

The setup trends on National Greenhouse Gas Mid-term reduction goal of Korea



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Korea Petroleum Association

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I. Korea's Green Growth & Greenhouse Gas reduction trends

I . Korea's Green Growth & Greenhouse Gas reduction

trends

- **President Lee. Declared "Will be presented Greenhouse Gas Mid-term reduction goal within 2009" (July 2008, G8 Summit)**

- **President Lee. Addressed "National Green Growth Vision" (Aug. 2008)**

- **Establishing 'Low Carbon Green Growth Basic Law'**
: Now in process of draft-reviewing at National Assembly
(will be in effect by the late of this year)

<Main contents>

- **Building & Implementing of National Green Growth strategy**
- **Operating Eco-friendly tax**
- **Setup & Management of Greenhouse Gas/Energy Mid ,Long-term goal**
- **Introduction of Emission Trading**



I . Korea's Green Growth & Greenhouse Gas reduction trends

- **Launched "Green Growth Commission" (Feb. 2009, president-directed)**
 - Green Growth · Industry Commission
 - Climate Change · Energy Commission
 - Green Growth · Sustaining development Commission

- **Addressed 'Improvement plans on Car Fuel consumption and Greenhouse Gas reduction' (July. 2009)**
 - Fuel-consumption(distance per fuel): more than 17km/L
 - Greenhouse Gas standard for Emission allowed: 140g/km(applied from 2015)

- **What performed as to Green Growth and Greenhouse Gas reduction**
 - Addressed 'Total basic plan for Climate Change' (2008, Prime ministry)
 - Addressed 'New Growth motivation vision & development strategy' (2008, MKE)
 - Addressed 'Encouragement strategy for Green Energy industry' (2008, MKE)
 - Addressed '5-Year Plan of Green Growth' (2009, Green Growth Commission)

II . The setup scenarios on Greenhouse Gas Mid-term reduction goal of Korea



II . The set up scenarios on Greenhouse Gas Mid-term reduction goal of Korea

The prospect of Greenhouse Gas Emission

BAU setup

- Reflecting Economic variables such as Economy growth rate, oil price-prospect, energy efficiency-improvement, population-increasing, industrial structure and etc...

- Consideration for energy-saving, Greenhouse Gas reduction policies such as Energy use rationalization, waste management, forest policy and etc...

- Analysis of additional reduction allowance(reduction potential) through Policy & technical tools

Methodology for analyzing technical reduction potential

: Using MARKAL Model (now applied in 70 countries, especially as a national application model for analyzing reduction potential)

	2008	2010	2020
Oil price(\$/bbl)	98	84	70
Population(Million)	48.6	48.9	49.3
Economy growth rate(%)	4.2	4.75	3.66

Source: 1. Oil price : EIA(Energy Information Agency)

Source: 2. Population: Statistics Korea,

Source: 3. Economy growth rate: KDI (Korea Development Institute)



