

# Humaneering KEPCO E&C

We are trying to harmonize  
humanity, environment and engineering

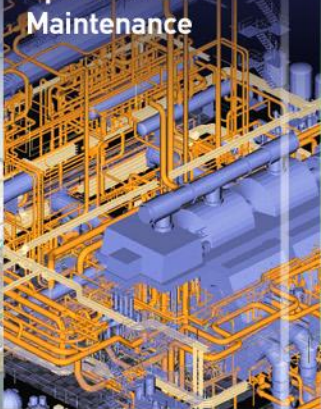
Nuclear Power



Thermal Power



Operations & Maintenance



Environment



New & Renewable Energy



Construction



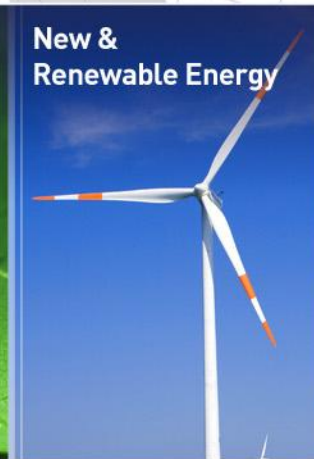
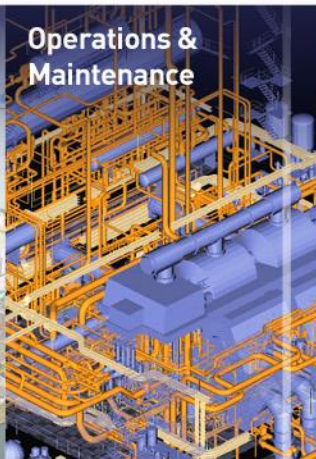
**KEPCO**  
E&C

KEPCO  
ENGINEERING & CONSTRUCTION  
COMPANY, INC.

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- 04 \_ Our Performance





## Korea's Leader in Power Plant Engineering Company

- Korea's leading provider of design and engineering for nuclear, thermal and hydro-electric plants with 35 years of experience
- Current 100% market share in nuclear power plant design in Korea
- The world's most competitive engineering company specialized in the two sectors; A/E and NSSS
- Expanding its business to energy-related business, environment-friendly business, etc.

### Corporate Information

CEO & President	An, Seung Kyoo (Former Vice Chairman, Hyundai Engineering)	Employees	1,976 (As of Aug 27, '10 )
		Business Field	Power plant design & engineering, etc.
		Location	2354 Yonggudaero, Giheung-gu, Yongin-si, Gyeonggi-do, Korea
Foundation Date	1975.10.01	Homepage	www.kepco-enc.com
Listing Date	2009.12.14		

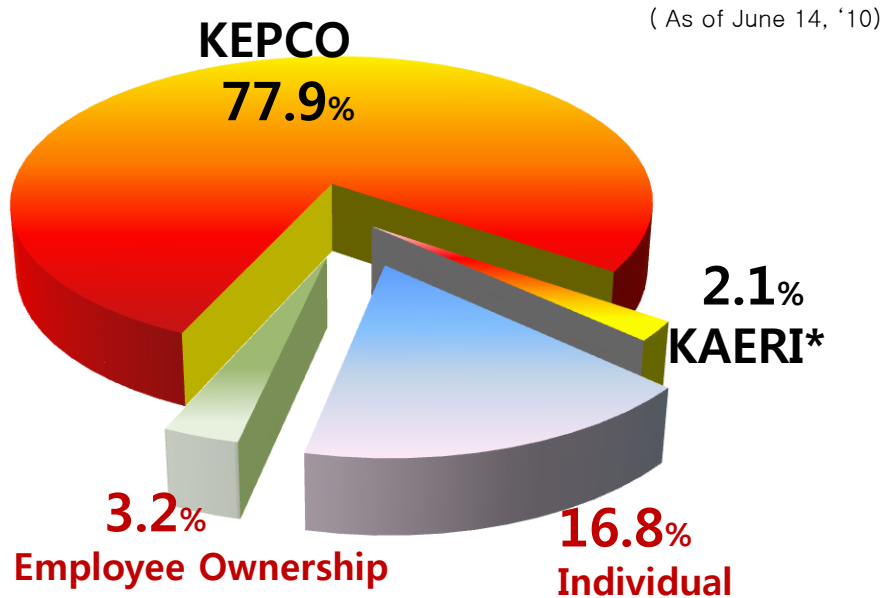


# Ownership Information



Listed on KRX [2009.12.14]

## Ownership



\*Korea Atomic Energy Research Institute

## IPO Information

Shares Outstanding (Common shares 100%)	38,220,000
Listing Date	2009.12.14
Offered Securities	7,644,000(20%)

## Dividend ('09)

Amount	₩1,081 /share
Propensity to Dividend	50%



## Business Area

### Design & Engineering

- Nuclear Power Plant
- Thermal Power Plant
- Combined Cycle Power Plant
- Cogeneration Power Plant

### O&M (Operations & Maintenance)

- Technology & Engineering Support for Operating Nuclear Power Plants

### Environmentally-friendly Biz.

- FGD System / DeNOx System
- ESCO, Renewable Energy
- Water Pollution Control
- Wastewater Treatment Facilities

### PM/CM

- SOC
- Private SOC
- Power Plants
- International Plants





Based on generated output, nearly 60% of all Korea's power plants have been designed by KEPCO E&C

### Nuclear Power Plant

#### • OPR1000

Power Plant	Construction Period (First Concrete-Commercial Operation)	Status
Yonggwang 3,4	'89.12~'95.03 / '90.06~'96.01	In Operation
Ulchin 3,4	'93.07~'98.08 / '93.11~'99.12	In Operation
Yonggwang 5,6	'97.06~'02.05 / '97.11~'02.12	In Operation
Ulchin 5,6	'99.10~'04.07 / '00.10~'05.04	In Operation

