

A Pillar for Low Carbon, Green Growth

National Basic Energy Plan, Korea (2008-2030)



BCS (Blue-Ocean Content & Strategy)

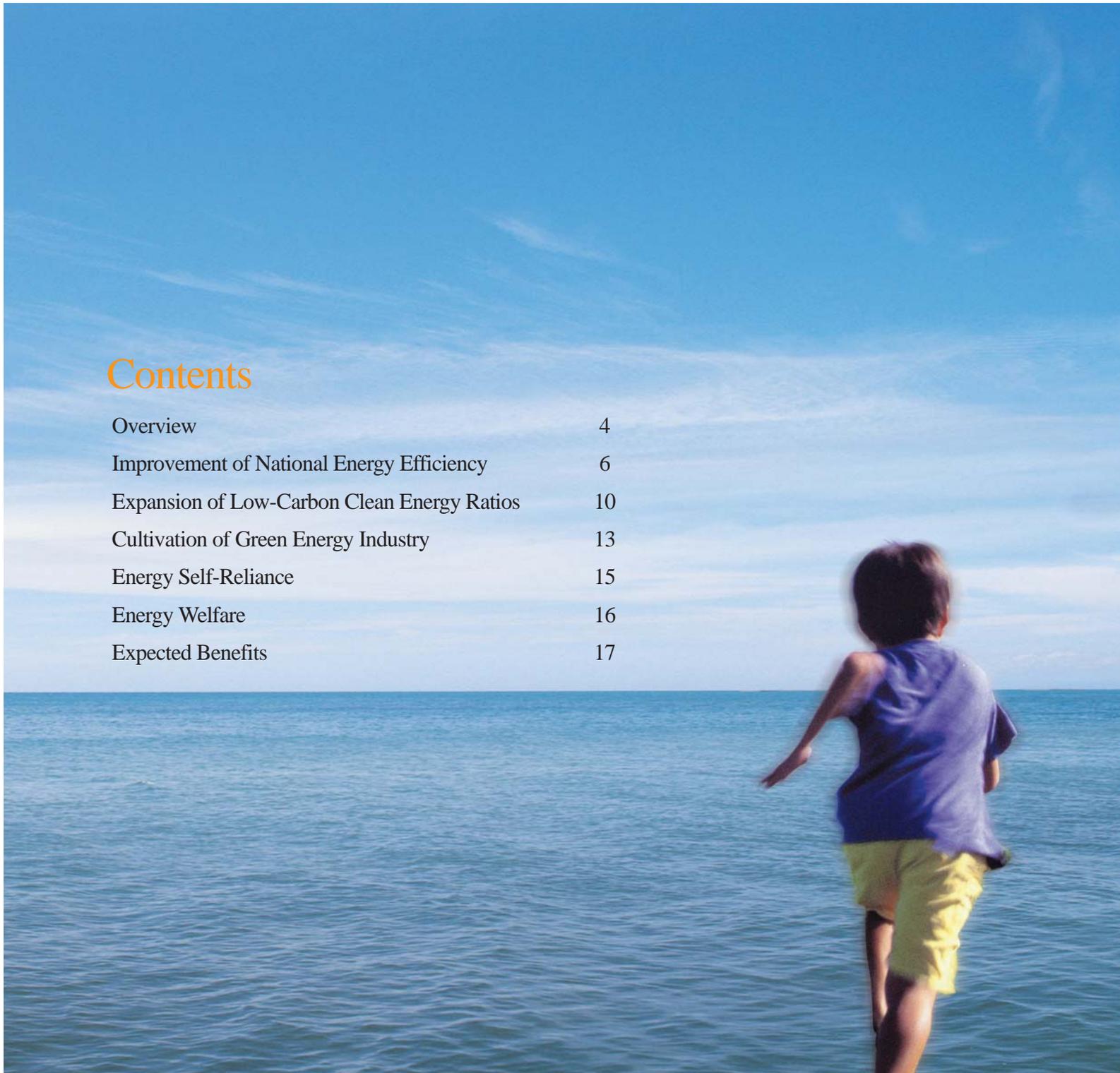


President Lee Myung-bak

“ Today, on the occasion of the 60th anniversary of the founding of the Republic of Korea, I want to put forward ‘Low Carbon, Green Growth’ as the core of the Republic’s new vision. It is also a new national development paradigm that creates new growth engines and jobs with green technology and clean energy. ”

