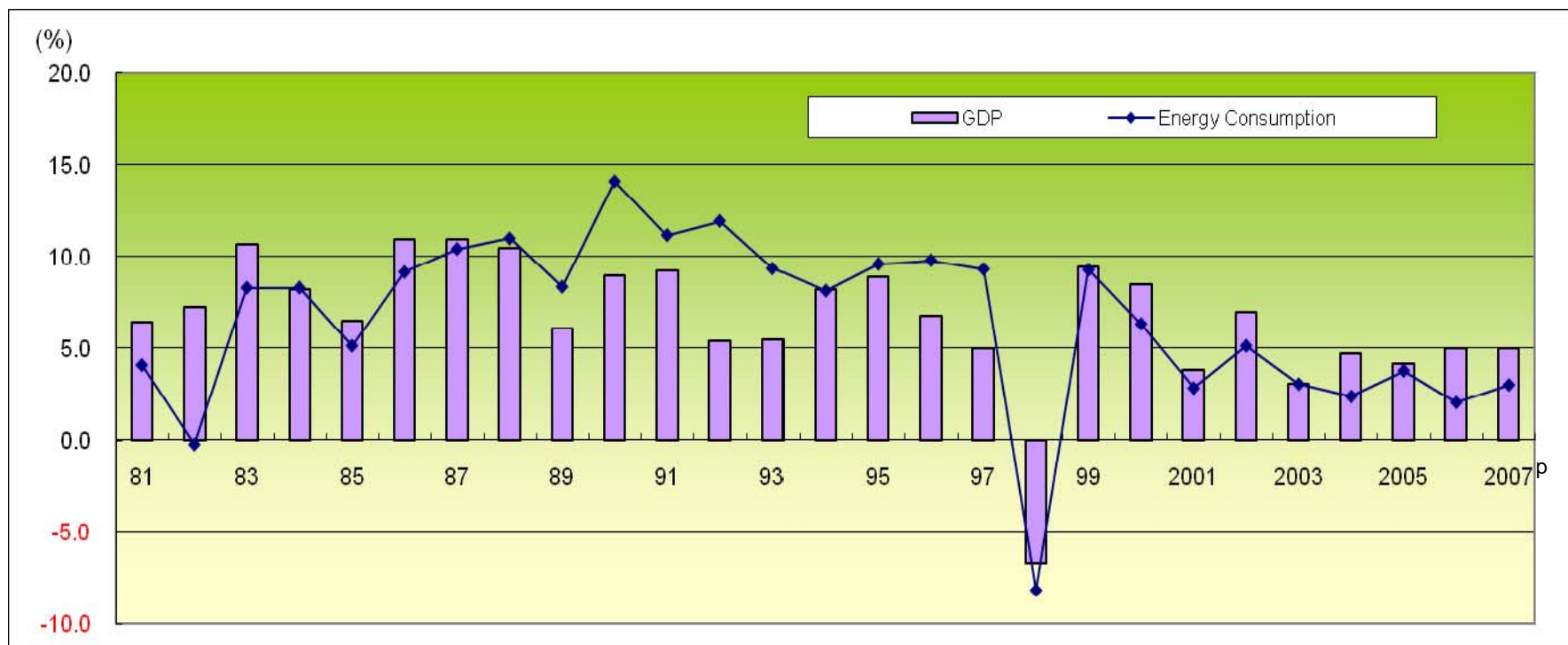


# Economic growth and energy consumption trends



❑ **For 1987 – 1997 :** average rate of increase per year

– energy consumption 10.3%, GDP 7.7%

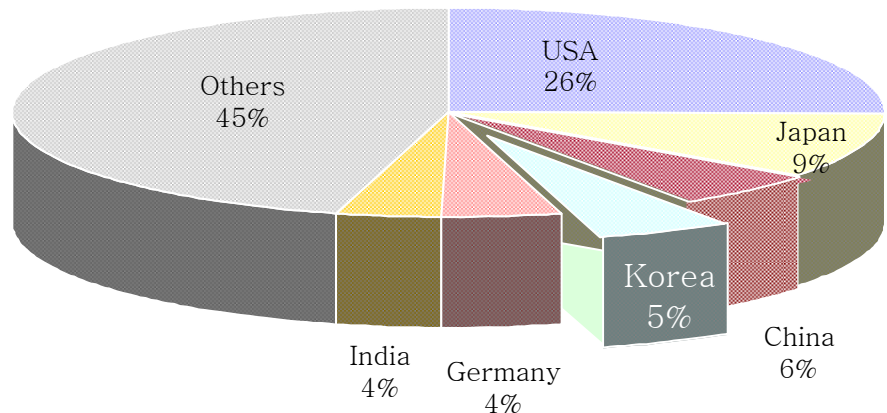
❑ **For 1998 – 2007 :** average rate of increase per year

– energy consumption 4.2%, GDP 5.6%

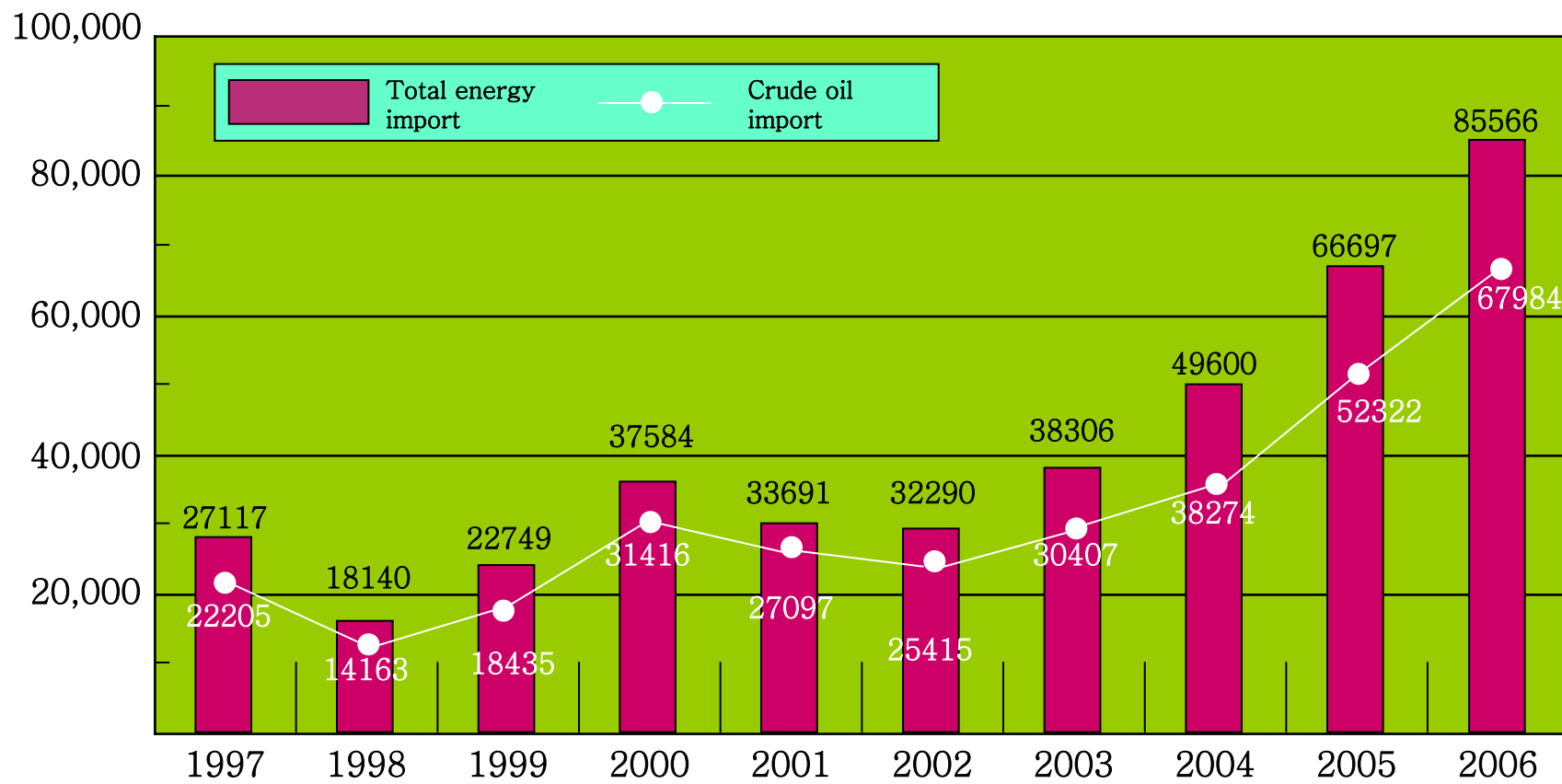
# Top ten energy consumers in the world

rank	Energy consumption	Oil consumption
1	USA	USA
2	China	China
3	Russia	Japan
4	Japan	Russia
5	India	Germany
6	Germany	India
7	Canada	Korea(2.8%)
8	France	Canada
9	UK	Mexico
10	Korea(2.1%)	France