#### • OPR1000 +

Shin-Kori 1,2	'06.06~'10.12 / '07.06~'11.12	Under Construction
Shin-Wolsong 1,2	'07.12~'12.03 / '08.12~'13.01	Under Construction

#### • APR1400

Shin-Kori 3,4	'08.10~'13.09 / '09.10~'14.09	Under Construction
Shin-Ulchin 1,2	'11.03~'15.12 / '12.03~'16.12	Under Construction
UAE 1,2	'12.11~'17.05 / '13.11~'18.05	Under Construction
UAE 3,4	'14.11~'19.05 / '15.11~'20.05	Under Construction

#### • CANDU(PHWR)

Wolsung 1,2,3,4	'77.10~'99.10	In Operation
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■ In Operation

■ Under Construction

### Thermal Power Plant

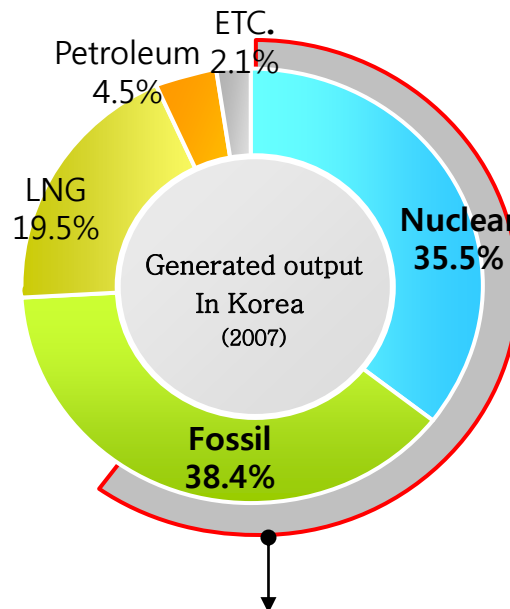
#### • Standard Coal Fired Power Plants

- 500MW : 34 Units ■
- 800MW : 4 Units ■
- 1000MW : 2 Units ■ (Dangjin #9,10)

#### • Large Scale CFB Coal Fired Power Plants

- 200MW : 2 Units ■
- 340MW : 1 Units ■ (Yosu #2)
- 1000MW : 2 Units ■ (Samchok Green #1,2)

#### • Cogeneration Power Plant, Combined Cycle Power Plant Design

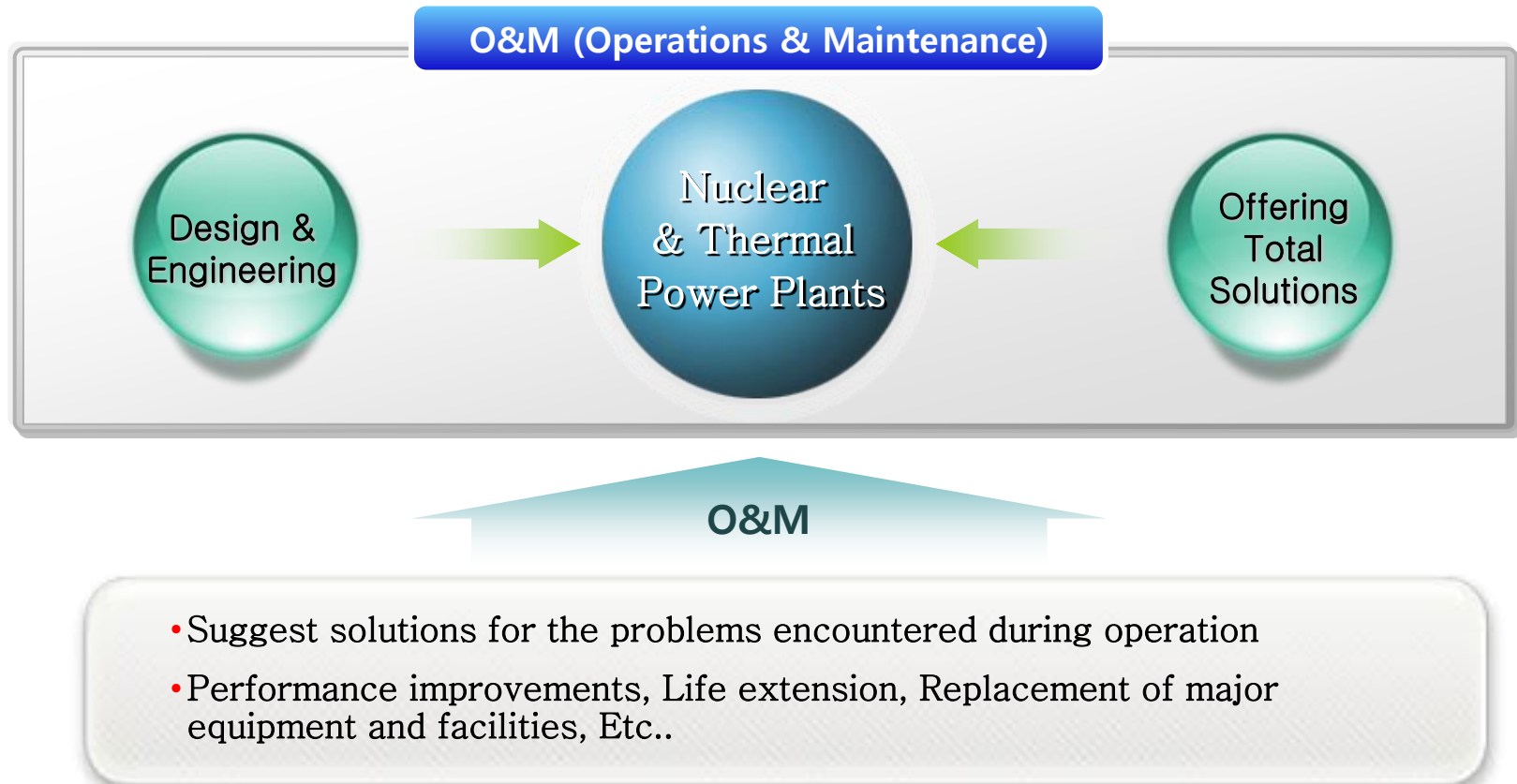


60% Designed by  
KEPCO E&C

[From : The ministry of Knowledge Economy]