The setup scenarios of Greenhouse Gas reduction goal

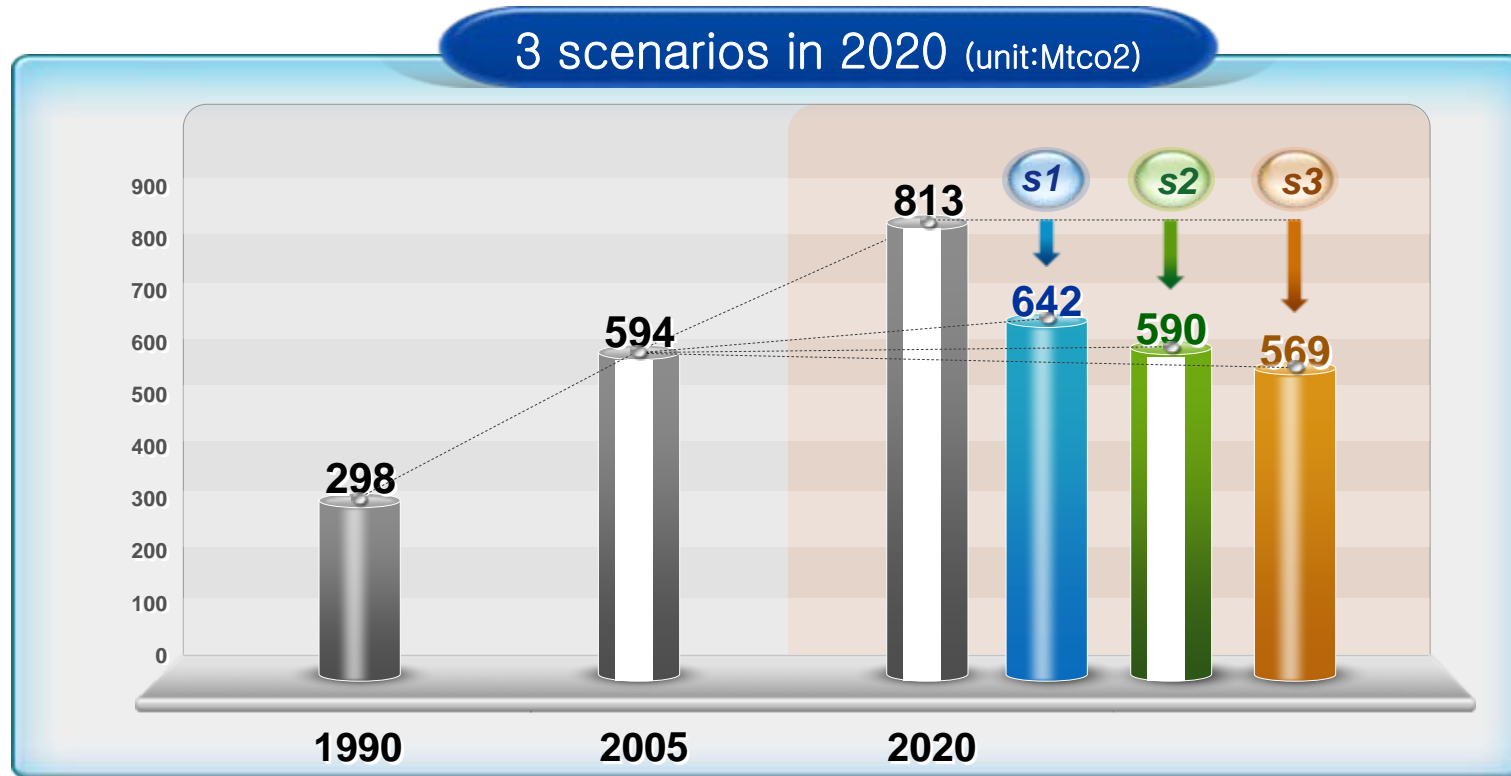
◆ Addressed Greenhouse Gas Mid-term reduction goal(Aug.2009)

Scenarios	Reduction goal		Selection criteria on Reduction policy	Main reduction tools (eg)
	BAU	Year of 2005		
1	Δ21% (171M.ton reduction)	+ 8%	Cost-efficient technology and policy	<ul style="list-style-type: none"> ▪ Encouraging the supply of Green Home, Green Building ▪ Providing High energy-efficient products such as LED ▪ Restructuring Low carbon, High energy-efficient traffic system ▪ Innovating industrial process for high energy-efficiency ▪ Encouraging new renewable energy and nuclear power ▪ Partly applying Smart Grid
2	Δ27% (223M. ton reduction)	same	Reduction expenses In global standard	<ul style="list-style-type: none"> ▪ Removal Fluorine origin Gas of High GWP ▪ Providing Highbrid car ▪ Increasing Biofuel mix ratio ▪ Introduction of CCS(Carbon Capture and Storage)
3	Δ30% (244M. ton reduction)	Δ 4%	Level of maximum requirement of reduction to the developing countries	<ul style="list-style-type: none"> ▪ Supplying Green car such as electronic car, fuel cell car ▪ Encouraging topnotch high energy-efficient products ▪ Reinforcing introduction of CCS

*Exception for the absorption of forest section

Final goal will be set through social consensus on 3 scenarios

The setup scenarios of Greenhouse Gas reduction goal



GDP decrease & Family budget amount to be endured

	Scenario 1	Scenario 2	Scenario 3
GDP decrease	-0.29%	-0.37%	-0.49%
Family budget amount to be endured	¥ 130,000	¥ 166,000	¥ 217,000