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Overview

Characteristics of the Plan

- The nation's First 20-year unit long-term energy program;
- The nation's premier energy policy guidelines for other energy-related government initiative such as Energy Utilization Rationalization Plan, the Basic Plan for Long-Term Electricity Supply & Demand, etc;
- Providing a backbone support for 'Low-Carbon, Green Growth' paradigm in the energy sector, suggesting a long-term energy policy vision for strategy response to the post-oil era

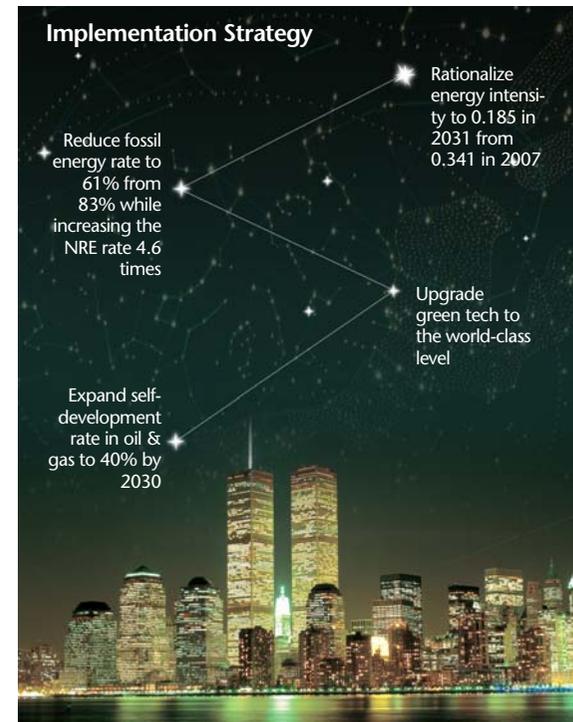


- In a departure from the stable supply-oriented energy supply, the plan accents strong energy conservation goals and
- Mapping out optimum long-term energy supply mix, reflecting policy objects such as environment, efficiency and security

The first Basic National Energy Plan suggests a society that realizes healthy growth while consuming less energy; a society that minimizes environmental pollution even when using energy; a society where energy industries create jobs and growth engines; and a strong energy self-reliant and welfare society despite energy crises as a long-term energy policy vision.

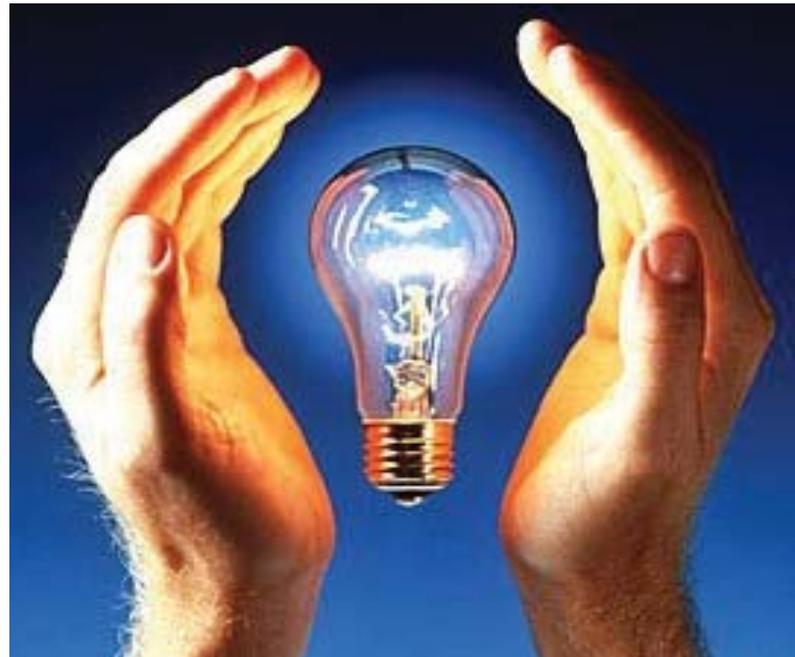
As the implementation blueprint for the vision, the Basic National Energy plan also suggests realization of a 'low energy-consuming society' through improvement of energy intensity to the level of 0.185 by 2030 from 0.341 at present, independence from fossil energies in energy supply through a 4.6-fold expansion of the new & renewable energy ratio to 11% by 2030 from the present 2.4%, while reducing the fossil energy ratio (based on the primary energy level), including oil, to 61% by 2030 from 83% at present. Energy intensity is energy volume (TOE) consumed for production per each US\$1,000 in GDP.