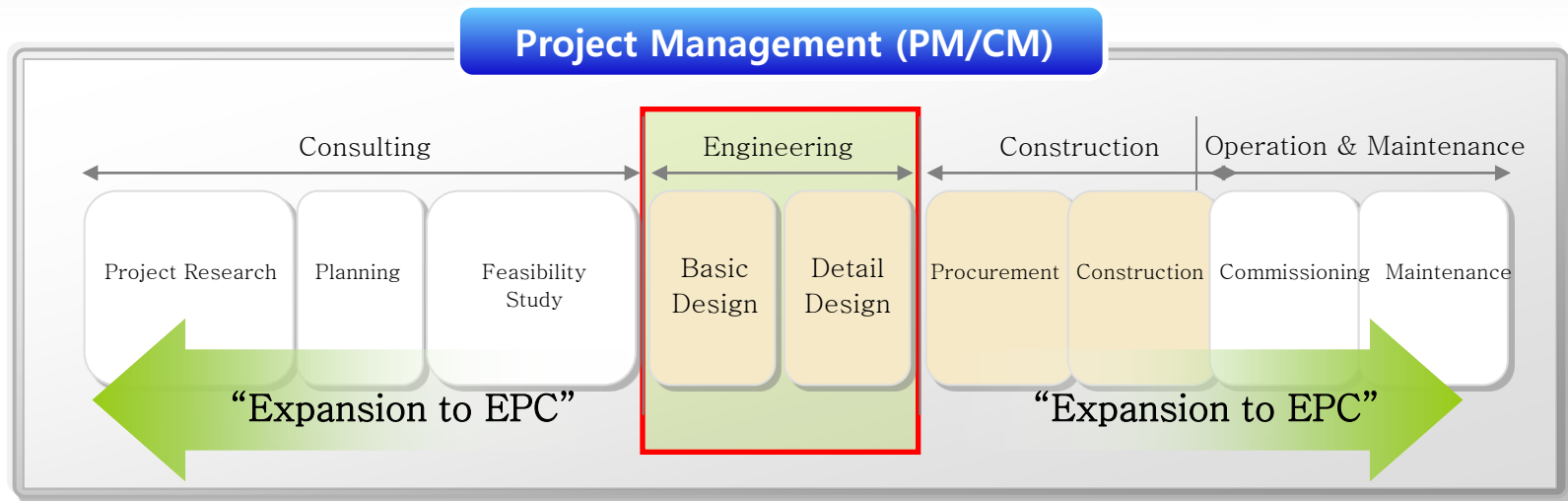


Contribution to the improvement of the operating power plants' operability, efficiency, and safety






Management of entire or parts of a construction project  
(Consulting, Engineering, Construction, O&M , etc )



## • Involved Projects

SOC		POWER PLANTS		PRIVATE SOC	
					
KTX Project	Incheon Int'l Airport	Nuclear	Thermal	Incheon Int'l Airport Rail	Bridge of Busan-Gejei

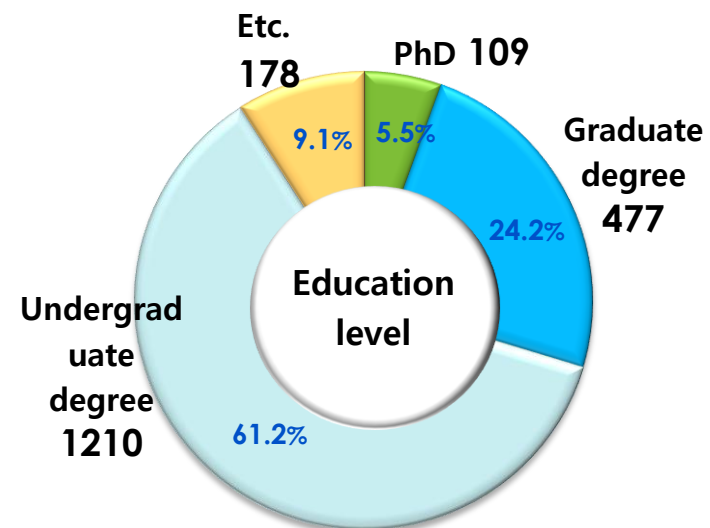
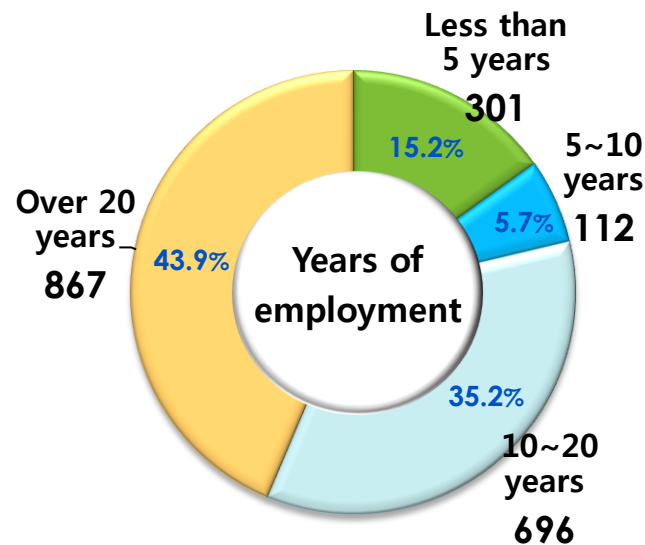


