

KEPCO E&C

Global Power EPC Company



Nuclear Power



Thermal Power



Operations &
Maintenance



Environment



New &
Renewable Energy



Construction

CONTENTS

- 1 _ Company Information
- 2 _ Business Area
 - 2-1. Nuclear Power
 - 2-2. Thermal Power
 - 2-3. O&M/Environment/PM•CM
- 3 _ Our Performance



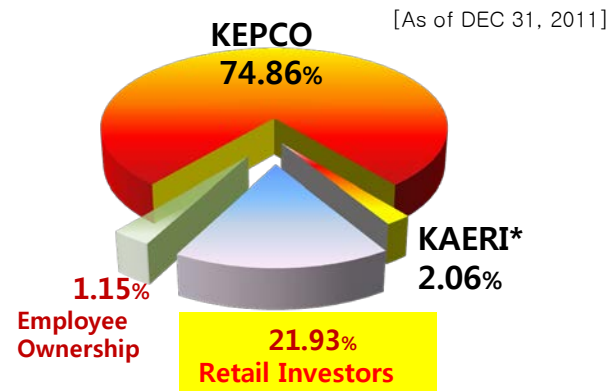
Korea's Leading Power Plant Engineering Company

- 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 Thermal EPC, energy-related business, environment-friendly business, etc.

Corporate Information

CEO & President	An, Seung Kyoo (Former Vice Chairman, Hyundai Engineering)
Foundation Date	October 1, 1975
Employees	2,252 (As of FEB 1, 2012)
Business Area	Power plant design & engineering, etc.

Ownership



IPO Information

Shares Outstanding (Common shares 100%)	38,220,000
Listing Date	December 14, 2009
Offered Securities	7,644,000

Year	2009	2010	2011
Propensity to Dividend	50%	50%	70%

* KAERI - Korea Atomic Energy Research Institute



Business Areas

• Design & Engineering

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

• Environmentally-friendly Biz.

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



• O&M (Operations & Maintenance)

- Technology & Engineering Support for Operating Power Plants

• PM/CM

- SOC
- Private SOC
- Power Plants
- International Plants

Business Area – Design & Engineering

All of the local nuclear power plants have been independently designed by KEPCO E&C since 1993, Ulchin Unit 3.

Nuclear Power Plant

Services performed

- Site selection and feasibility survey
- Engineering and design
- Construction/Project management, licensing support, quality assurance and inspection
- Support for purchasing, owner support, education/training



Major Project Experience

• Projects in Progress

Reactor	Project	Project Period	Client
APR 1400	UAE #1,2,3,4	Jan '10 ~ May '20	KEPCO
	Shin-Ulchin #1,2	Dec '07 ~ Dec '16	KHNP
	Shin-Kori #3,4	Aug '06 ~ Sep '14	KHNP
OPR 1000+	Shin-Wolsung #1,2	Aug '02 ~ Jan '13	KHNP
	Shin-Kori #1,2	Aug '02 ~ Jun '12	KHNP
	APR1400 US NRC DC design/licensing support	Mar '11 ~ Dec '12	KEPCO
	APR+ design Development – stage 2	Aug '10 ~ Dec '12	KHNP

• Projects Completed

Reactor	Project	First Power	Design
OPR 1000	Ulchin #5,6	2004 / 2005	KEPCOE&C
	Yonggwang #5,6	2002 / 2002	KEPCOE&C
	Ulchin #3,4	1998 / 1999	KEPCOE&C
	Yonggwang #3,4	1995 / 1996	KEPCOE&C-WEC
CANDU PHWR	Wolsung #3,4	1998 / 1999	AECL-KEPCOE&C
	Wolsung #2	1997	AECL-KEPCOE&C
	Wolsung #1	1983	AECL-CANATOM

*KHNP – Korea Hydro & Nuclear Power co. LTD. (the sole nuclear plant operator in Korea)

*WEC – WestingHouse Electric.