The implementation plan also aims to raise the energy technology level, including 'green technology,' compared with advanced countries to the world-class level by 2030 from the present 60%; nurture the energy industry into a growth engine; realize a self-reliant energy and welfare society by increasing self-development rates of oil and gas to the 30% level by 2030 from the present 4.2%; and addressing all energy-poor classes, which currently stand at the 7.8% level. Energy-poor classes refer to those households with energy expenditures, including lighting and heating, that exceed 10% of total household income. In Korea, about 1.2 million households currently belong to energy-poor classes.



Improvement of National Energy Efficiency

With reinforced policy efforts for reduction of energy consumption, Korea plans to reduce 42 million TOE additionally. The nation's energy consumption growth for '81-'06 and for '98-'06 was 6.7% and 4.4% on annual average, respectively. The projected energy reduction exceeds the level that reduces the present total energy consumption in the transportation field (36 million TOE in '07), and the government intends to achieve the goal with thorough management of demand and dramatic improvement of energy utilization efficiency.



Implementation Strategy

The implementation strategy to realize reduction of energy use and efficiency enhancement includes.

The promotion strategy to realize reduction of energy use and efficiency enhancement goals includes inducement of consumption rationalization through strengthened price signal functions, cost valuation-based fare system;

Intensively nurture knowledge service and transition to a low energy-consuming structure through conversion of future high-tech industries into growth engines;

Settle down a low energy and low carbon living style after establishment of the standards for all products as energy-saving types.





Industrial Sector

In terms of sector, the government plans to decrease the nation's dependence level on oil (naphtha) through support for development of new materials and processes for high energy consuming industries:

For this, the government intends to continuously support R&D for efficiency enhancement of high energy consuming equipment (boilers, air conditioners, etc) and activate energy reduction achievement certification and transaction systems. Furthermore, it also intends to expand energy reduction cooperation projects between large enterprises and SMEs and activate energy efficiency financing, ESCO, etc.



Transportation Sector

In the transportation sector, the government intends to establish and promote the '4th Strong Green Car Nation' through support for development and early mass-production of environment-friendly, high-efficiency green cars and securing of independent technology for non-commercialized green cars, fuel cell vehicles, etc. while strengthening fuel mileage of vehicles. It also intends to realize a low-carbon, high-efficiency transportation system through implementation of an energy consumption report system for transportation firms.



Household & Commercial Sector

For the household and commercial sectors, the government plans to expand the building energy efficiency class system to all buildings on a step-by-step basis and develop energy-zero, 'carbon-neutral' buildings and increase their supply.



Public Sector

For the public sector, the government plans to promote events in a carbon-neutral form, if possible, and show a good example in the carbon reduction through the total energy consumption system for public buildings.

Expansion of Low-Carbon Clean Energy Ratios

Under the basic energy plan, the government plans to decrease the ratio of fossil energies to the 61% level by 2030 from the present 83% while increasing the ratio of new & renewable energies to 11% from 2.4% and that of nuclear energy to 27.8% from 14.9%.

As for new & renewable energies, in particular, the government plans to achieve the supply scale in the advanced countries by 2030 through continuous expansion of supply volume and support for technology development:

New & Renewable Energies

Division	Expansion	Change (2007-2030)
Solar energy	44-fold	80->3,504 MW
Wind power	37-fold	199->7,301 MW
Bio energy	19-fold	1,874,000->36,487,000 Gcal
Geothermal energy	51-fold	110->5,606 Gcal

To achieve such supply goals, the government plans to introduce RPS (Renewable Portfolio Standard) for new & renewable businesses for the fields where national land environments are good, wind power, tidal power, tidal current, bio, etc., strengthen mandatory use of new & renewable energies at public buildings and create new demand for new & renewable energies through its one million green home supply project.