## Manpower with years of accumulated experience and expertise in the field of plant design and technological development

### Experienced Workforce

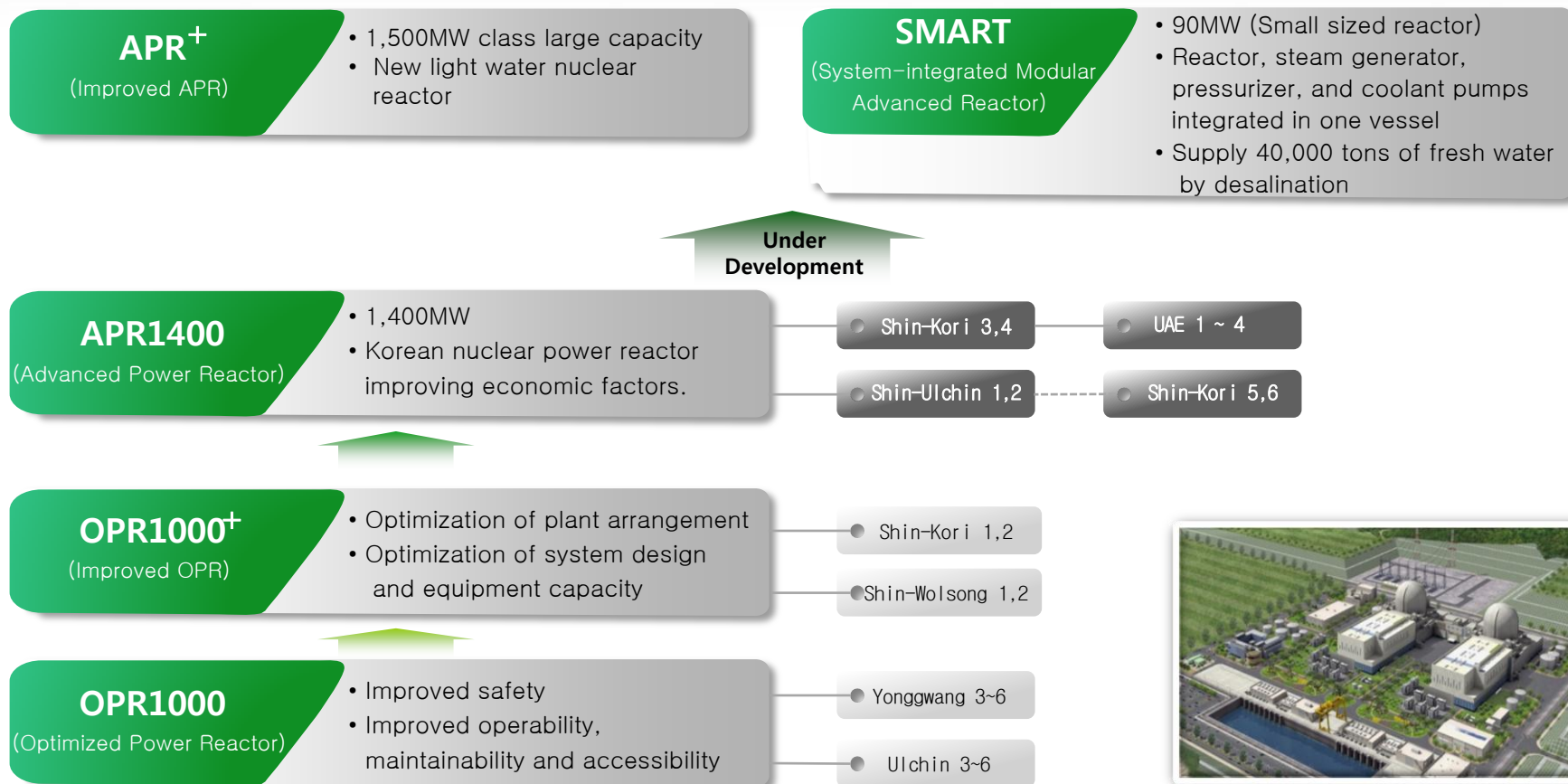
- 43.9% of the company's employees have performed the various project for over 20 years.
- During the lack of nuclear construction activity in the western, we have gained extensive experience and technical know-how through the past 20 nuclear power plant constructions.

\* Total employees 1,976 ('10.8.27.)





## Reactor Design Development



Shin-Ulchin 1,2



## APR1400 - The best safety, economic efficiency and operability

### OPR1000

Capacity (MWe)	1,000
Design Life Time	40 Years
Seismic Design Basis	0.2g
Refueling Interval	12~18 Months
Construction Period	Over 60 Month
Construction cost	—

### APR1400

Capacity(MWe)	1,400
Design Life Time	60 Years
Seismic Design Basis	0.3g
Refueling Interval	18 Months
Construction Period	54 Months
Construction cost (\$/Kw)	2,300

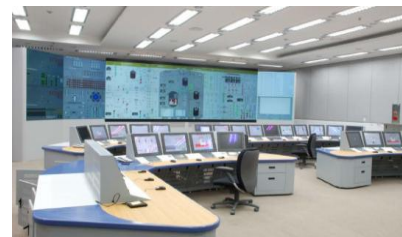
### EPR (France-Areva)

Capacity(MWe)	1,600~1700
Design Life Time	60 Years
Seismic Design Basis	0.25g
Refueling Interval	18 Months
Construction Period	57 Months
Construction cost (\$/Kw)	2,900



OPR 1000

[Digital MMIS]