- Total amount of Oil imported in 2007 :  
**873million barrels**

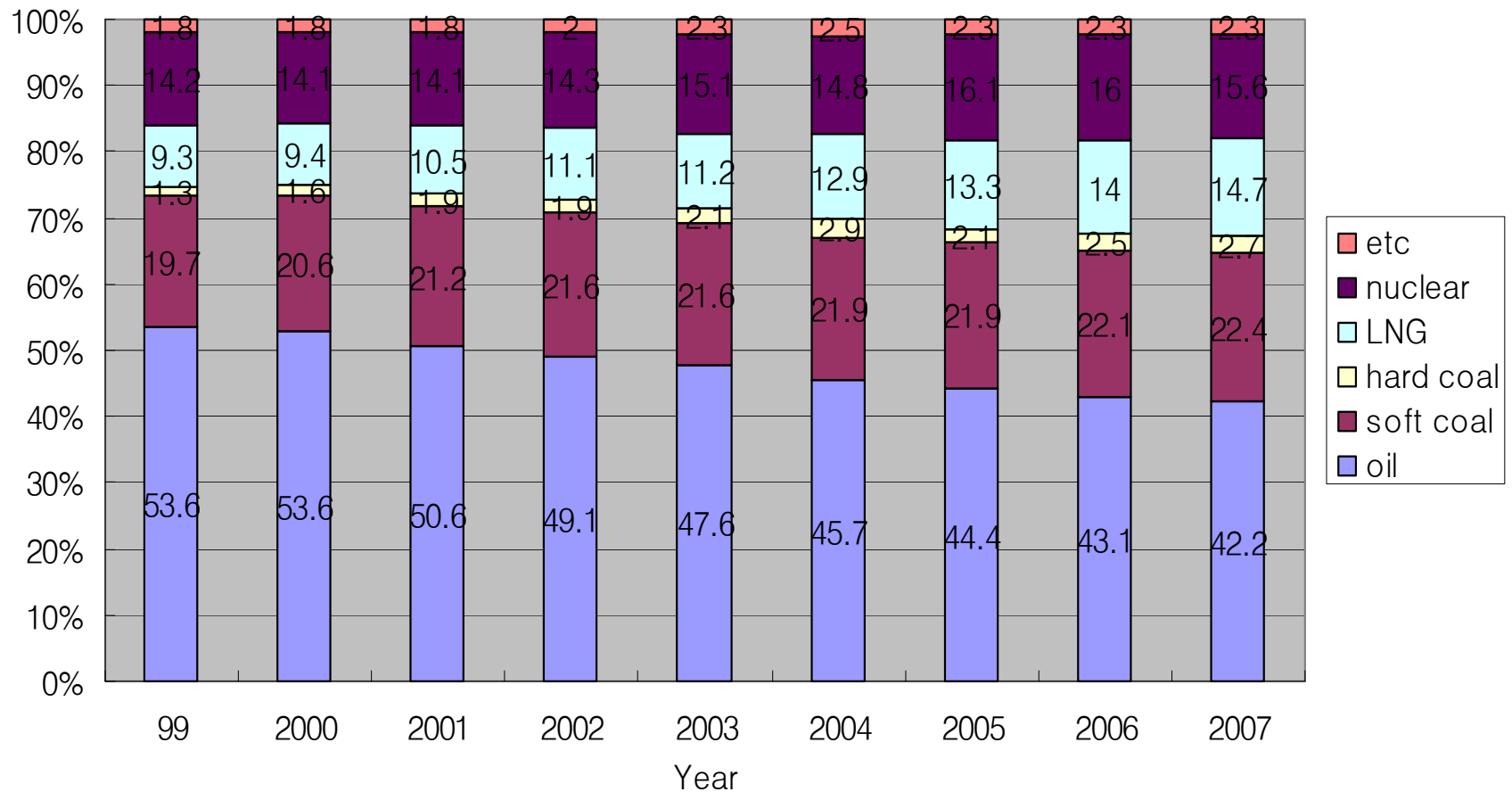


# Oil import versus total energy import

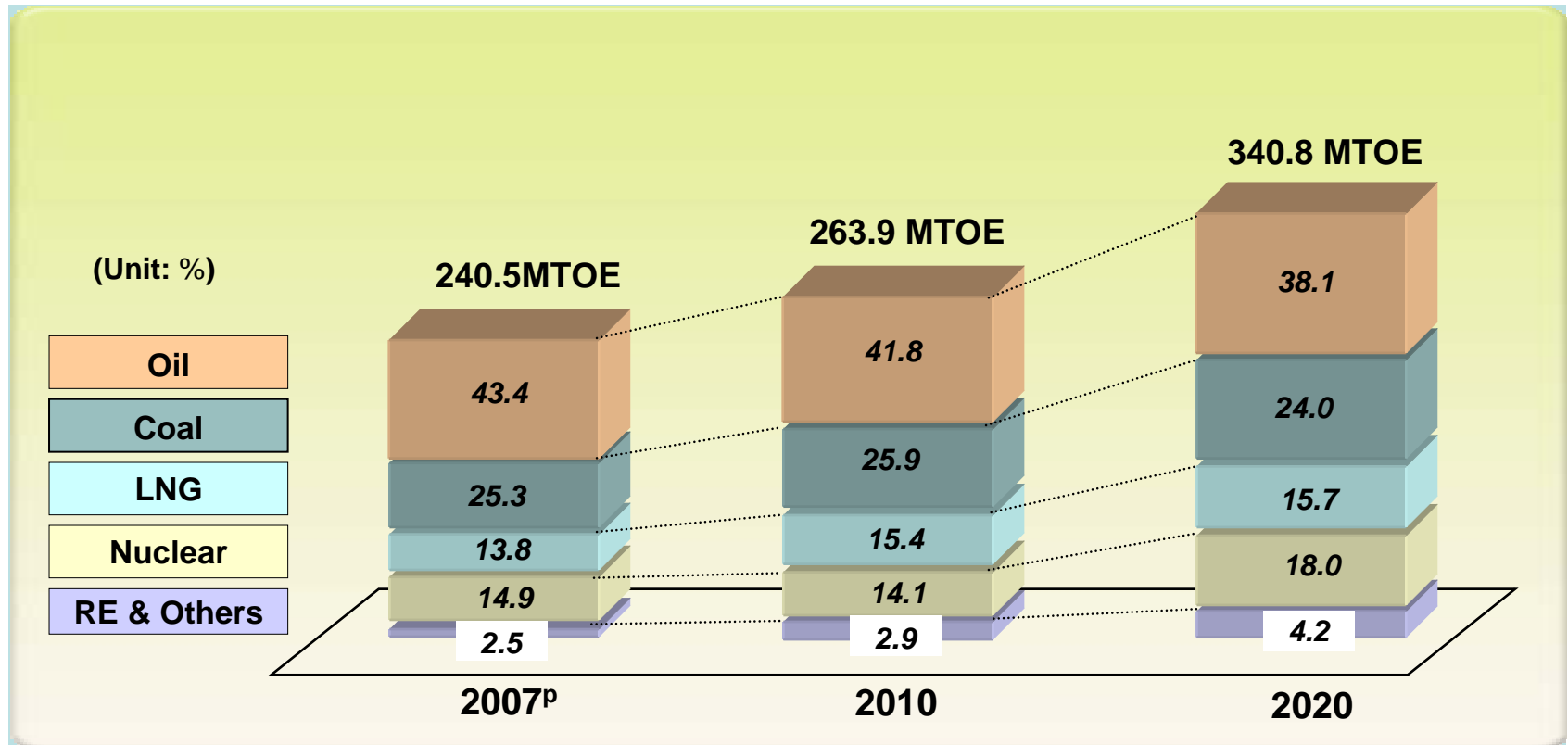


# Primary Energy Source Consumption Ratio

Energy Rate



# Prospects of energy demand(2007~2020)



□ Prospects of importance of each energy sources  
(2007<sup>p</sup> → 2020, %)

- oil ↓ : 43.4 → 38.1
- coal ↓ : 25.3 → 24.0
- gas ↑ : 13.8 → 15.7
- nuclear ↑ : 14.9 → 18.0