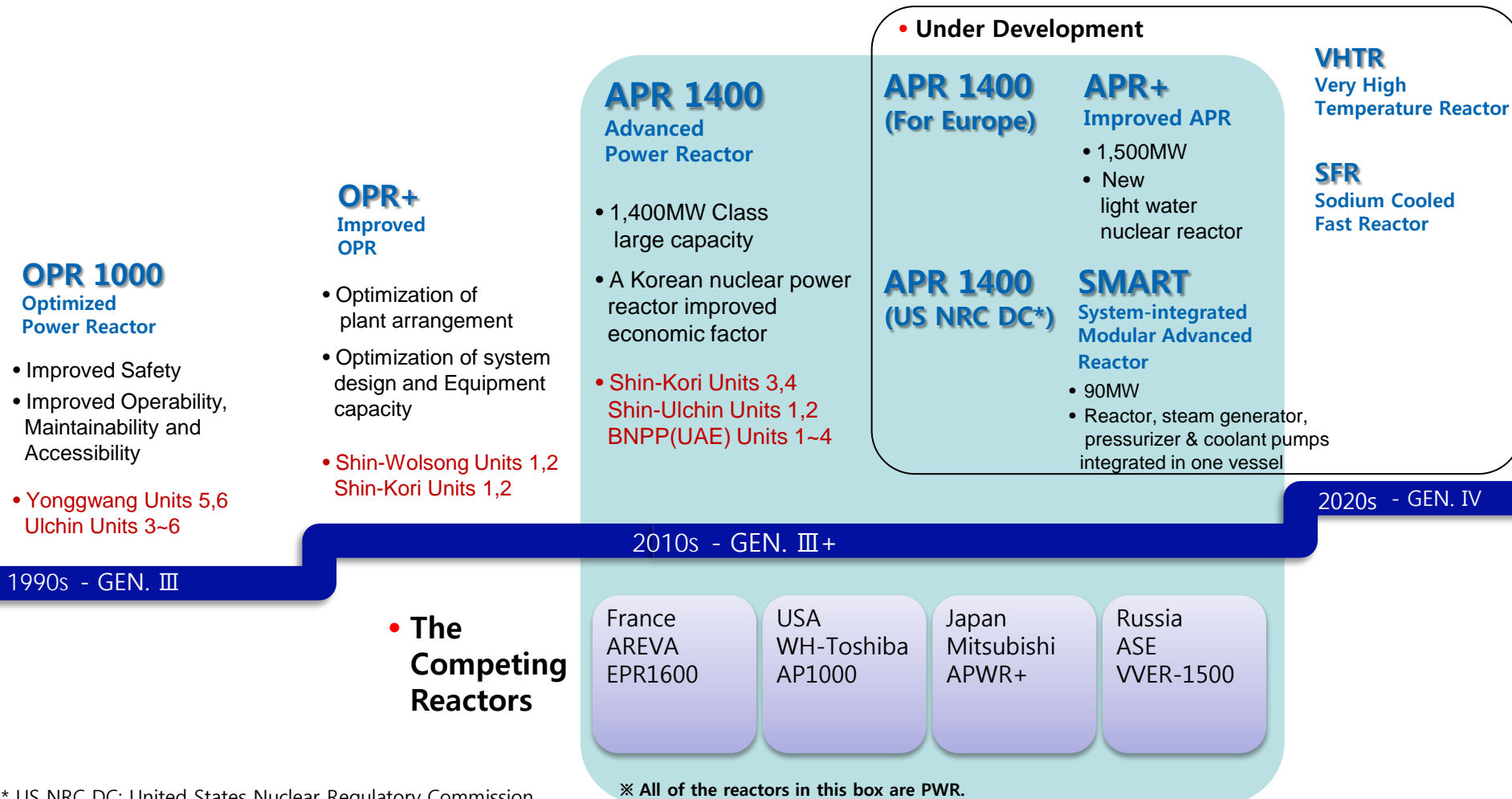
*AECL – Atomic Energy of Canada Limited

*CANDU PHWR – CANada Deuterium Uranium Pressurised heavy Water Reactor

Technology – Nuclear Power Plant



Korean Nuclear Power Plant Design Development



* US NRC DC: United States Nuclear Regulatory Commission Design Certification

Strength of Korean Nuclear Power Plants

APR1400 - The best reliability, economic efficiency and operability



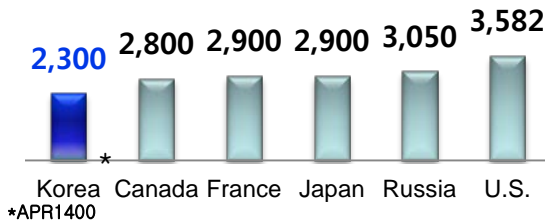
APR 1400 in Detail

<Source : www.apr1400.co.kr ; Comparison with other reactors>

	OPR 1000	APR 1400	EPR 1600
Capacity (MWe)	1000	1,400	1,600~1700
Design Life Time	40	60	60
Seismic Design Basis	0.2g	0.3g	0.25g
Refueling Interval (month)	12~18	18	18
Construction Period (month)	Over 60	54	57
Construction cost (\$/Kw)	-	2,300	2,900

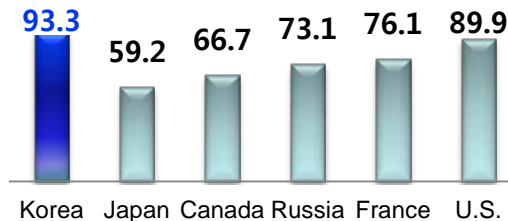
• The World's Most Economical and the Safest Reactor

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



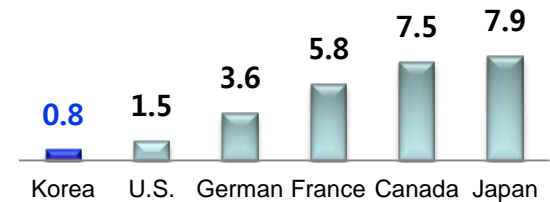
※ World Nuclear News (World Nuclear Association, 2008)

