



2009 SUMMER SEMINAR  
**CREATING OUR FUTURE**

**EPRI**

ELECTRIC POWER  
RESEARCH INSTITUTE

## **Advancing Nuclear Power for Korea's Green Growth**

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# Green Growth in Korea



Low-carbon, green growth is mapped out as Korea's new national vision for a post-oil era



**Improving Energy Efficiency & Reducing its Consumption**

**Increasing Clean Energy & Reducing Fossil Fuels**

**Boosting Green Energy Industry**

**Ensuring Citizens' Access to an affordable Energy**

**Energy Security, Economic Efficiency & Environmental Protection (3Es)**

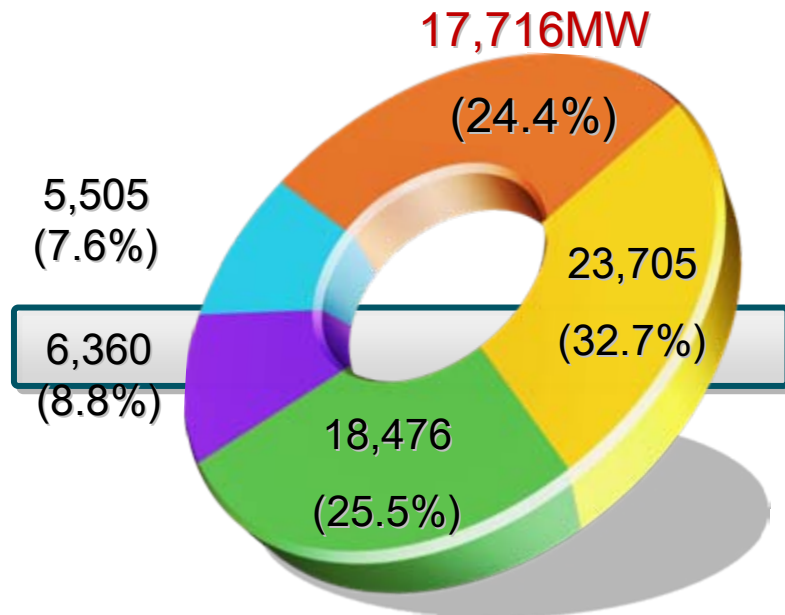


# Status of Korea's Electric Power



■ Nuclear 
 ■ Coal 
 ■ Gas 
 ■ Oil 
 ■ Hydro 
 (As of the end of 2008)

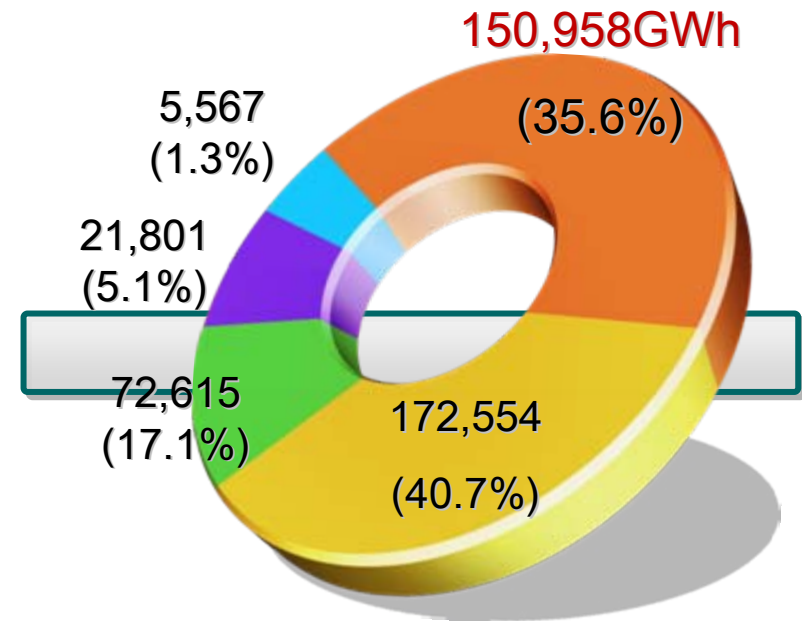
## Installed Capacity



\*The others : 728 MW(1.0%)

**Total : 72,490 MW**

## Electricity Generation



\*The others : 928 GWh(0.2%)