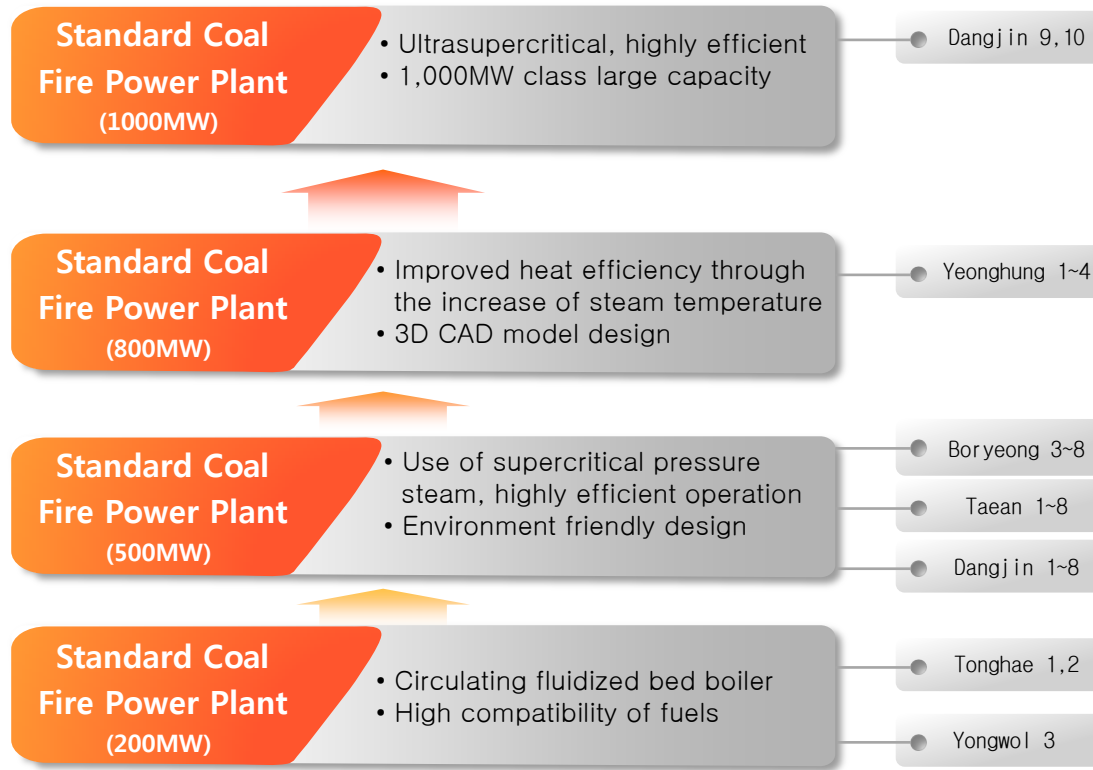


APR 1400

<From : [www.apr1400.co.kr](http://www.apr1400.co.kr) : Comparison with other reactors>



## Fossil Power Plant Design Development



- **Dangjin #1~4- World Best Project Awarded**  
<US, Power Engineering, 2001>



- **Boryeong #3,4 – World Best Project Awarded**  
<US, Electric Power International, 1996>

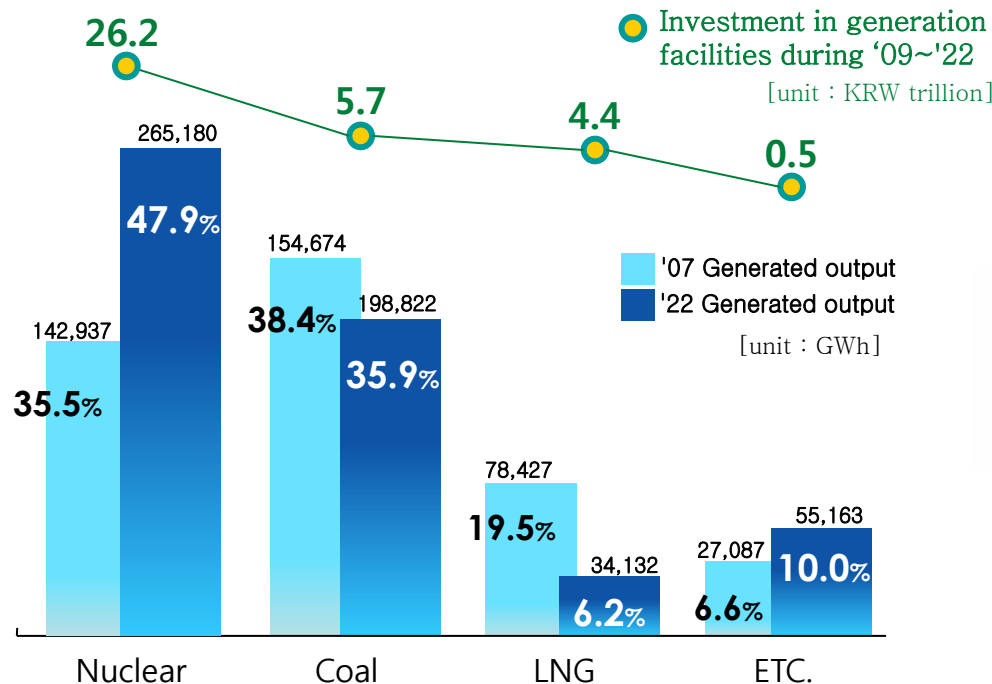




## Korea Government's Focus on Nuclear Energy

### The 4<sup>th</sup> Basic Plan of Long-term Electricity Supply

#### Outlook of Generated output & Investment Cost



[From : The ministry of Knowledge Economy]