Using Rate of Nuclear Power Plant (%)



※ Nucleonics Week, March 2009

Unplanned Capacity Loss Factor (%)



※ IAEA Power Reactor Information System, March 2009

• Exporting technology to the world (Below is recent overseas projects)

- Consulting services for site selection & evaluation for new NPP in Malaysia (Client : TNB)
- ITER Electrical Installation Support (Client : ITER)
- AP1000 COL Demonstration & Design Finalization (Client : WEC)
- Technical Support for Bechtel (Client : Bechtel)

Domestic Market Opportunities

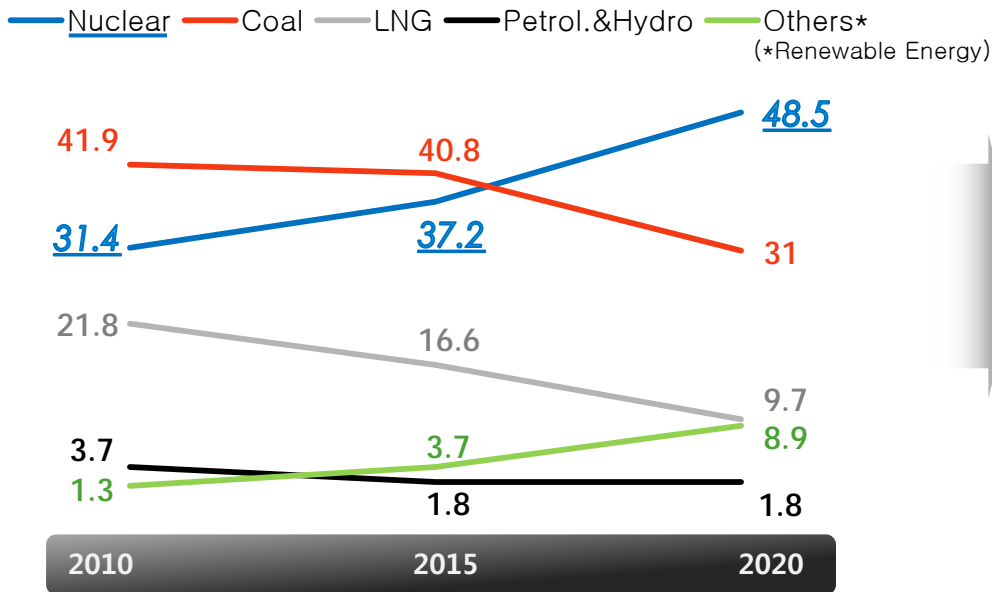


Korean Government's Focus on Nuclear Energy

Long-term Electricity Supply in Korea

• Outlook of Generated Output

(Unit : % of total electricity supply in Korea)



• Timeline for Completion of nuclear power plant construction (~'13 ~'24)



[Source: The Ministry of Knowledge Economy, "The 5th Basic Plan of Long-term Electricity Supply" , 2010.12.28]

Business Area – Design & Engineering

Experiences of Coal fired/ CFBC Coal fired/ Combined Cycle/ Cogeneration Design

Thermal Power Plant

Services performed

- Feasibility studies, environmental impact assessments, site survey
- Design standardization, basic and detail design of construction work
- Support for the purchase of equipment and materials
- Project management, supervision, test operation
- Quality assurance and control support
- Preparation, review and approval of documentation

Major Project Experience

• Projects in Progress

Capacity (MW)	Project	Project Period	Client
1000x2	Taeon #9,10	Jun '11 ~ Mar '17	Korea Western Power
150 x3	Turkey Turfanbeyli (Including Procurement)	Apr '11 ~ Feb '15	SK E&C
1000x2	Shin-Boryeong #1,2	Jan '11 ~ Sep '17	Korea Midland Power
350 x2	Morocco Jorf Lasfar	Jun '10 ~ Apr '14	Daewoo E&C
1000x2	Dangjin #9,10	Oct '07 ~ Sep '16	Korea East-West Power
1000x2	Samchok #1,2	Sep '09 ~ Mar '16	Korea Southern Power
300	Taeon *IGCC Pilot Plant	Apr '11 ~ Jul '16	Korea Western Power
500x2	POSCO CCPP #5,6	Apr '08 ~ Sep '11	POSCO E&C