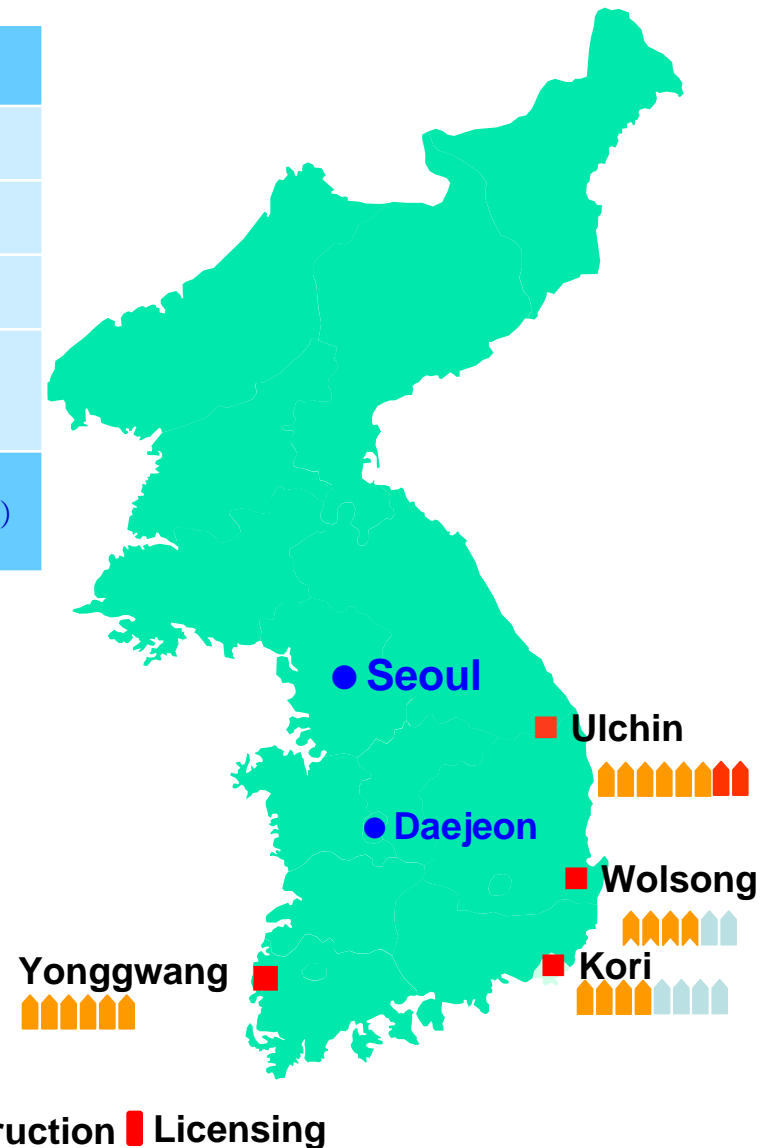
unit : MWe

Site	Operation	Construction	Total
Kori	4 (3,137)	4 (4,800)	8 (7,937)
Wolsong	4 (2,779)	2 (2,000)	6 (4,779)
Yonggwang	6 (5,900)	–	6 (5,900)
Ulchin	6 (5,900)	2 (2,800) plan	8 (8,700)
Total	20 (17,716)	8 (9,600)	28 (27,316)

□ Total 28 units (20 in operation and 8 under Licensing or construction)

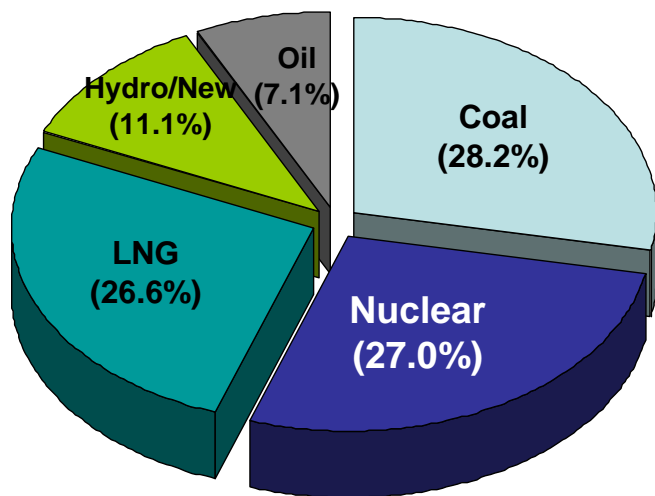
-24 PWRs, 4 PHWRs

-Capacity : 27.3 GWe



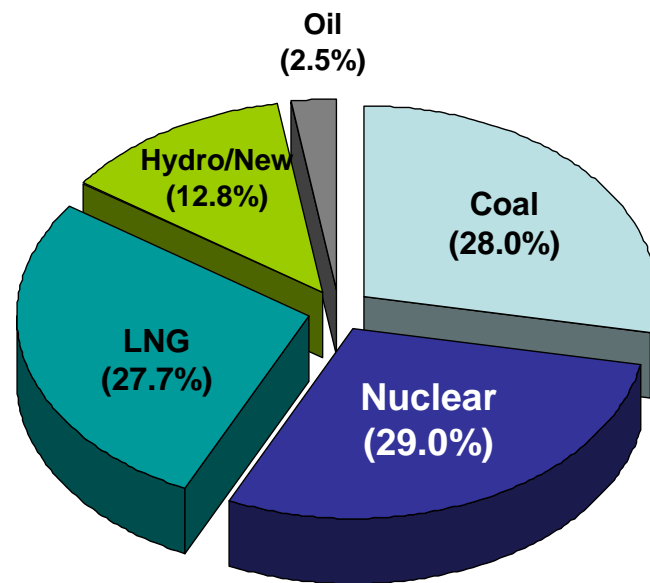
□ PWR □ PHWR

■ Operation ■ Construction ■ Licensing



**Dec. 2006**

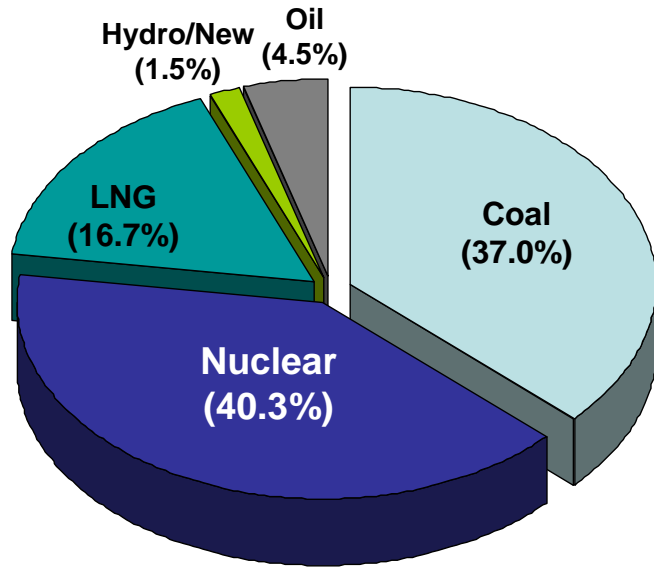
**Total : 65.5 GW**  
**Nuclear : 17.4 GW(27%)**