#### Plan for the completion of nuclear power plant construction ('13 ~ '22)





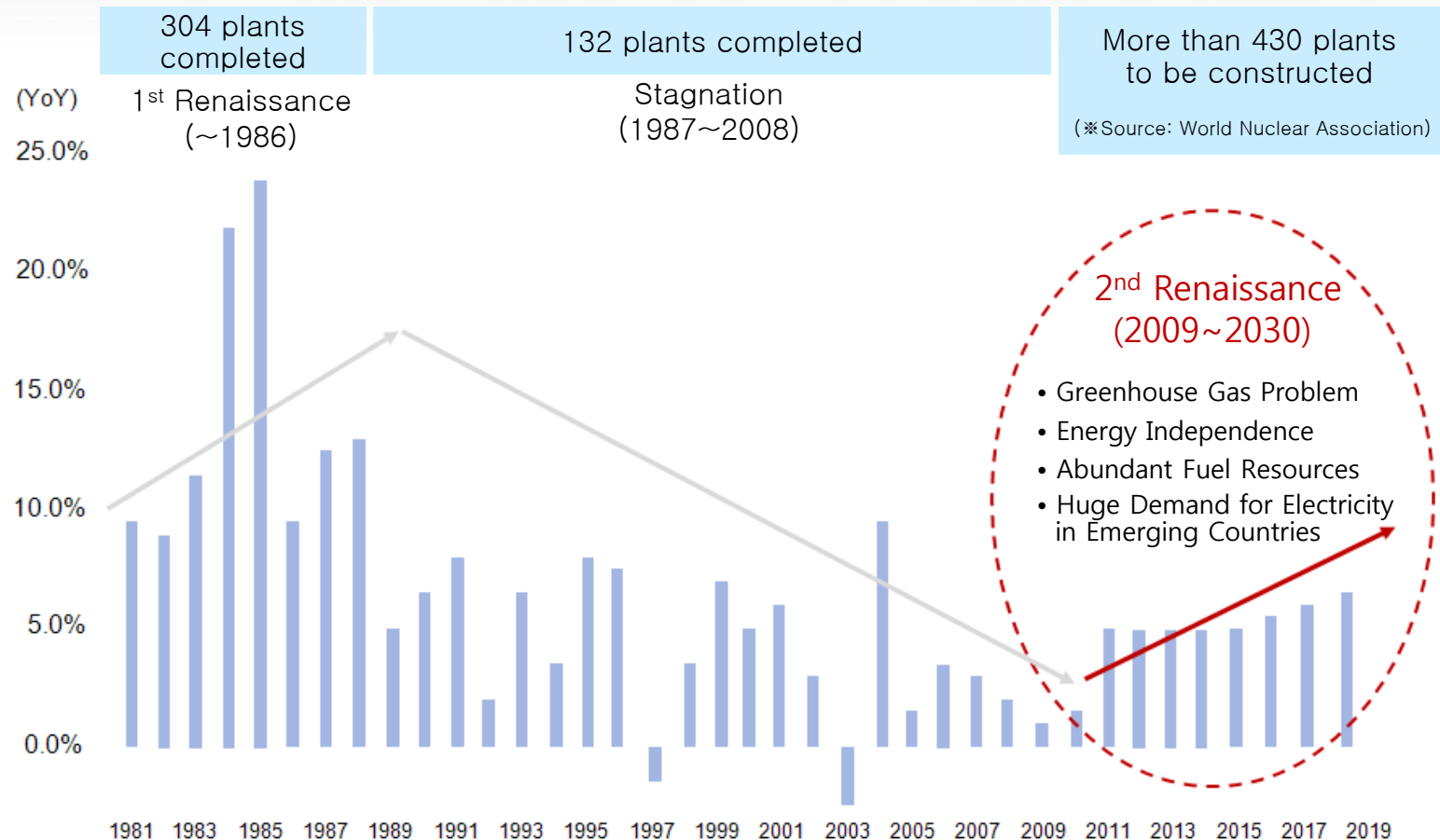
The O&M market is growing  
due to the deterioration of the operating nuclear power plants

### Domestic Operating Nuclear Power Plants (20 units)

Plant		Capacity (MW)	Commercial Date	NSSS Supplier	Plant A/E	Model
Kori	#1	587	78.04.29	WEC	Gilbert	
	#2	650	83.07.25	WEC	Gilbert	
	#3	950	85.09.30	WEC	Bechtel/KEPCO E&C	
	#4	950	85.04.29	WEC	Bechtel/KEPCO E&C	
Wolsung	#1	679	83.04.22	AECL	AECL	
	#2	700	98.07.01	AECL/DOOSAN	AECL/KEPCO E&C	
	#3	700	98.07.01	AECL/DOOSAN	AECL/KEPCO E&C	
	#4	700	99.10.01	AECL/DOOSAN	AECL/KEPCO E&C	
Yonggwang	#1	950	86.08.25	WEC	Bechtel/KEPCO E&C	
	#2	950	87.06.10	WEC	Bechtel/KEPCO E&C	
	#3	1,000	95.03.31	DOOSAN	KEPCO E&C	OPR1000
	#4	1,000	96.01.01	DOOSAN	KEPCO E&C	OPR1000
	#5	1,000	02.05.21	DOOSAN	KEPCO E&C	OPR1000
	#6	1,000	02.12.24	DOOSAN	KEPCO E&C	OPR1000
Ulchin	#1	950	89.09.10	Framatome	Framatome	
	#2	950	88.09.30	Framatome	Framatome	
	#3	1,000	98.08.11	DOOSAN	KEPCO E&C	OPR1000
	#4	1,000	99.12.31	DOOSAN	KEPCO E&C	OPR1000
	#5	1,000	04.07.29	DOOSAN	KEPCO E&C	OPR1000
	#6	1,000	05.04.22	DOOSAN	KEPCO E&C	OPR1000