• Projects Completed

■ Coal Fired Power Plant

- 500MW 34 Units
- 800MW 4 Units

■ Large Scale *CFB Coal Fired Power Plant

- 200MW 2 Units
- 340MW 1 Unit

■ Combined Cycle /Cogeneration

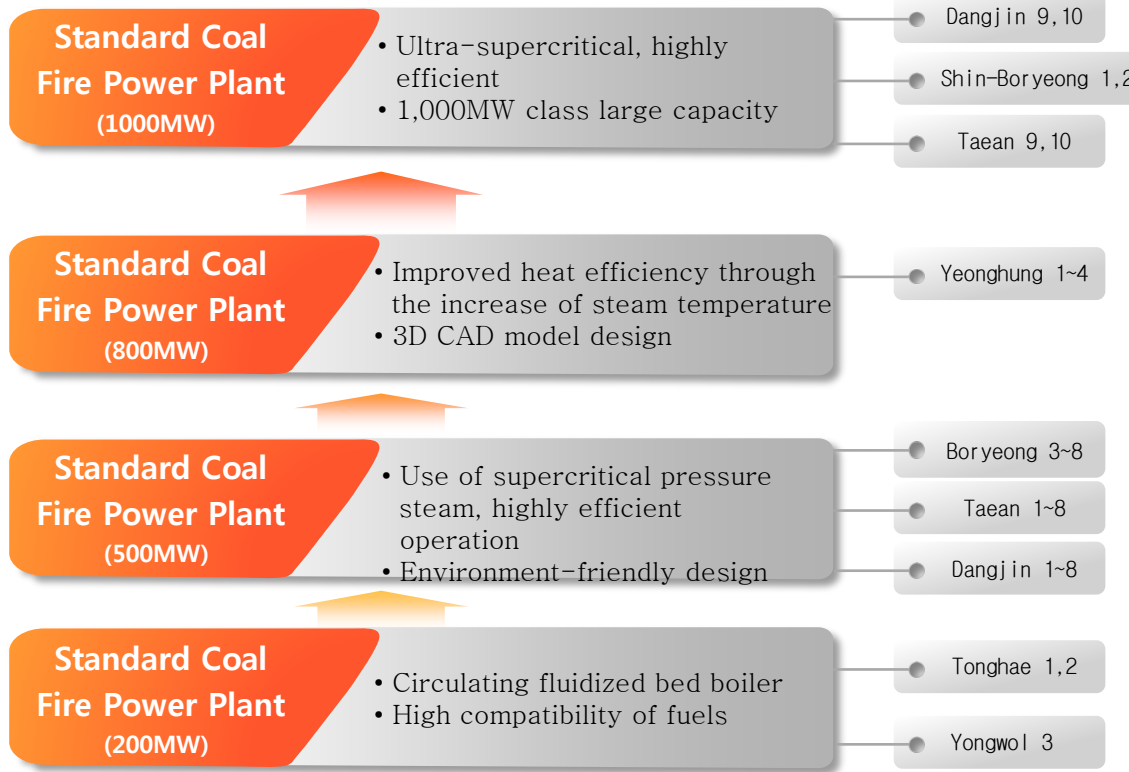
- 26 Units

* IGCC - Integrated Gasification Combined Cycle
(Producing electricity by burning coal gas regarded as clean as natural gas)