**Dec. 2020**

**Total : 94.2 GW**  
**Nuclear : 29 GW(29%)**

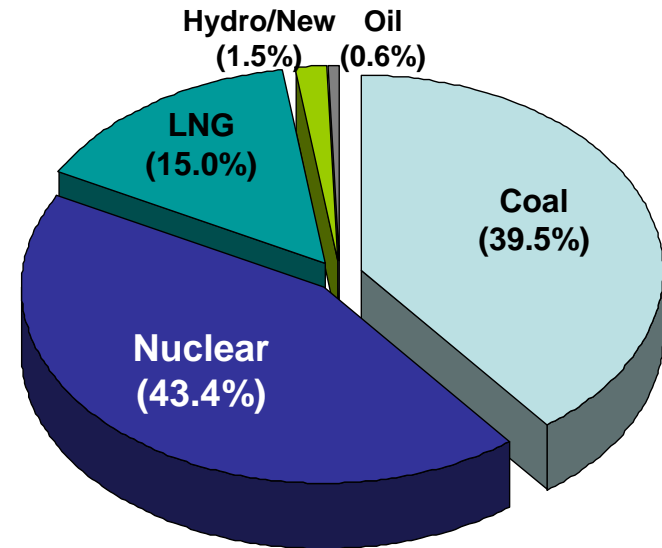
# Prospect of Electricity Generation



**Dec. 2006**

**Total : 381 TWh**

**Nuclear : 148 TWh(40.3%)**

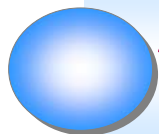


**Dec. 2020**

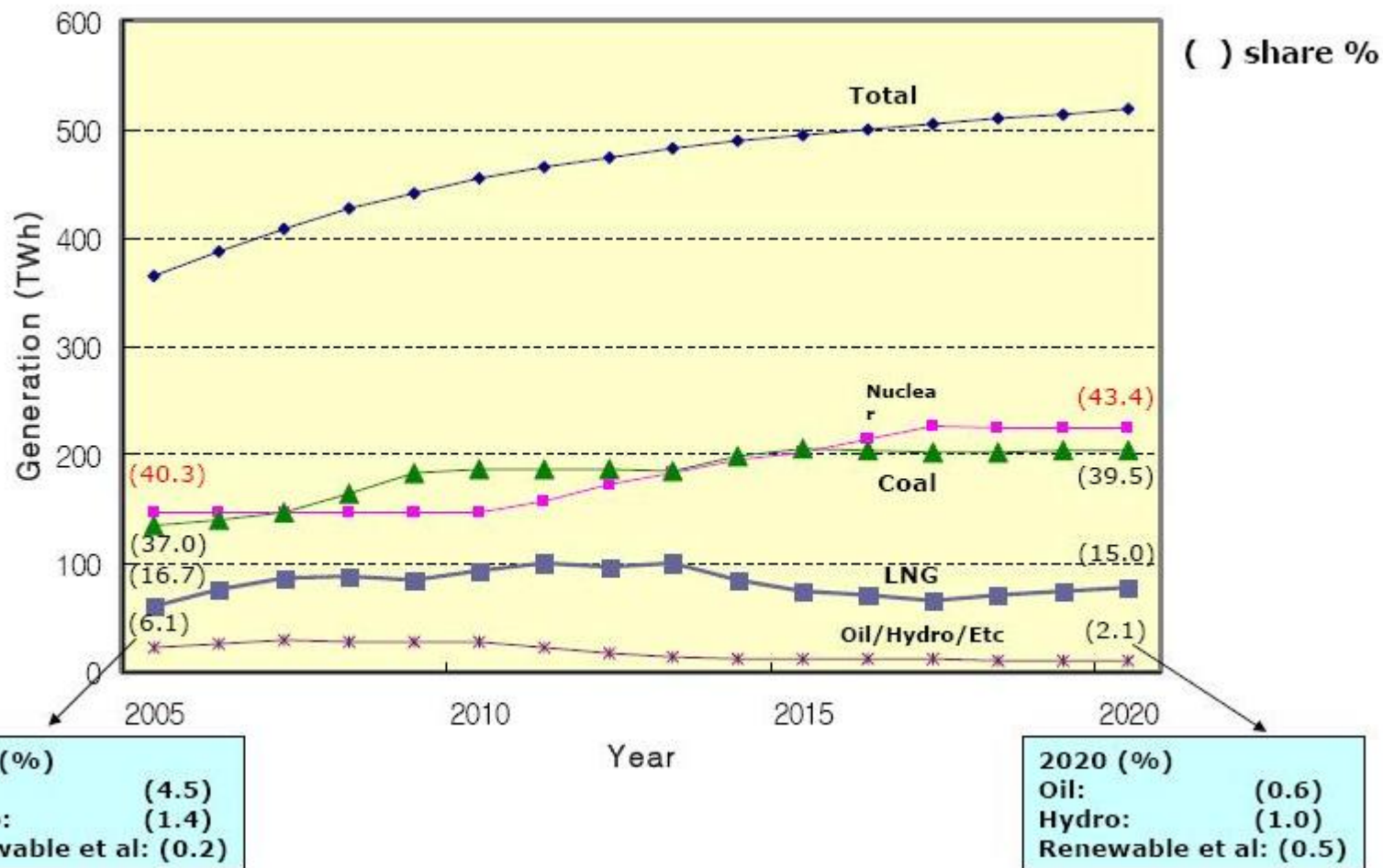
**Total : 518 TWh**

**Nuclear : 226 TWh(43.4%)**





# The 3<sup>rd</sup> Electricity Supply Plan (2006–2020)



# Long term Energy demand indicator

GDP Growth