## Beginning of a 2nd Renaissance in the nuclear industry

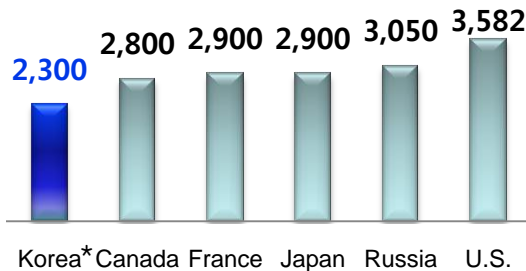




## Why APR1400?

### The World's Most Economical and Safest Reactor

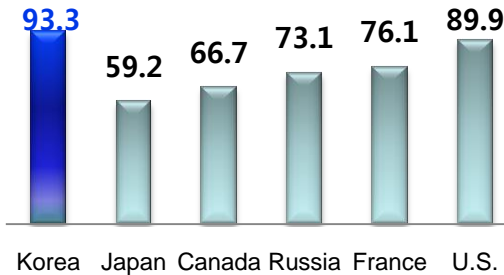
Cost of Building Nuclear Power Plant (\$/Kw)



\*APR1400

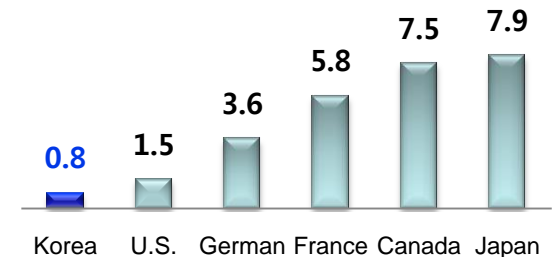
※World Nuclear News  
(World Nuclear Association, 2008)

Using Rate of Nuclear Power Plant (%)



※Nucleonics Week, March 2009

Unplanned Capacity Loss Factor (%)



※IAEA Power Reactor Information System,  
March 2009



# Financial Overview

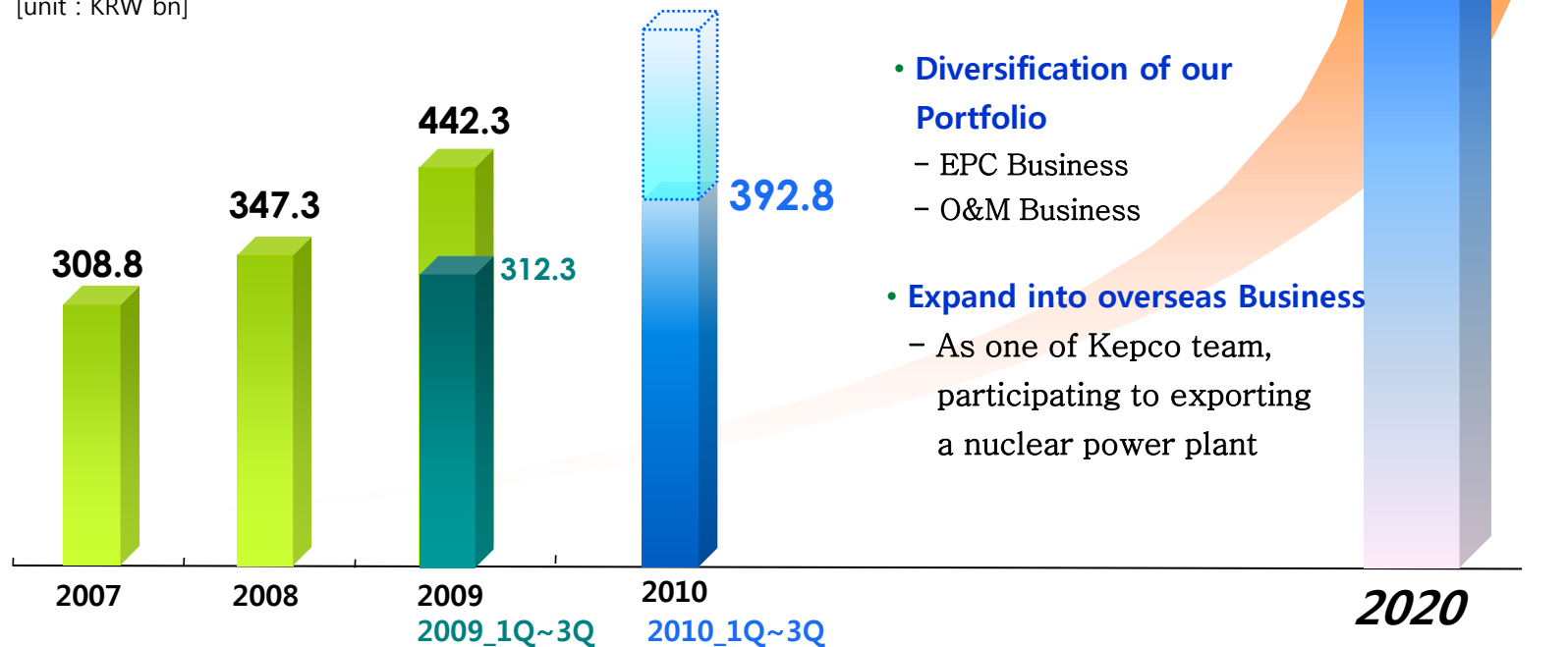


**kRW 392.8bn** for the 2010 revenue(1Q~3Q)  
,25.4% increase from the same period of the prior year

## Revenue

**Global Top 5 Power EPC Leader**

[unit : KRW bn]