* CFB - Circulating Fluidized Bed Combustion Boiler

Technology – Thermal Power Plant

Coal-Fired Power Plant Design Development



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

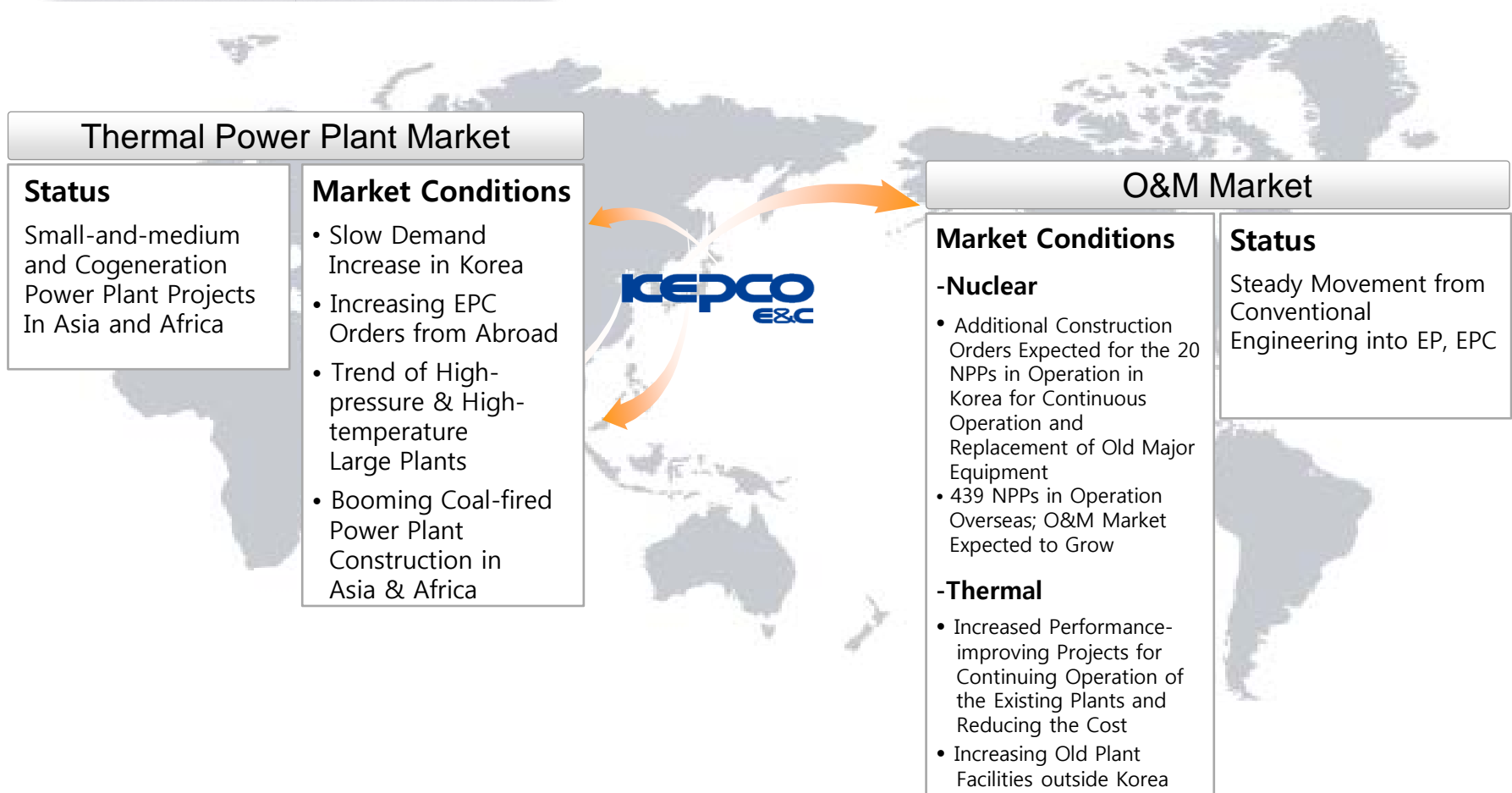


• **Boryeong #3,4 – World Best Project Awarded**
 <US, Electric Power International, 1996>

EPC Business Expansion

Developing Overseas EPC Projects toward Global Top 5 Power EPC Leader

EPC Strategy



Business Area – O&M

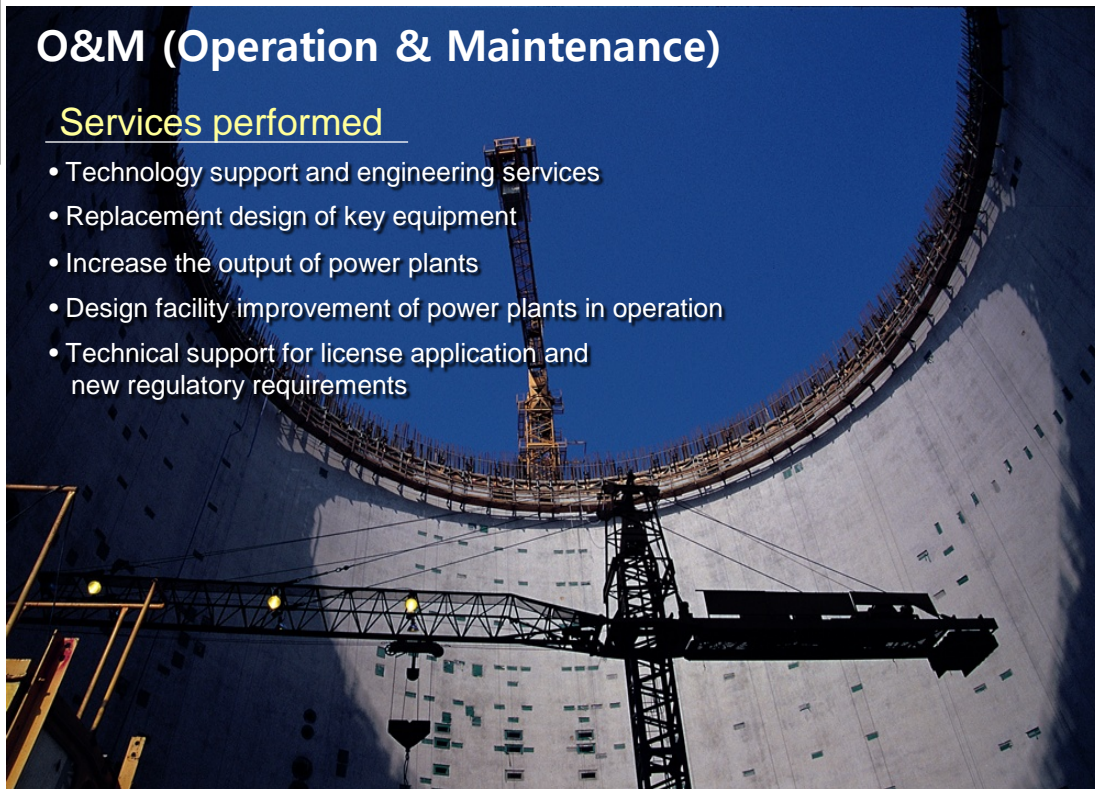


Contribution to the Improvement of the Operating Power Plants' Operability, Efficiency and Safety

O&M (Operation & Maintenance)

Services performed

- Technology support and engineering services
- Replacement design of key equipment
- Increase the output of power plants
- Design facility improvement of power plants in operation
- Technical support for license application and new regulatory requirements



Major Project Experience

• Recent Projects

- Technical support for license application to replace the steam generator for Unchin #1,2
- Technical consulting for license application to increase the output for Ulchin #1,2
- Improvement of facilities at Yeosu #2
- the other 118 small projects are in progress

Business Area – O&M



The O&M market is growing due to the old operating nuclear power plants.