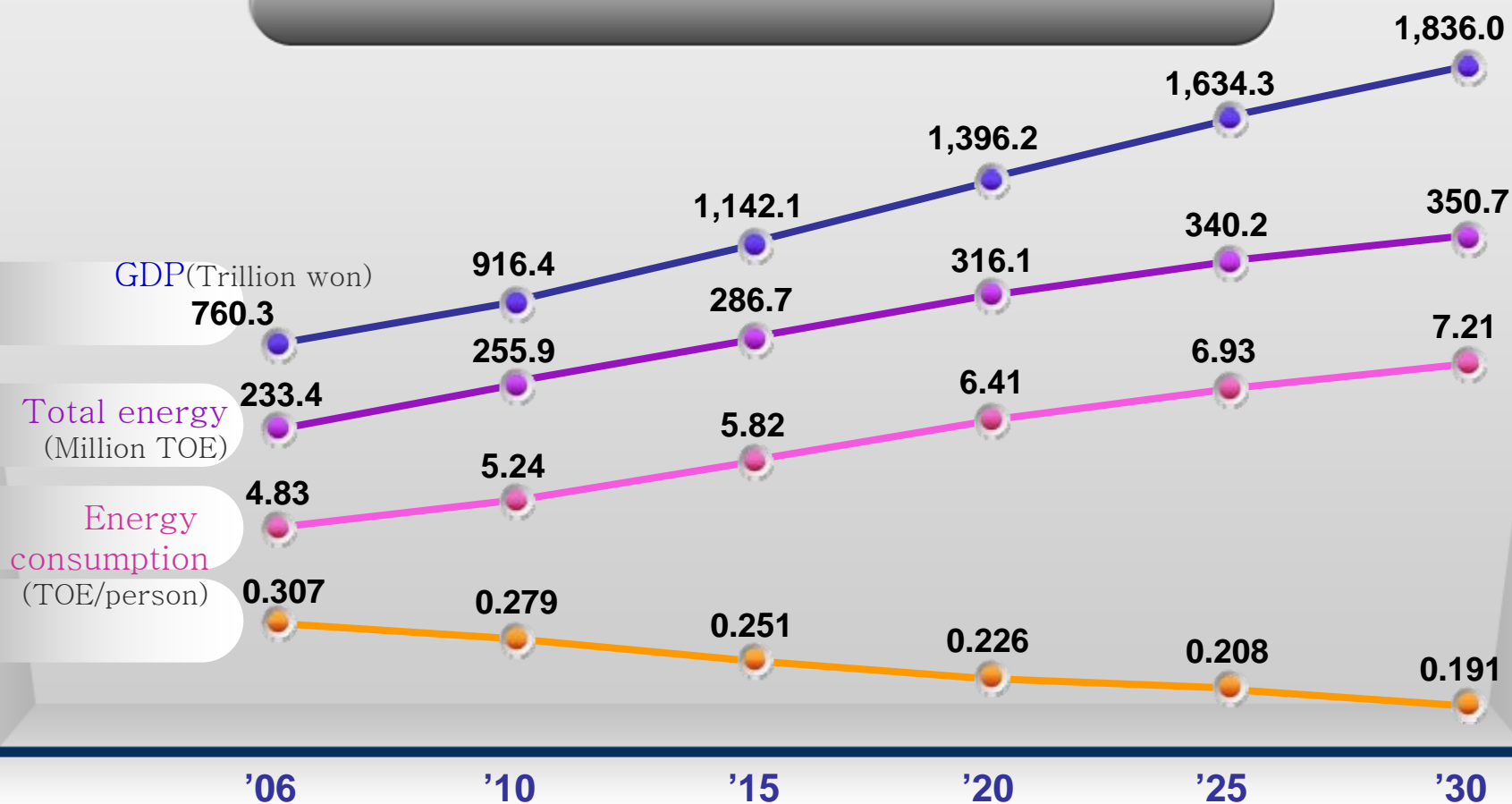
Annual rate 3.7%

Energy Demand

Annual growth 1.7%

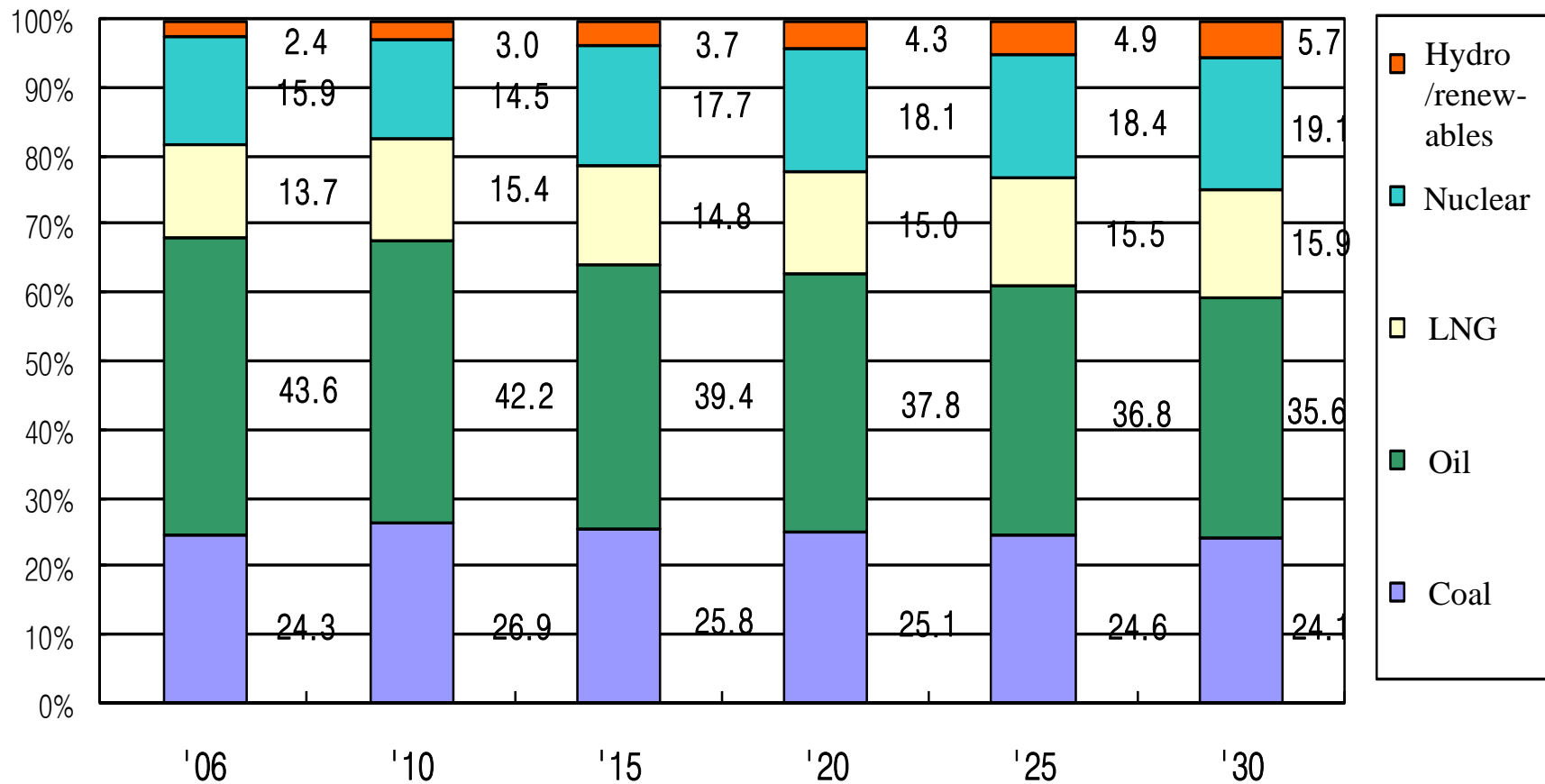
Energy Consumption

Annual growth 1.7%



# Prospect of demand weight of each primary energy source

Oil dependency decrease 8.0%p



# Major indices : draft goal of energy demand

Total energy consumption('06-'30)