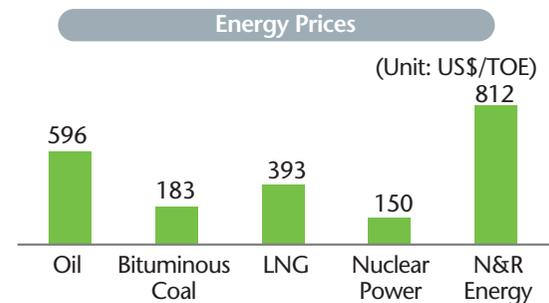
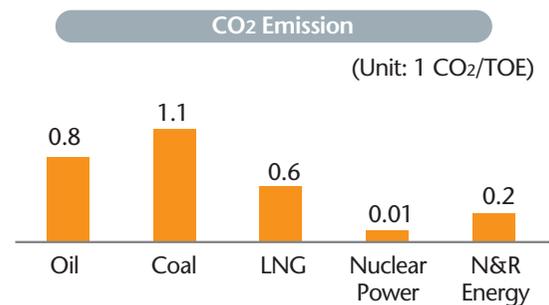
While supporting development of core source technologies for solar energy, wind power and hydrogen fuel cell to grow them into growth engines and localization of large-scale wind power generators (3-5MW), the government plans to create initial markets for domestically developed products in linkage with technology development and the one million green home supply projects.



Nuclear Electric power

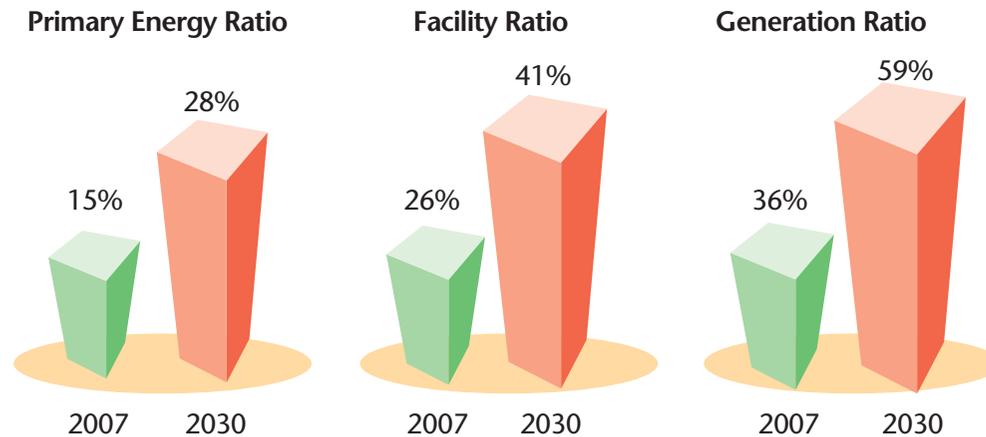
Nuclear power has thus far contributed significantly to the stable supply of cheaper electricity, alleviating the national economy's oil dependence and energy import burden, considering that for the past 25 years, the electricity fare stood at a 11.4% increase although consume prices rose as much as 186%.

To respond to high oil prices and greenhouse gas reduction, the reinforced role of nuclear energy is an avoidable choice.



* Bituminous coal, nuclear power and N&R energy include generation facility and maintenance expenses.

The government plans to utilization of nuclear power gradually and increase the nuclear power ratio among total generation facilities up to 41%. Also to nurture nuclear power into an export industry, the government plans to conclude strategic alliances and promote early development of a next-generation nuclear reactor (APR+). Under the plant, nuclear energy ratios will be increased.



As policy tasks for expansion of nuclear power, the government plans to secure a world-class safety by receiving safety checks and safety assessment from international organizations. To enhance social acceptability of nuclear power, it plans to build region-coexistence-type nuclear power plants so that nuclear power plant construction benefits can spread directly to neighboring regions.

With regard to securing of new nuclear power plant sites and management of nuclear fuels after use, the government plans to prepare a final direction after undergoing democratic and transparent procedures for collection of public opinions and discussions.

Cultivation of Green Energy Industry

IEA estimates the world's greenhouse gas emission volume in 2030 at 62 billion CO₂ tons, but expects that it can be reduced to 14 billion CO₂ tons through technology innovation.

The government plans to nurture the green energy industry into a core future growth engine to create jobs, clean other industries and accelerate energy efficiency enhancement.