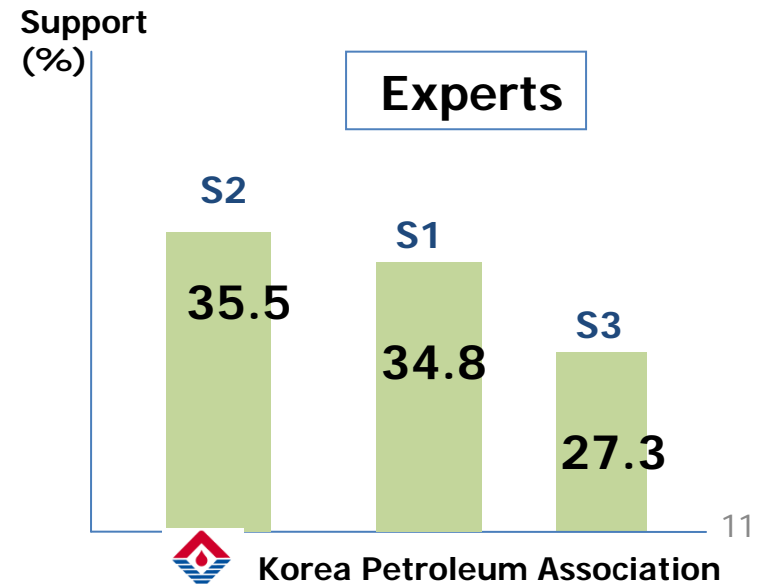
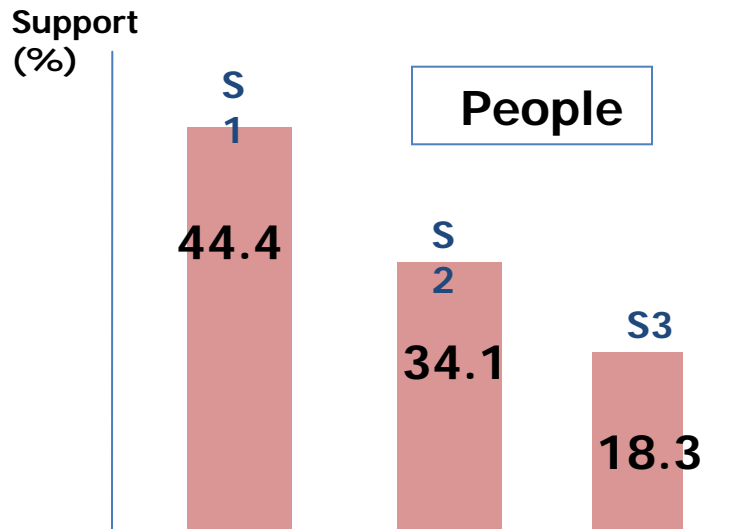
III . Positions of each related field & Plans



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Results of survey (about Greenhouse Gas Mid-term reduction goal scenarios)

- People preferred scenario 1 : 44.4% supported
(21% reduction from BAU, 8% increases from the year of 2005)
- Experts preferred scenario 2 : 35.5% supported
(27% reduction from BAU, same from the year of 2005)
- Sum of scenario 1 and scenario 2 showed over 70% by both People and Experts



III. Positions of each related field & Plans

Industry

Opinion

**Reduction to the below of Scenario 1
(21% reduction from BAU, 8% increases from the year of 2005)**

Reasons

- **Unable to utilize CCS(Carbon Capture & Storage)**
- **No room for additional reduction because Energy intensity is already high in main industries.**
- **Energy high-consumption Industrial structure**
- **Green technology reached 50~70% to the developed countries**
- **1.7% emission of the world, Only 0.7% of the historical accumulation.**

III. Positions of each related field & Plans

Environmental organizations

Opinion	25% reduction from the year of 2005 (harsher than Scenario 3)
Reasons	<ul style="list-style-type: none"> ○ A lack of effort to reduce Greenhouse Gas so far ○ Possible level to be reached comparing to the developed countries ○ Need a distinct goal as a new rising industrial country ranked between the developed and the developing ○ Consideration for RCI (Responsibility Capacity Indicator) figuring based on income, emission, population, capability and etc from Stockholm Environment Institute, 2008 ○ Now ranked 9th of world Greenhouse Gas emission, 22th of historical accumulation

III. Positions of each related field & Plans

Plans

- 1st step : Opinion collecting of the mass , confirming reduction goal**
 - Survey, Public hearing, Reporting to the Assembly and negotiation**
 - Addressing Greenhouse Gas Mid-term reduction goal(Nov. 2009)**

- 2ND step : Establishing and implementing cost-efficient reduction strategy for the achievement of reduction goal**
 - Reduction measures by sections such as building...**
 - Tax-reorganization**
 - Building following measures such as Green Industry promotion plan**

- 3rd step : Building Infra structures for cycle, systematic analysis**
 - Building Independent research system daily open**
 - Detail analysis on Reduction potential by sections, Building reduction measures and performance management**

IV. Position & action plan of Oil Industry

Position of Oil Industry

- Same with that of 'Industry'
(Set up Low-level Greenhouse Gas reduction goal)
- Worry about Oil demand–decreasing
 - Greenhouse Gas reduction
 - Encouraging the supply of new renewable energy such as Bio-fuel
- Encouraging the supply of **Clean Diesel** for Greenhouse Gas reduction
- Total tax to be neutral according to Eco-friendly tax-reorganization

IV. Position & action plan of Oil Industry

Action plan

- **Upgrading Energy-efficiency on refinery utilities**
- **Utilizing Greenhouse Gas(CO₂) for usable resource**
 - Development of New Eco-friendly plastics(44% CO₂ of all)
- **Encouraging R&D investment(Transportation section)**
 - Encouraging technology-developing investment of new renewable energy such as Biobutanol, Hydrogen station, Fuel cell
 - Developing Biobutanol from non-use for food feed biomass such as seaweed type, waste lumber and rice straw



THANK YOU



Contact : report@tky.ieej.or.jp