Avg. annual rate of increase of 1.2%

Energy demand per person

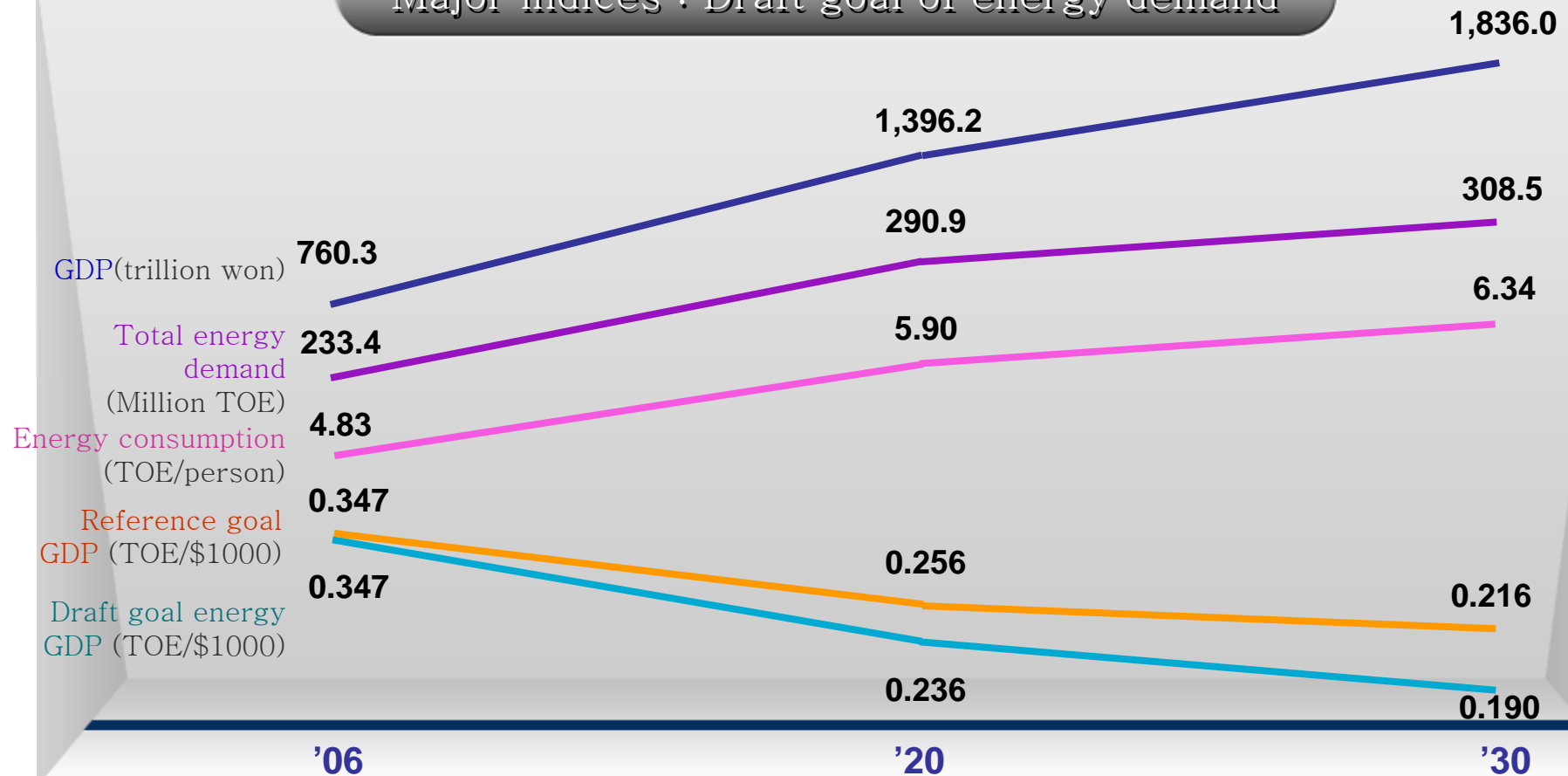
Avg. annual rate of increase of 1.1%

Unit energy source

Improved 2.5% avg. annual

45.2% improved compared to '06

## Major indices : Draft goal of energy demand



# Draft goal (1) : Demand for primary energy source (weight of nuclear power 37%)

## Oil

- 0.0% avg. annual increase
- Dependency decrease to 33.0%

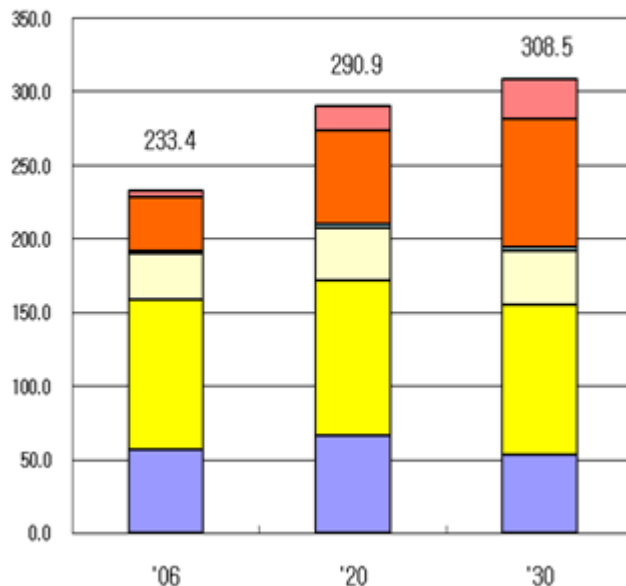
## Nuclear energy

- 3.3% avg. annual increase
- Demand weight increase to 26.0%

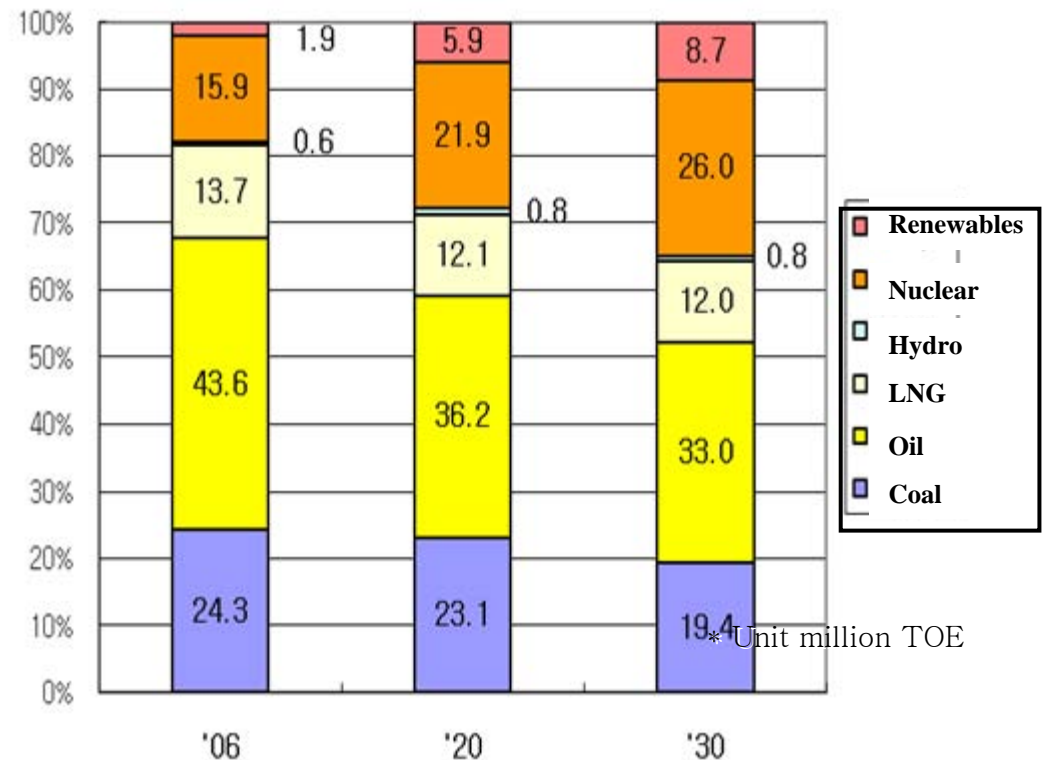
## Renewables

- 7.9% avg. annual increase
- Demand weight increase to 8.7%

Demand prospect



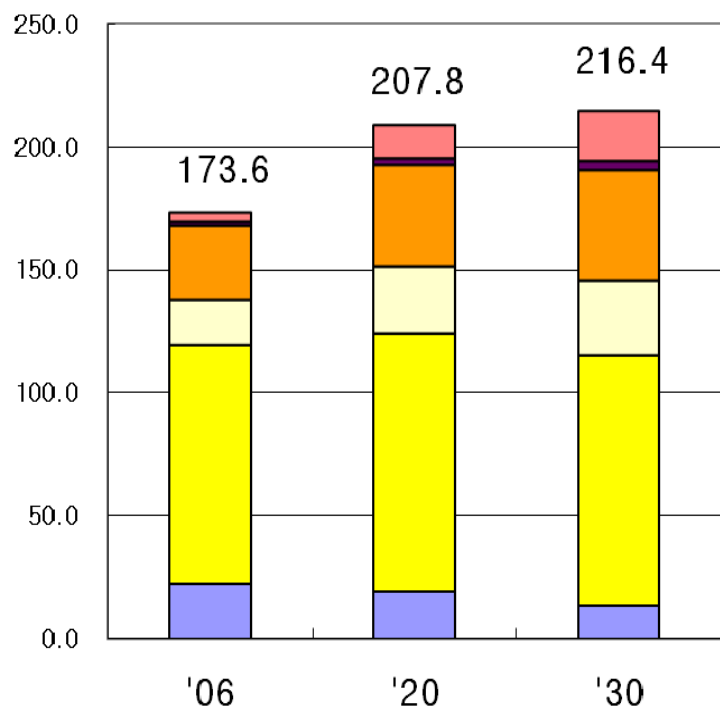
Demand weight prospect



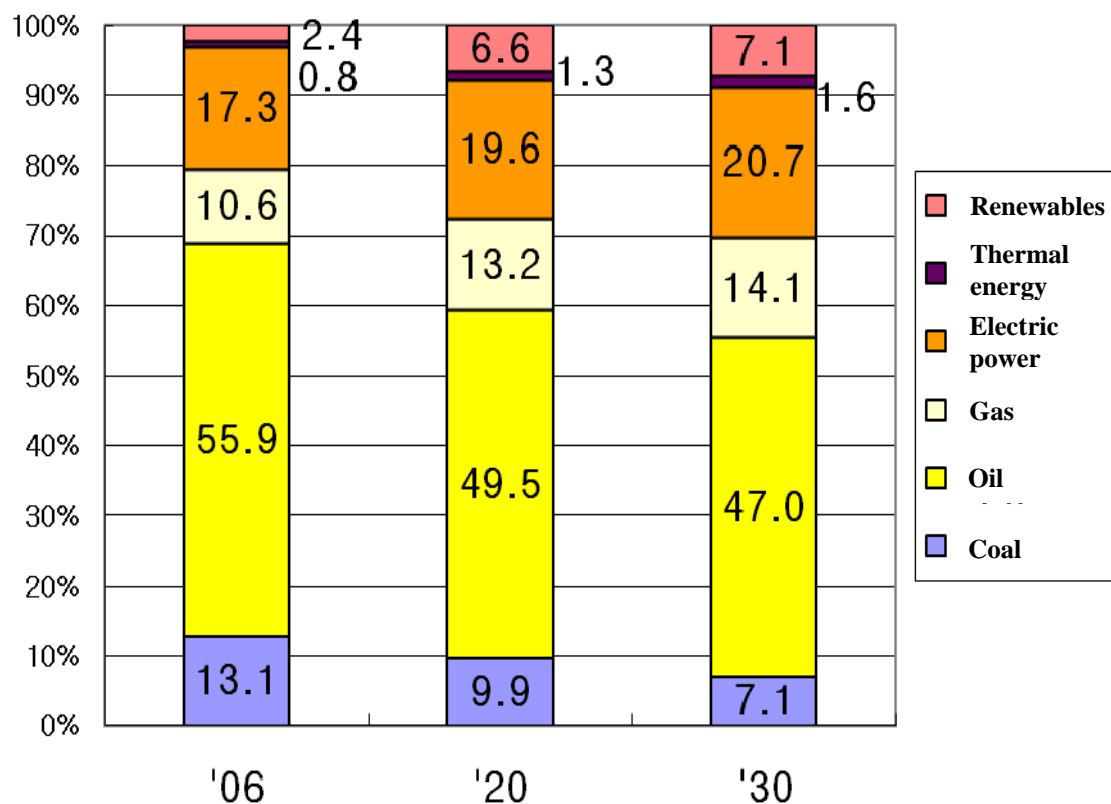
# Draft Goal (1) : Demand for final energy source

Final energy demand : 0.9 % increase avg. annual (ref. 1.6%)