As promotion strategy to boost the green energy industry, the government intends to select, facilitate and introduce core technologies while expanding green technology R&D budget and strengthen energy technology support functions of government-invested research institutes, ETRI, etc. Through establishment



of large-scale integrated test-beds, it intends to support tests, certifications and certain scales of purchasing. It also plans to expand 'green technology' purchasing and utilize 'green technology' in the public projects like one million green homes.



What is green energy!



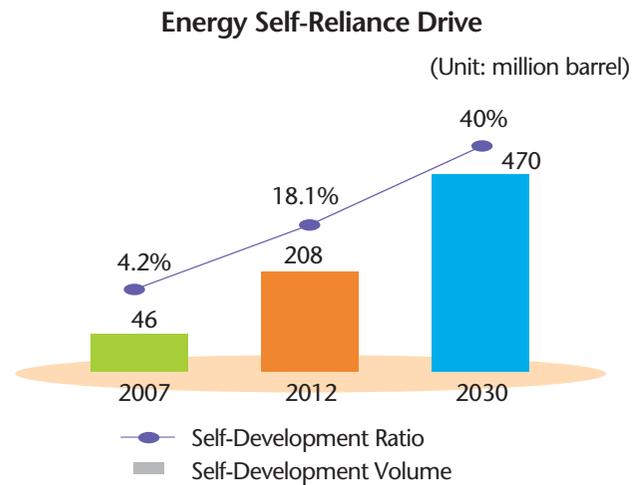
Green energy means energy industries that do not emit or reduce green house gases. They are divided into three categories as follows:

- Energy sources that do not emit greenhouse gases such as new and renewable energy and nuclear power;
- Energy facilities that purify fossil fuels. Among them are carbon capture/storage and high-efficiency coal thermal power; and
- Areas that enhance energy efficiency, such as LED lighting and building energy-efficiency mechanisms.

Energy Self-Reliance

To realize the nation's energy self-reliance the government plans to increase self-development volume.

For this, the government plans to secure promising projects by linking energy & resource cooperation and industrial cooperation centering on strategic regions; strengthen international competitiveness of resource development enterprises, including up-scaling of Korea National Oil Corp., etc.; and expand resource development infrastructure, investment resources, specialized manpower, core technologies, etc. on a continued basis.



Energy Welfare

As for energy-poor classes, the government plans to support energy welfare continuously so that energy purchasing expenditure can fall below 10% of household income. For this, it intends to guarantee basic energy use, increase natural gas supply to more than 85% by 2030 from the present 70% level and improve energy facility efficiency for low income classes as well.



Expected Benefits

o Improvement in Trade Balance

From the Basic National Energy Plan, the government expects improvement of trade balance: an effect of reducing US\$34.4 billion in energy imports (based on '07 prices) consisting of US\$14.1 billion from management of energy demand and US\$20.3 billion from conversion into energy mix.

If the present level of policy efforts and energy mix are maintained, energy imports in 2030 are expected to be US\$113.9 billion (based on '07 prices) and the targeted import amount in the Basic National Energy Plan is US\$79.5 billion. (Despite a 25% increase in total energy consumption in 2030 compared with 2007, total energy import amount is projected to decrease on a constant price basis.)

o Energy Independence

In terms of energy self-reliance, the ratio of nation's controllable energies (self-developing oil, gas, coal, new & renewable energies and nuclear power) is expected to rise significantly to the 65% level from 27.5% in 2007.

o Job Creation

In the new & renewable energy field, furthermore, the government expects to create new jobs for about 950,000 persons by 2030 and also expand the nation's global new renewable energy market share to more than 15% by 2030 from 0.7% at present.



Jointly with business communities, the government intends to establish 'green growth' as a new growth paradigm of the national economy and expand investment in new & renewable energy facilities, R&D of green technologies, etc., and green energy industries.

To achieve a 11% of new & renewable energy ratio by 2030, a total of 100 trillion won (private: 72 trillion won, government: 28 trillion won) in facility investment and a total 11.5 trillion won in R&D (private: 4.3 trillion won, government: 7.2 trillion won) are required. For this, the Ministry of Knowledge Economy and economic organizations will jointly organize 'Green Energy Industry Promotion Council' and accelerate expansion of private investment and environmental management, etc.



Moreover, the government is all out, aiming at green growth benefits through implementation of follow-on measures of the Basic National Energy Plan, such as energy use rationalization plan (November), basic new & renewable energy plan (September), basic electric power supply & demand plan, etc.



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