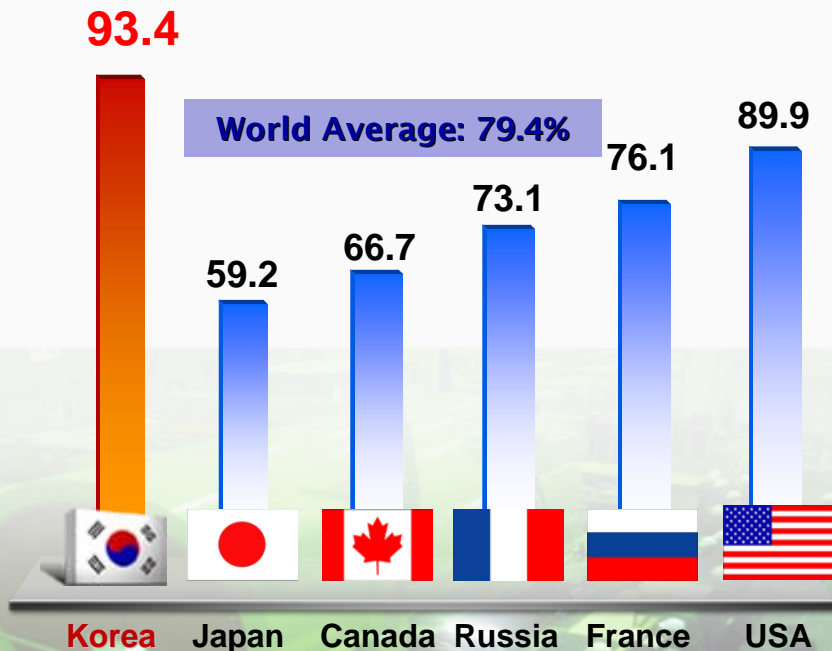
**Total : 424,423 GWh**

# Nuclear Operation Performance



## Capacity Factor

(Year 2008, %)



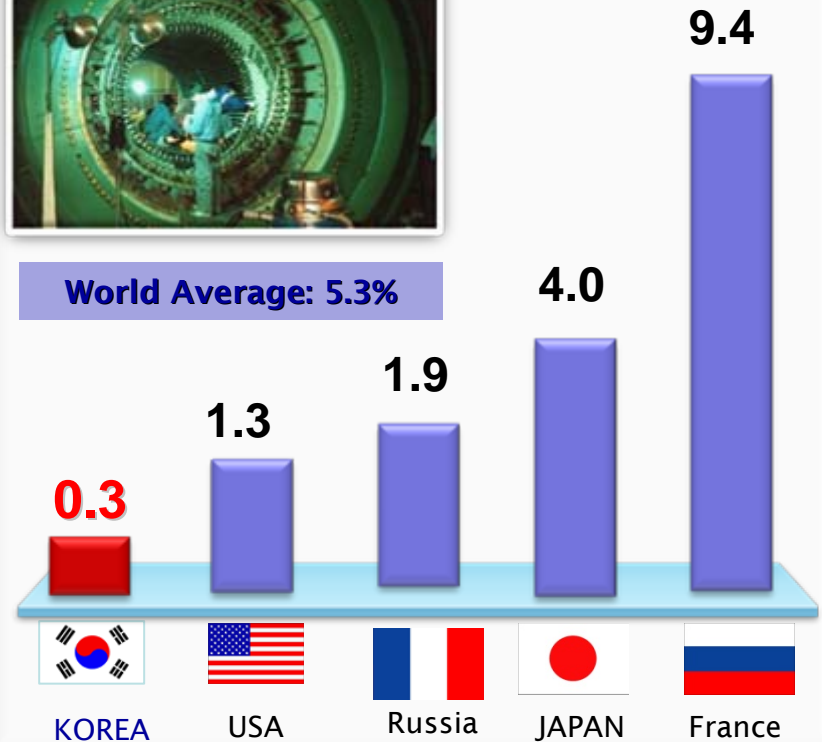
※ Source: *Nucleonics Week* (2009. 3)

## Unplanned Capability Loss

(Year 2008, %)