Demand prospect



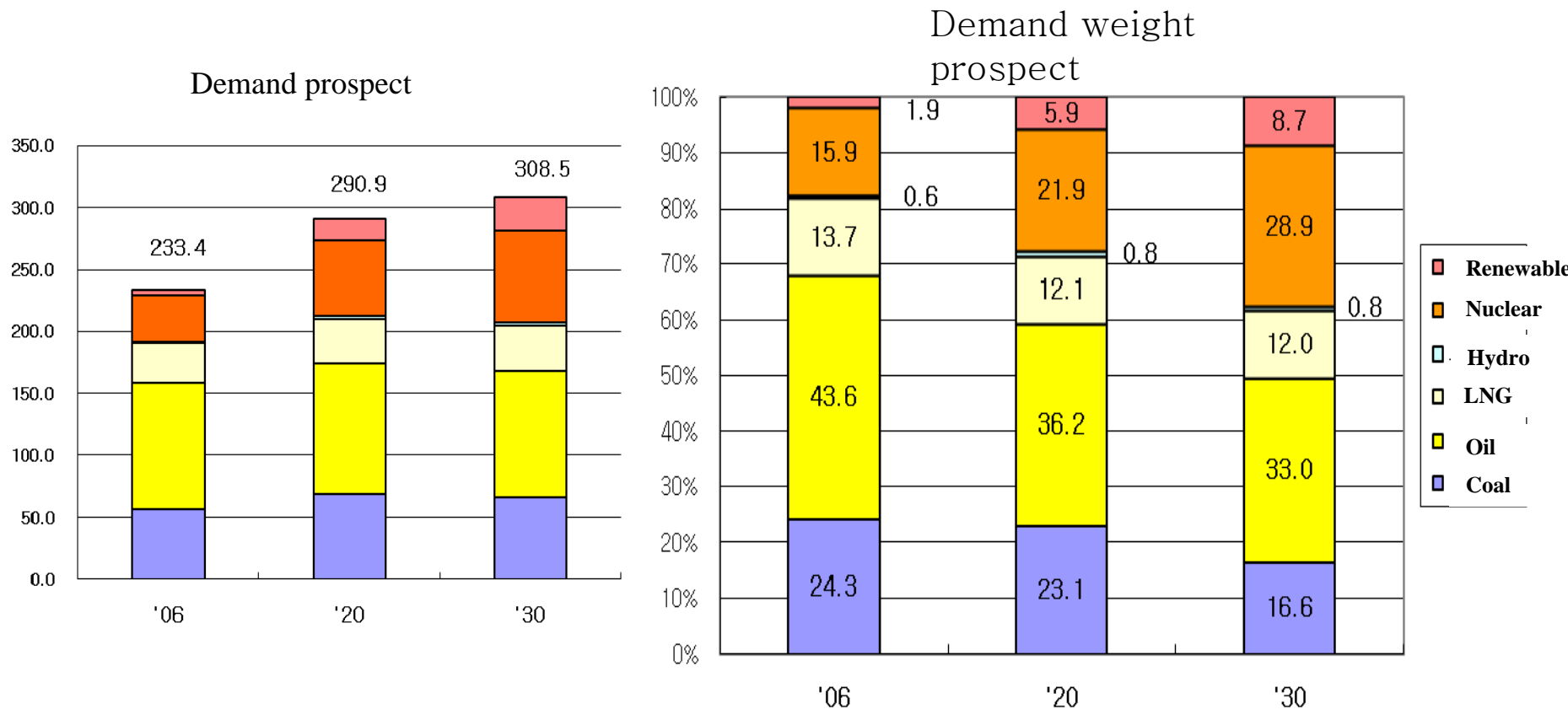
Demand weight prospect



\* unit: million TOE

# Draft goal (2) : Demand for primary energy source (weight of nuclear power 42%)

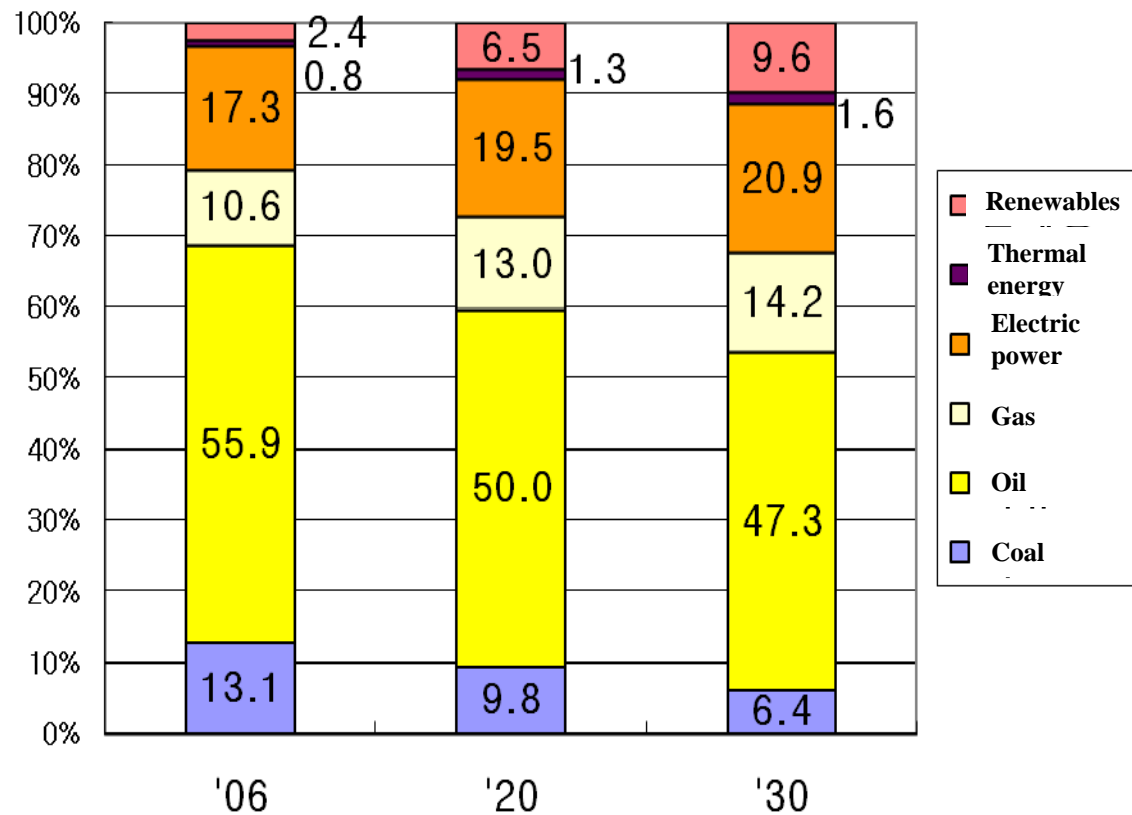
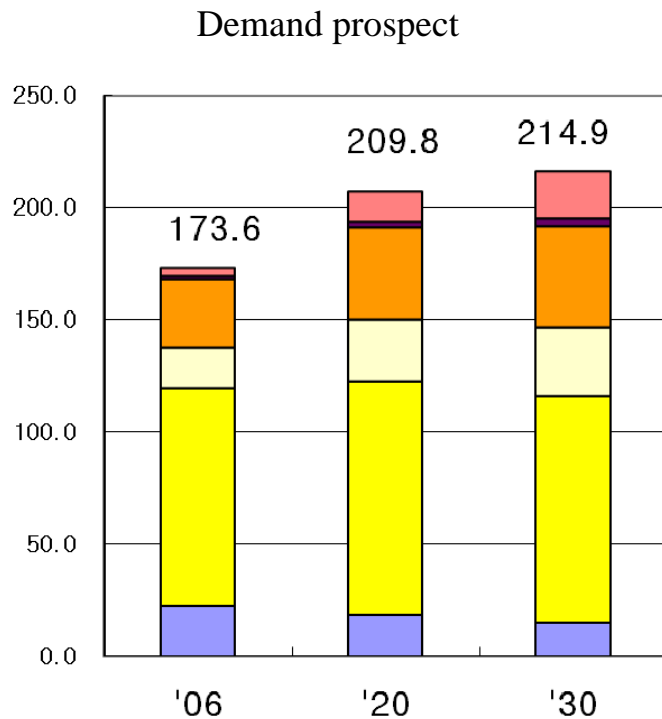
Oil	Nuclear power	Renewables (w/o hydro)
<ul style="list-style-type: none"> <li>• 0.0% avg. annual increase</li> <li>• Dependency decrease to 33.0%</li> </ul>	<ul style="list-style-type: none"> <li>• 3.7% avg. annual increase</li> <li>• Demand weight increase to 28.9%</li> </ul>	<ul style="list-style-type: none"> <li>• 7.9% avg. annual increase</li> <li>• Demand weight increase to 8.7%</li> </ul>



# Draft goal (2) : Demand for final energy source

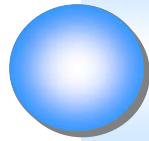
Final energy demand : 0.9 % increase avg. annual (ref. 1.6%)

Demand weight prospect





# Status of Nuclear Energy Policy



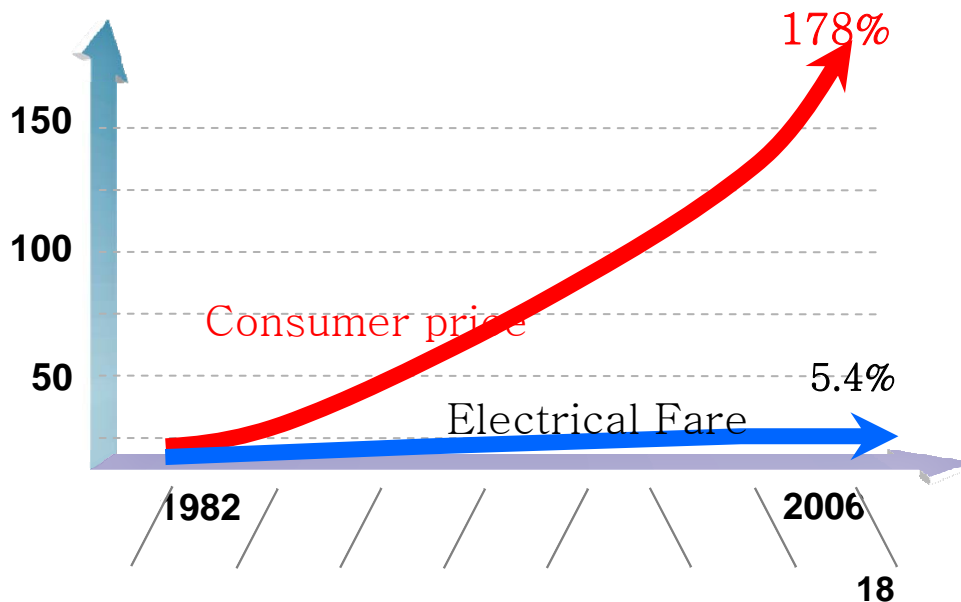
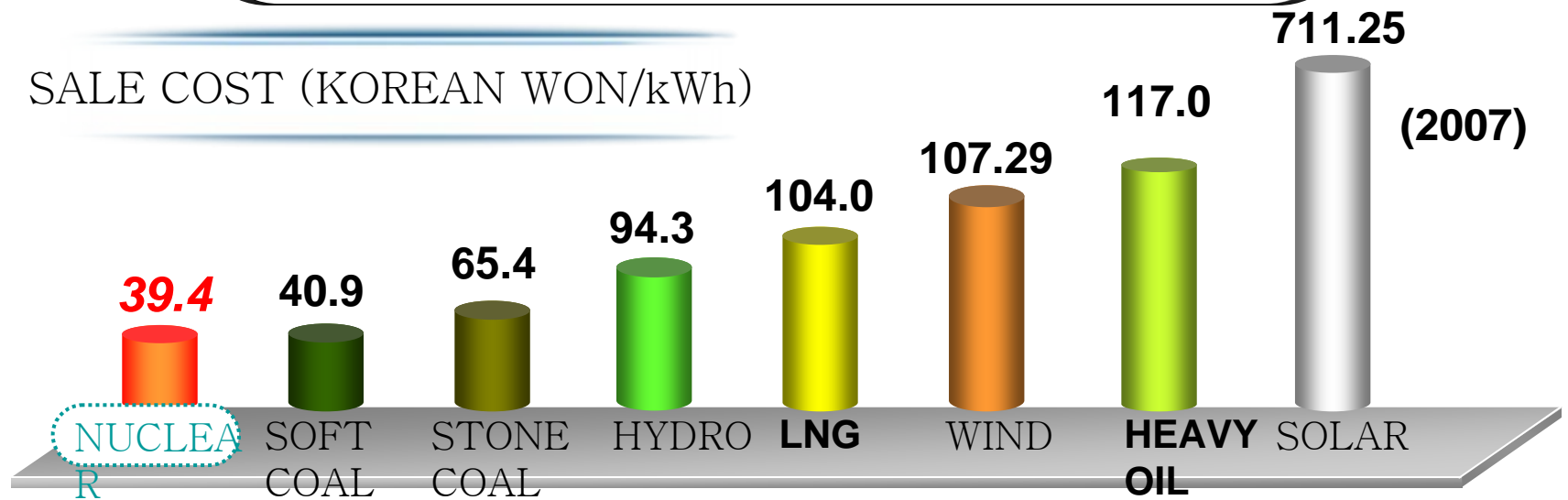
## Nuclear Energy Policy and Nonproliferation