- Domestic Operating Nuclear Power Plants (21 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
Shin-Kori	#1	1,000	11.02.28	DOOSAN	KEPCO E&C	OPR1000+

Business Area – Environmentally-friendly Biz.

• Environmental Business

Advanced air pollution prevention facilities

- Flue gas desulfurization system
- Flue gas denitrification(DeNOx) system



Site selection and environmental assessment



Water quality pollution prevention facilities

- Wastewater treatment facilities
- Sewage, manure, and livestock wastewater treatment facilities



Greenhouse gas reduction systems

- Development of technologies for capturing carbon dioxide
- CDM(Clean Development Mechanism) projects



• New and Renewable Energy

ESCO(Energy Service Company)

- ◆ Improvement of output of power plants
- ◆ Installation of energy-saving facilities
- ◆ Improvement of productivity of manufacturing industries

11 Projects

ESCO projects performed by KEPCO E&C

117,369 TOE

Annual energy saving by ESCO projects

321,899 t

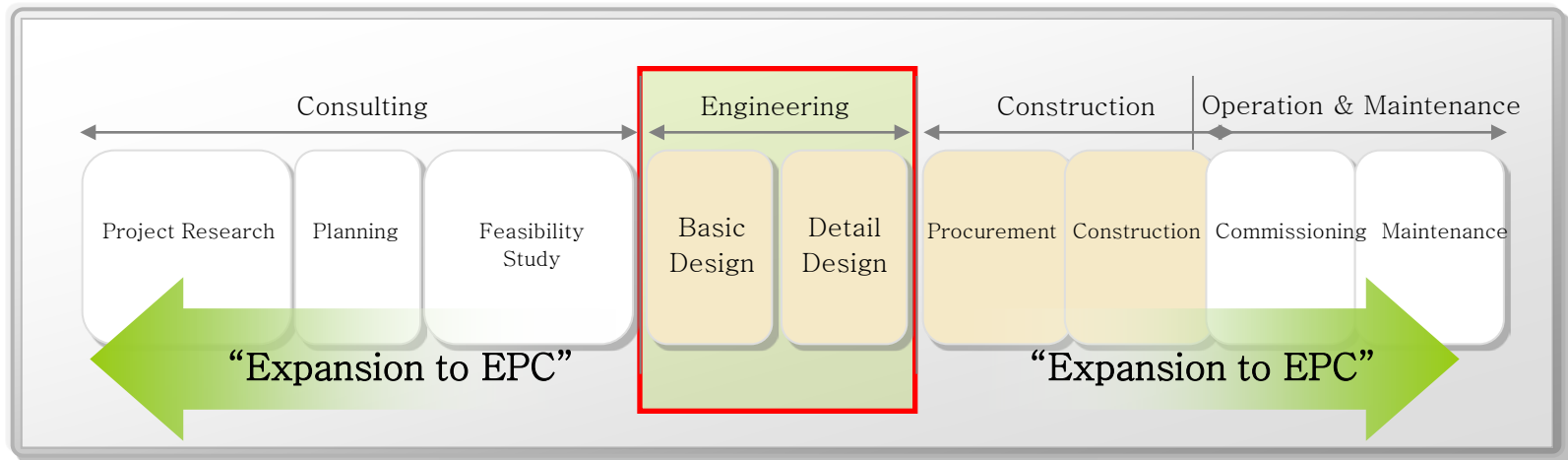
Annual CO₂ reduction by ESCO projects

63,165,560 US\$

Annual energy saving value by ESCO projects

Business Area – PM/CM

Management of the Entire or Parts of a Construction Project (Consulting, Engineering, Construction, O&M , etc.)