World Average: 5.3%



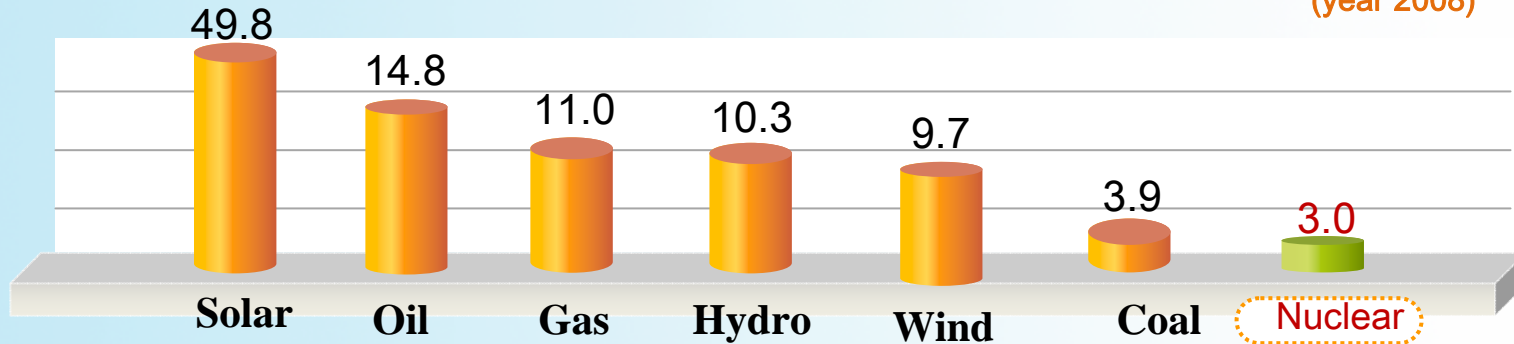
※ Source : IAEA

# Cost-competitive Energy in Korea



○ Sales Price (¢ / kWh) : Nuclear is the cheapest

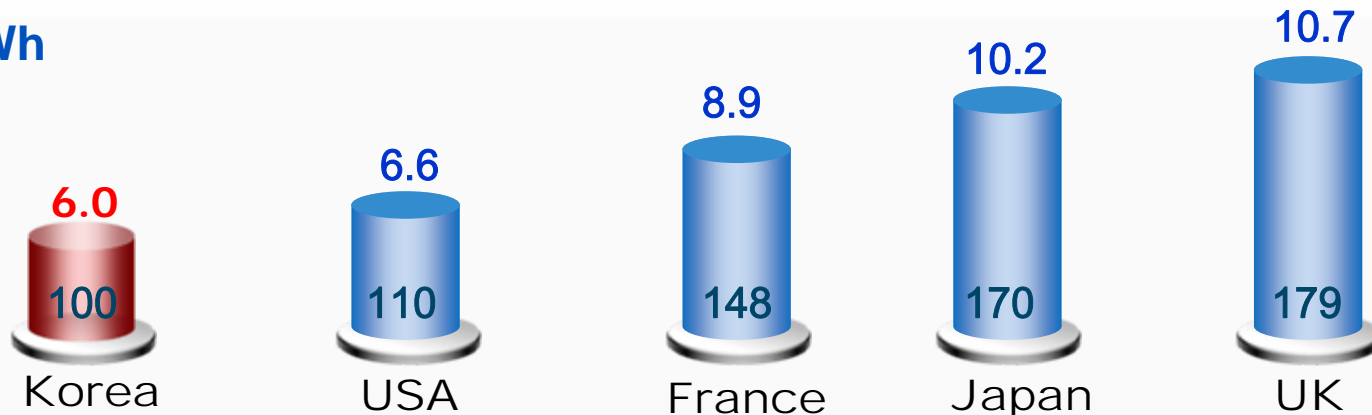
(year 2008)



< Electricity Price >

(Korea : 2008 data, Other countries : 2007 data)