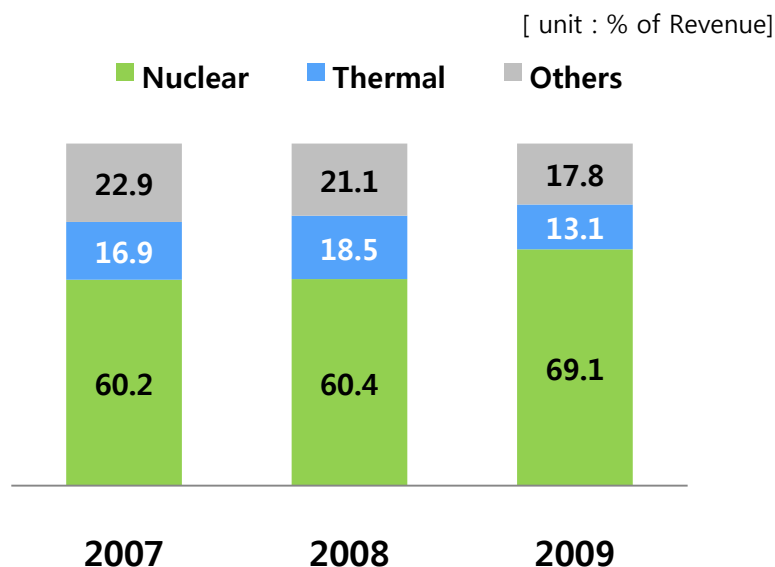
# Financial Overview

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## Revenue Breakdown



## Revenue Analysis

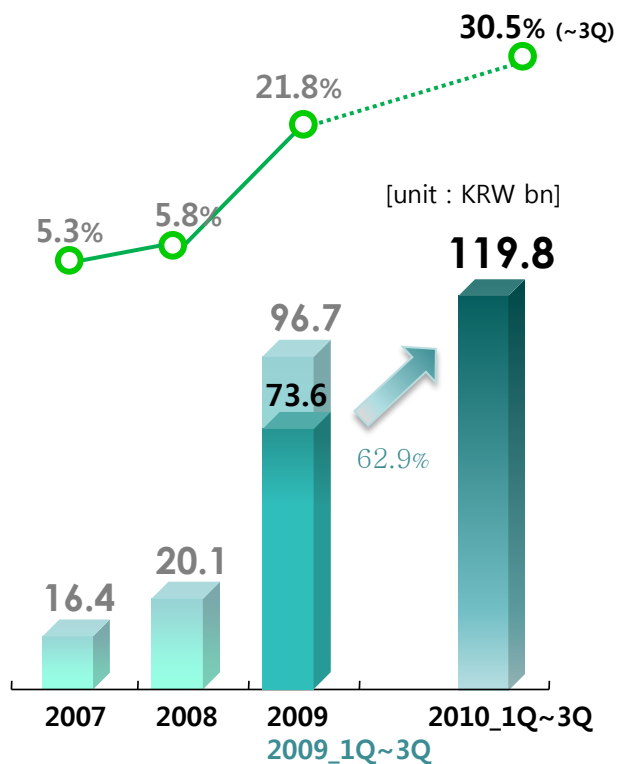
- Revenue increased mainly for the rising in the revenue of nuclear power plant design business and the initiation of UAE project
- The increase in revenue leaded to the rapid growth of the operating income
  - Stable operating expenses  
(the government control to raise the wage, the efforts to cut down the operating expenses)

# Financial Overview

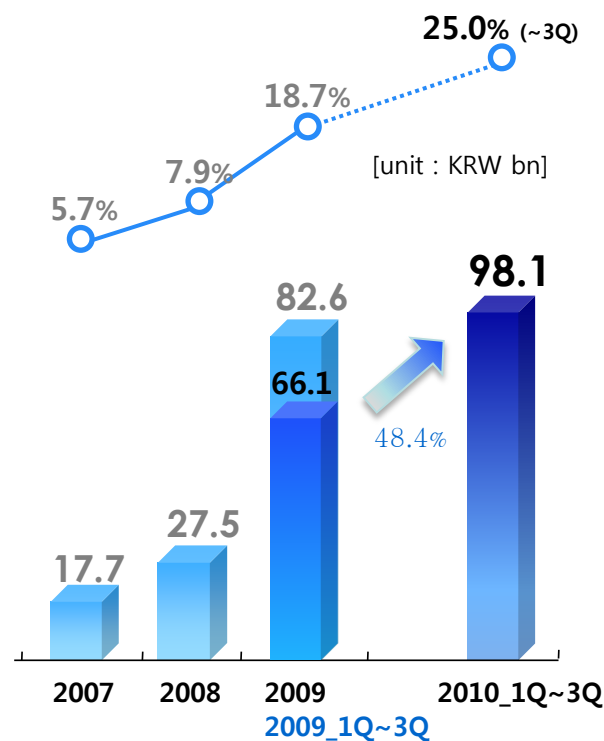
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## Operating income / margin



## Net income / margin



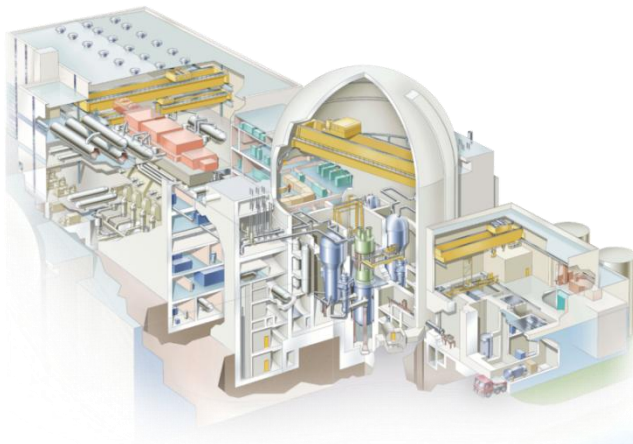
## 2010 3Q OVERVIEW

[unit : KRW bn]

	2010 3Q	2010 2Q	2009 3Q
Revenue	120.4	141.3	100.4
Operating Income	35.4	35.0	19.3
Net Income	29.1	28.0	19.0



# Vision 2020 – Global TOP 5 Power EPC Leader



200MW CFBC Power Plant Cutaway



Site plan key  
A. Boiler Building  
B. Turbine Building  
C. Control Building  
D. Auxiliary Water Building  
E. Electrostatic Precipitator  
F. Stack  
G. ID Fan  
H. Transformer



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