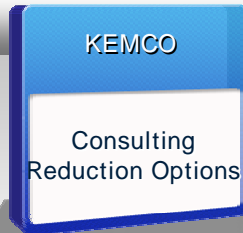
Change in Corporate Structure



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5. Corporate Response(2)

Carbon Neutral Program



- Applicable to offices, building, metropolitan, local government, events (entertainment, sport, exhibition etc)

Co-operate & Satisfy Demands of NGO and Public

- Joint Development of Carbon Reduction Index with Civic Organization & Industry : Public Announcement of Best Corporations (annually)
- Coping with Consumer Purchase Pattern: Low Carbon Products, Preference on Products of Environment Friendly Corporations

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Thank you !!