¢ / kWh

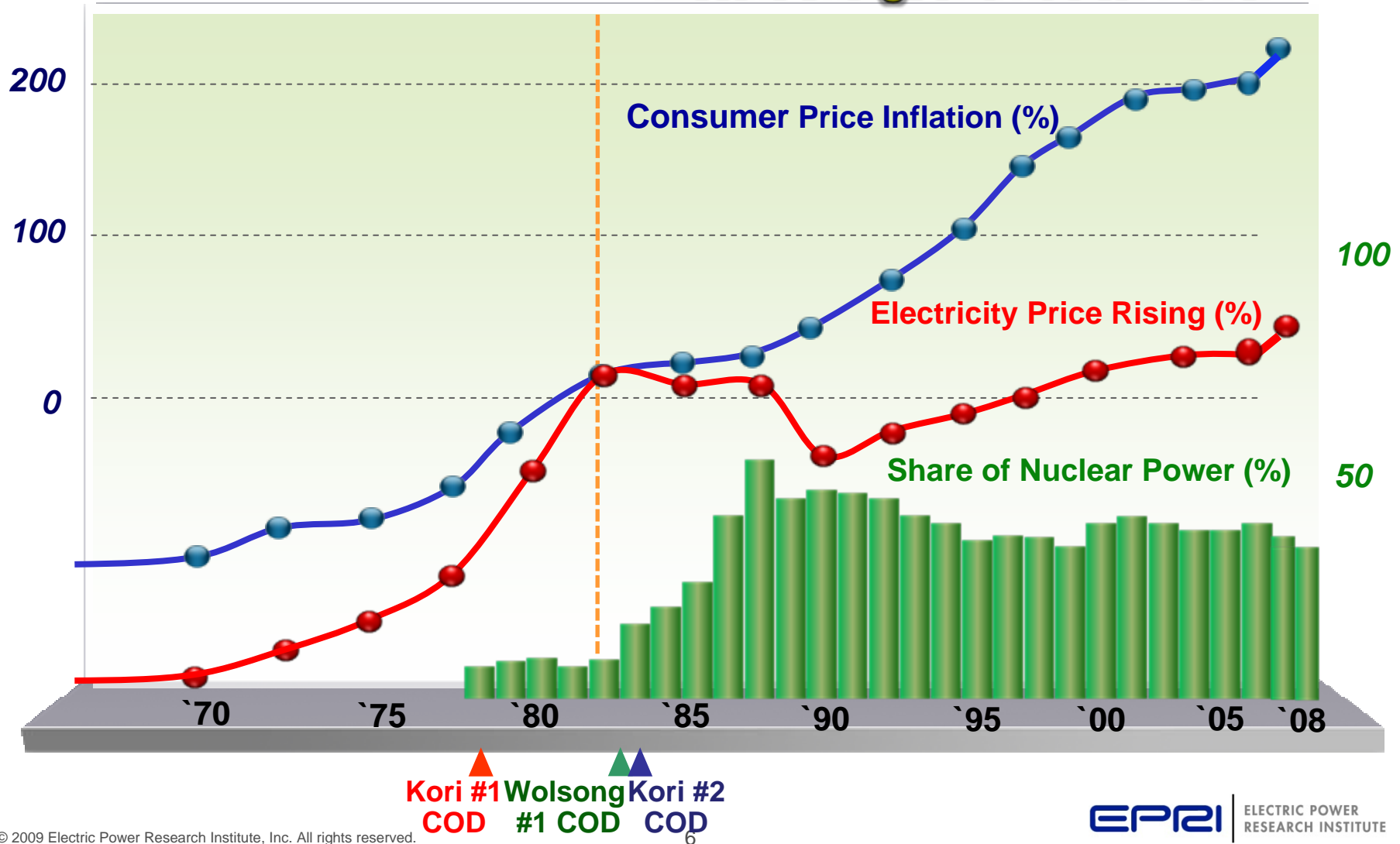




# Effects of Nuclear Power Introduction



## <Electric Charge and Nuclear Power>



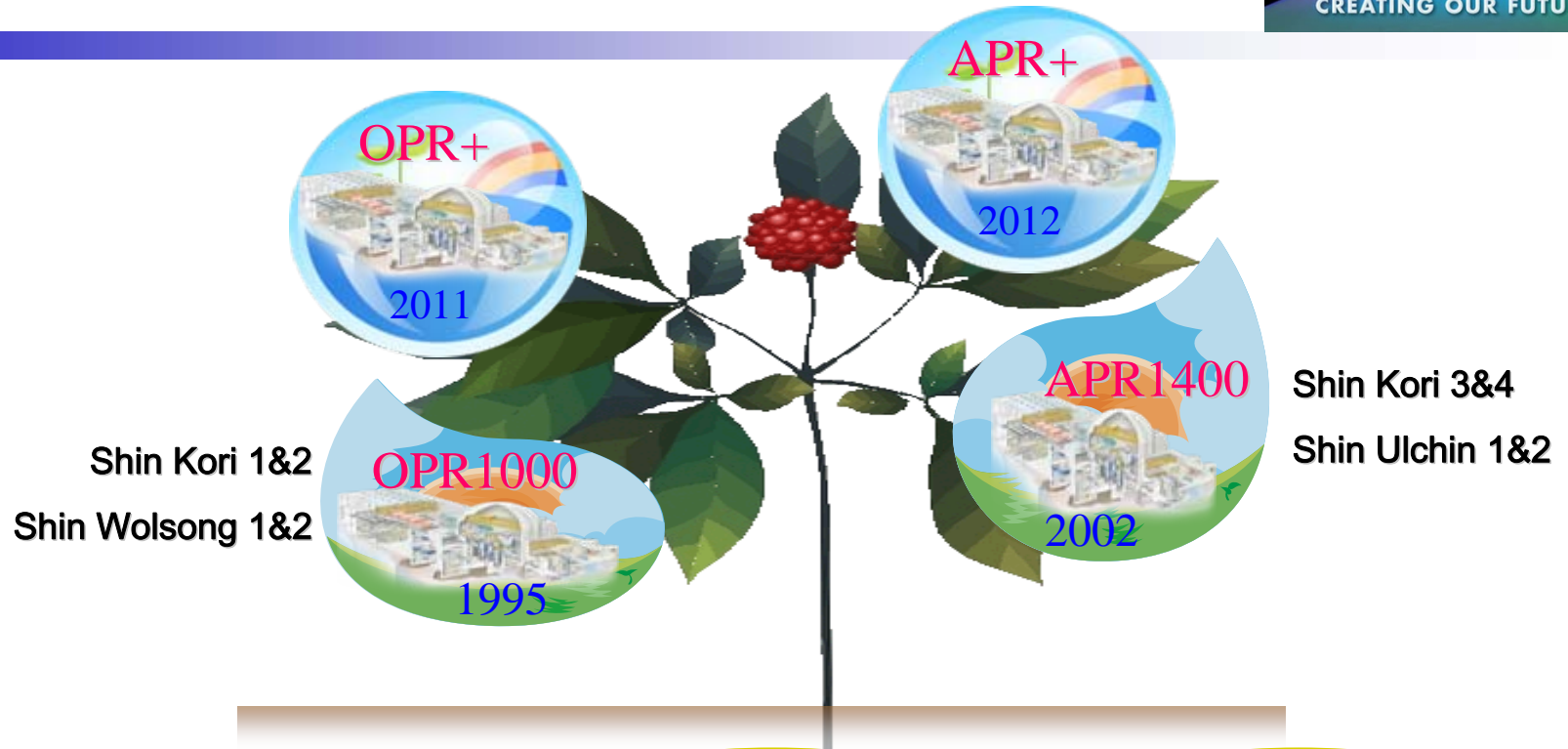
# Key Players of Korea's Nuclear Industry



- Korea is one of a few countries in the world that has implemented NPP projects continuously and aggressively up to now since 1970's.