### ❑ Long-term Nuclear Energy Policy Towards the Year 2030

- Established in July 1994
- 4 primary objectives
  - ✓ to enhance stability in energy supply by promoting nuclear energy as a major energy source of domestic electricity generation
  - ✓ to achieve self-reliance of nuclear reactors and proliferation-resistance through a comprehensive and systematic nuclear energy research and development program
  - ✓ to foster nuclear energy as a strategic export industry by securing international markets
  - ✓ to play a leading role in the improvement of human welfare and the advancement of science and technology

# ECONOMIC ASPECTS AND COST

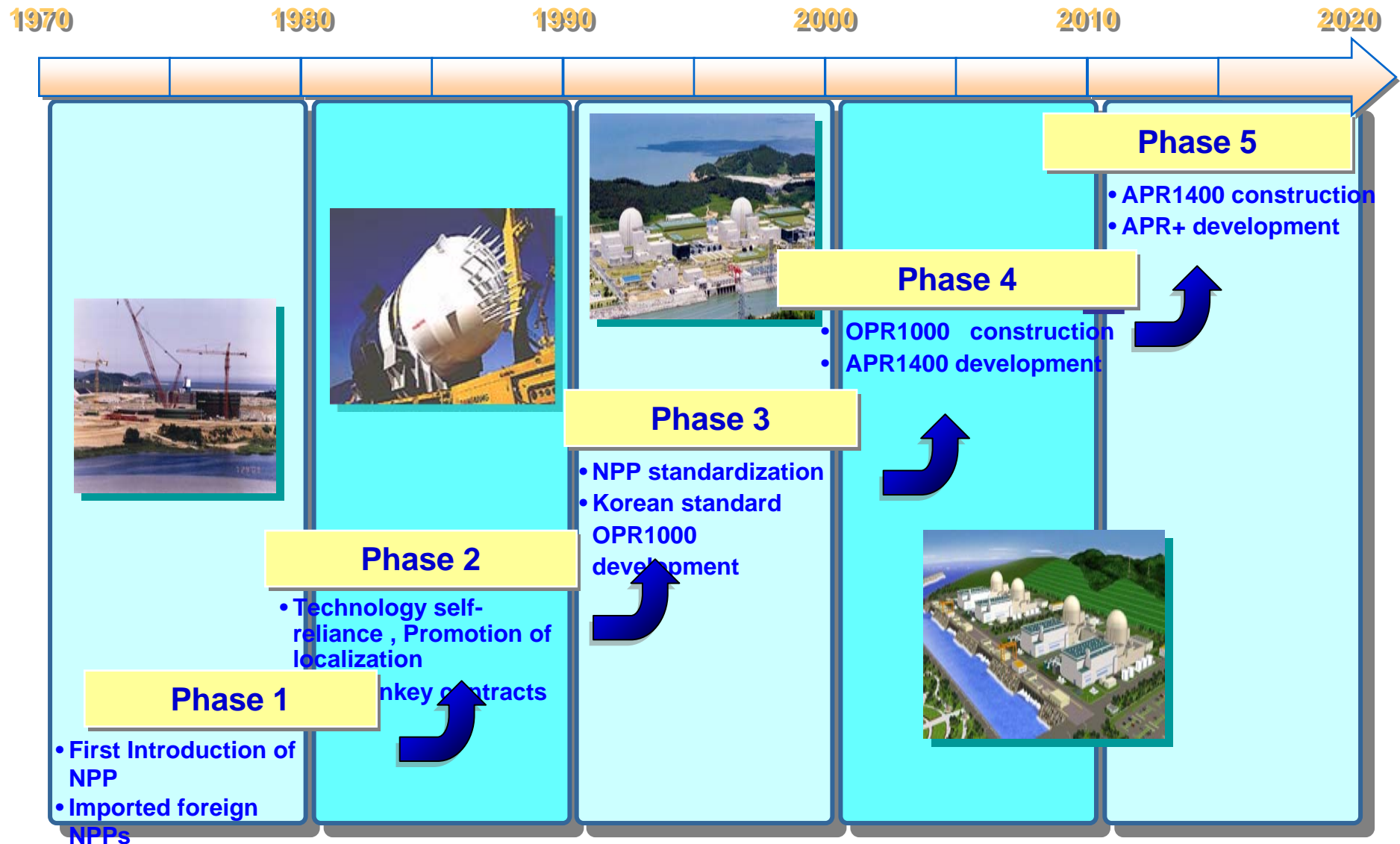
SALE COST (KOREAN WON/kWh)



CONSUMER PRICE **178%**  
INCREASE

ELECTRICAL FARE **5.4%**  
INCREASE

# Over 30 years' effort in NPP development, Construction and operation



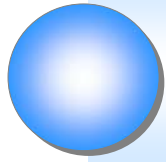
# Comprehensive Nuclear Energy Plan

CNEP has been reformulated every 5 year since 1997, in compliance with the Atomic Energy Act

## The 3<sup>rd</sup> CNEP : 2007-2011

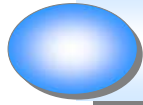
- Analyzing the achievements for the period of the 1<sup>st</sup> and the 2<sup>nd</sup> CNEP's.
- Being based on the 「4 Principles on the Peaceful Use of Nuclear Energy」.
- Considering world trends such as oil price surges, climate change and the development of GEN-IV nuclear systems.
- Reviewed and approved by Atomic Energy Commission.
- Budget : 2,440 billion won (approx. 2,630 M\$)

The 3rd phase Nuclear Technology Development Project (2007-2011) is currently being implemented  
It is the backbone of the nuclear R & D program



## Comprehensive Agreement and Additional Protocol in force

- ❑ After signing the AP, Korea disclosed to the IAEA past undeclared nuclear activities
  - ◆ Laboratory scale experiments on uranium enrichment have not been reported
  - ◆ The IAEA has sent a delegation of inspectors to Korea
    - It verified the correctness and completeness of the initial report
- ❑ Viable measurements are required in order to get credit for nuclear transparency from international communities
  - ◆ Korean Government has reconfirmed and announced Joint declaration of denuclearization on the Korean peninsula and four principles of peaceful use of nuclear energy
  - ◆ Korea has asked the International SSAC Advisory Service Mission of the IAEA
  - ◆ Atomic Energy Law was amended to provide those people in the industry and academia with mandatory education
  - ◆ KINAC was founded in 2006 with the purpose to contribute to nuclear transparency in Korea



## Korea Nonproliferation Policy Bases

- ❑ Joint Declaration of Denuclearization of the Korean Peninsula(1992)

To remove the danger of nuclear war on the Korean peninsula, the ROK and the DPRK declared:

- Art. 1 : Prohibition of testing, construction, production, acquisition, possession, deployment and use of nuclear weapons
- Art. 2 : Use of nuclear energy only for peaceful purposes
- Art. 3 : No possession of reprocessing or enrichment facilities

- ❑ Four Principles on the Peaceful Use of Nuclear Energy (2004)

Korea reaffirms that **it does not have any intension** of developing or possessing nuclear weapons

- Korea will **firmly maintain its principle of nuclear transparency**, and will strengthen its cooperation with the international community to this end.
- Korea will faithfully **abide by international agreements** on nuclear non-proliferation
- With the confidence of the international community, Korea will expand the peaceful use of nuclear energy

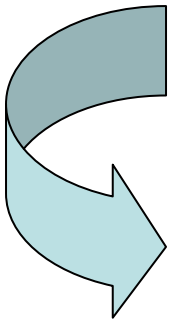


## Broader Conclusion and Integrated safeguards

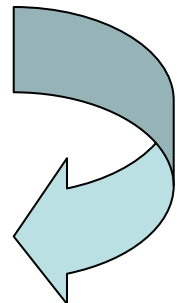
- In June of this year, the IAEA officially issued a broader conclusion saying there was no diversion of declared nuclear materials in Korea, and all nuclear material remained in peaceful activities

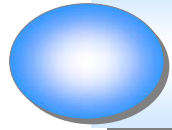


- **Korea is preparing to enter into the system of Integrated Safeguards**
  - allowing Korea to share jobs, technologies and information with the IAEA
- **The major contents of IS include one-person-one job policy for both parties to aid one another**
  - enhanced cooperation for PWRs with some information and job share is being carried out by signing the MOU between both sides



With much greater transparency, Korea pursues the highest level of cooperation with the IAEA, under increased national and social concerns with material accounting and verification under Integrated Safeguards





## Keep KINAC's perspective on the right track

- ❑ As a newly established professional body, the KINAC has duty to clearly understand the importance of international nonproliferation and to make efforts to educate professional manpower
- ❑ As a think tank, it is not only supporting the government on a technical aspect but is participating in safeguards inspection and physical protection measures, so that they are better able to establish wise policies
- ❑ It should equip with experts with profound knowledge and experience gained from the international community for the world peace
  - It cooperates with such institutions as the IAEA at home and abroad in terms of nuclear nonproliferation