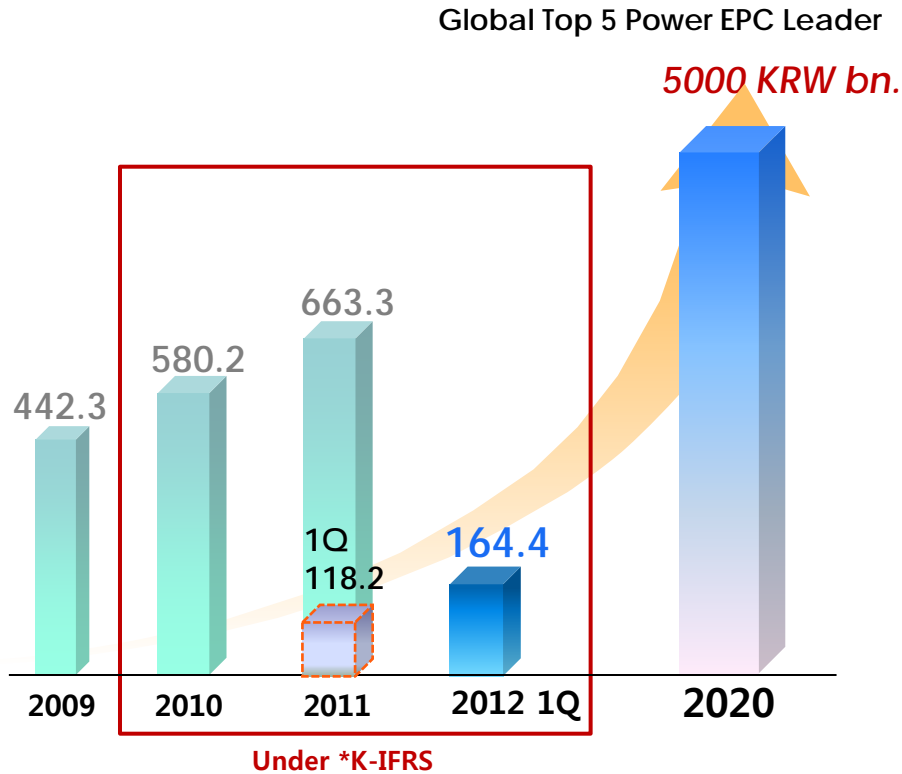
• Involved Projects

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

2012 1Q Revenue

• Revenue

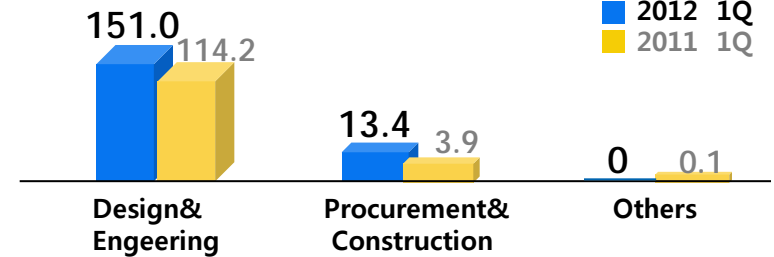
[Unit: KRW bn.]



• Revenue Breakdown

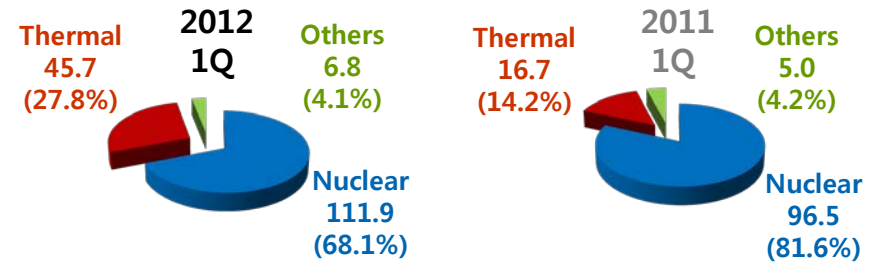
■ By Business Area

[Unit: KRW bn.]



■ By Division

[Unit: KRW bn.]



■ By Region

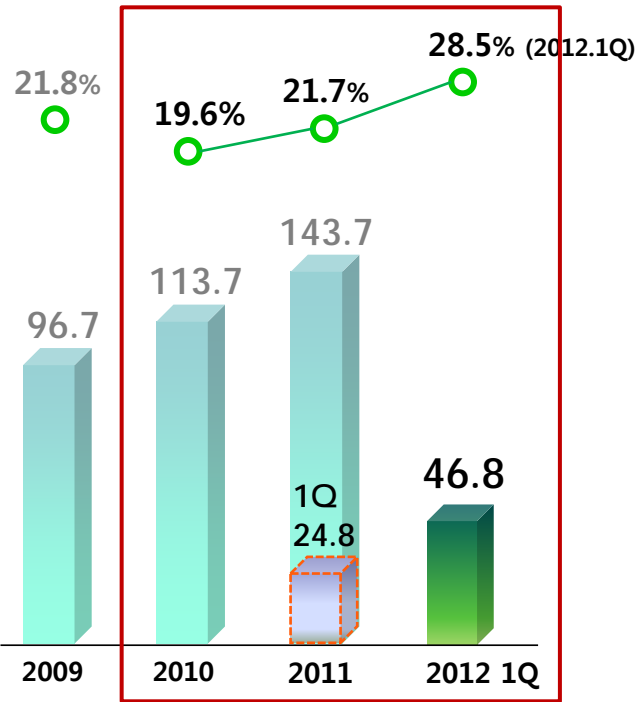
overseas 32.3% (53.2 KRW bn.)

* KEPCO E&C has adopted K-IFRS(Korean International Financial Reporting Standards) from FY `11 in line with the national policy. (FY `10 financial statements is also converted to "K-IFRS" for comparison with FY `11.