# Development of 3 Korean Reactors



Shin Kori 1&2  
Shin Wolsong 1&2

Shin Kori 3&4  
Shin Ulchin 1&2

Experienced  
Engineers

Advanced  
Technology

Good  
Infrastructure

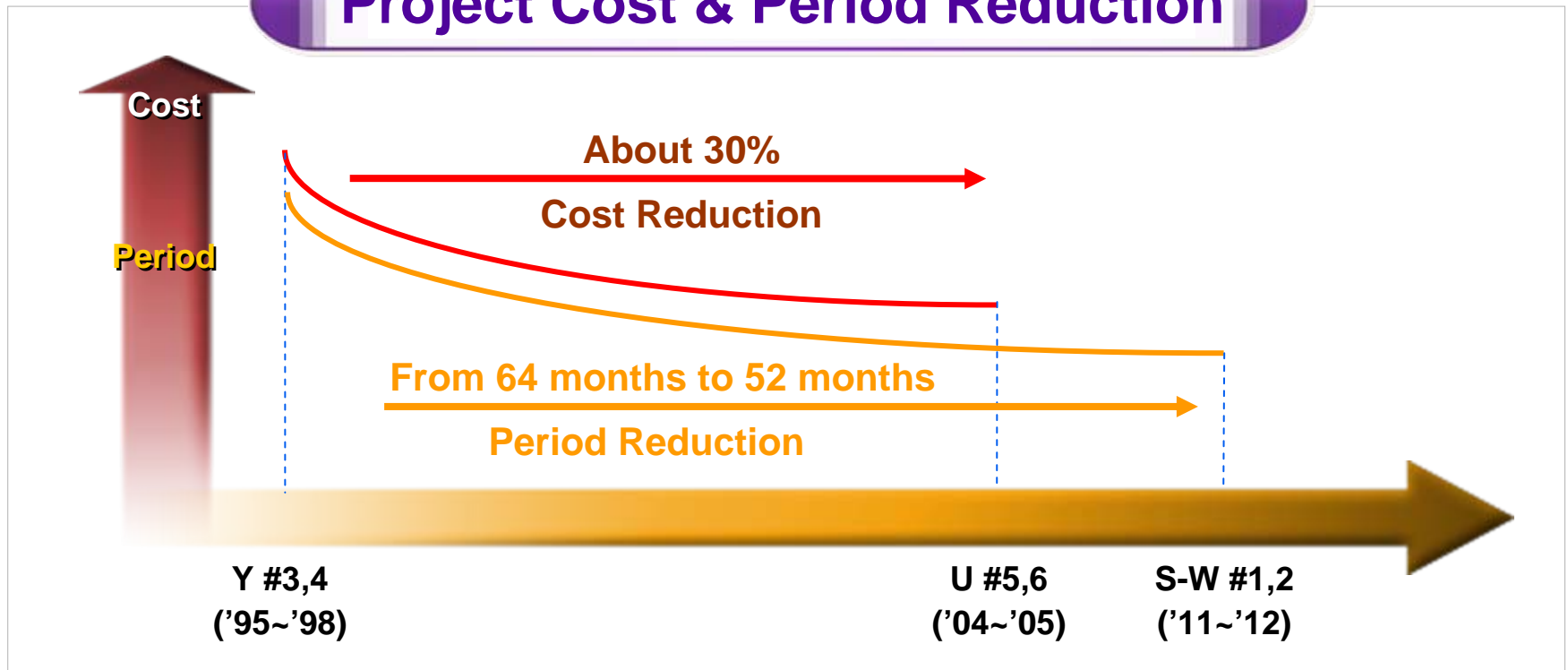




# Economic Efficiency in Construction

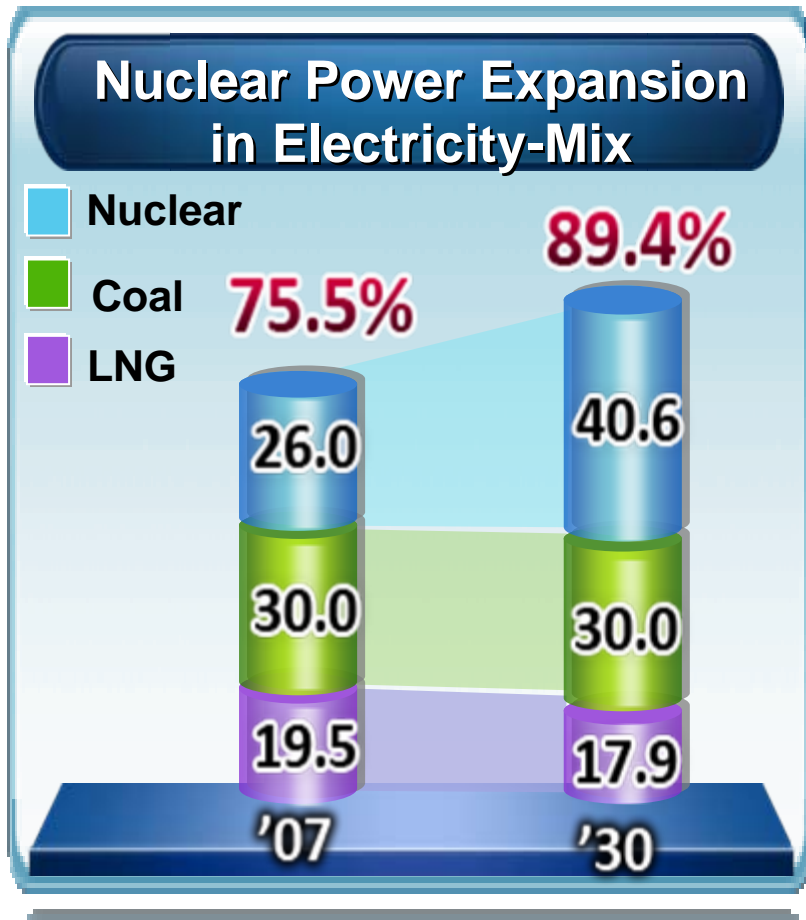


## Project Cost & Period Reduction



**Korea has completed 20 NPP projects within the planned schedule & costs.**

# Long-term Nuclear Power Projection



**Increasing the share of nuclear power generation**  
36% ('08) → 59% ('30)

Some **40** nuclear power plants will be in operation in 2030.

# Main Issues for the future



**Securing new plant sites**

**Sustainable nuclear fuel supply system**

**Promoting public acceptance**

**Furthering the nuclear technology**