2012 1Q Financial Highlights

• Operating Income /Margin

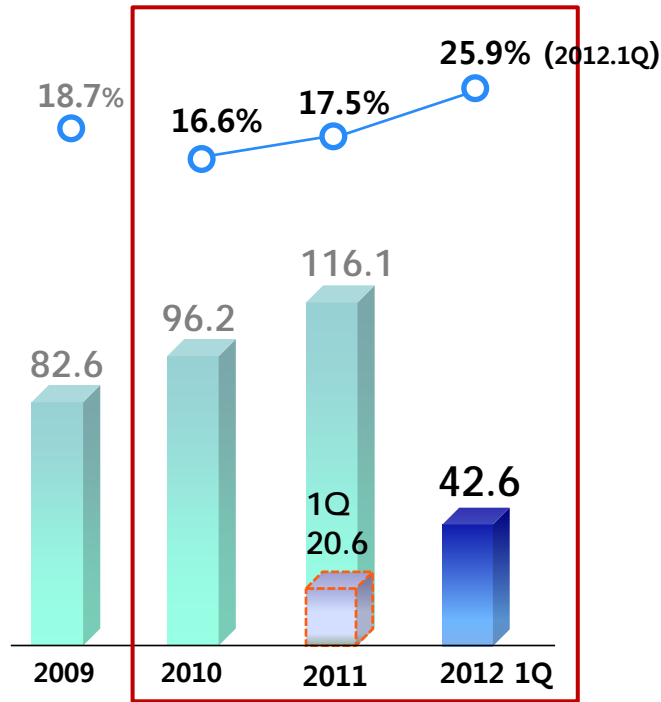
[Unit : KRW bn.]



Under *K-IFRS

• Net Income /Margin

[Unit : KRW bn.]



Under *K-IFRS

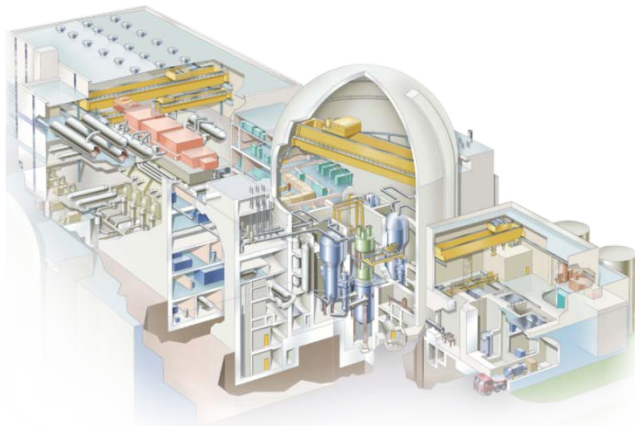
• 2012 1Q Overview

[Unit : KRW bn.]

	2012 1Q	2011 4Q	2011 1Q
Revenue	164.4	202.8	118.2
Operating Income	46.8	25.4	24.8
Net Income	42.6	25.6	20.6

* KEPCO E&C has adopted K-IFRS(Korean International Financial Reporting Standards) from FY `11 in line with the national policy. (FY `10 financial statements is also converted to "K-IFRS" for comparison with FY `11.

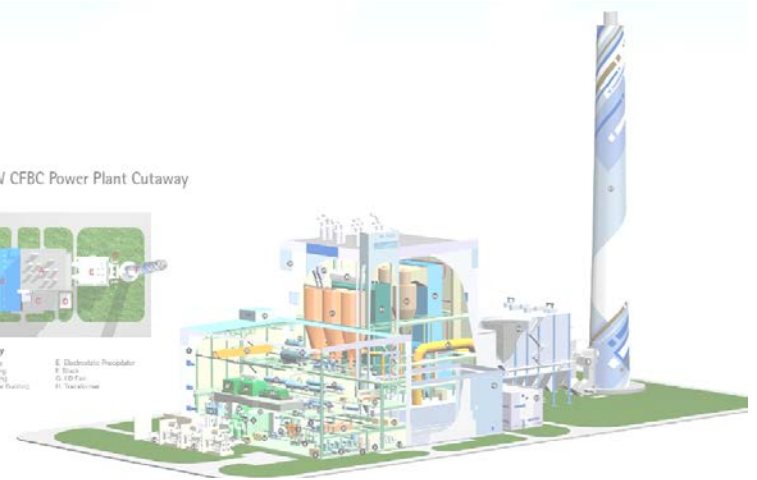
Vision 2020 – Global TOP 5 Power EPC Leader



200MW CFBC Power Plant Cutaway



- Site plan key
- A. Boiler Building
 - B. Turbine Building
 - C. Control Building
 - D. Auxiliary Boiler Building
 - E. Electrostatic Precipitator
 - F. Stack
 - G. 110 kV Bus
 - H. Transformer



2354 Yonggudaero, Giheung-gu, Yongin-si
Gyeonggi-do, South Korea 446-713
Tel : +82-31-289-5852
Email : yeop8@kepco-enc.com
<http://www.kepco-enc.com>

