



Investor Relations

Global Leading Energy Solution Partner

Disclaimer

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Company Overview

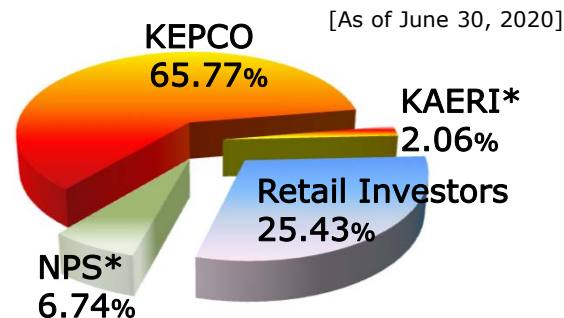
Korea's Leading Power Plant Engineering Company

- Korea's leading provider of design and engineering for nuclear, thermal and hydro-electric plants with over 40 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	Lee, Bae Soo • Former vice president, KEPS • Former advisor, Samsung Engineering
Foundation Date	October 1, 1975
Employees	2,395 (As of June 30, 2020)
Business Area	Power plant design & engineering, etc.

Ownership



* KAERI - Korea Atomic Energy Research Institute

* NPS - National Pension Service

IPO Information

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

Dividends

[Unit : KRW]

FY	2016	2017	2018	2019
Dividend Propensity *	24%	40%	41%	45%
Amount (per a share)	110	220	140	310

* Dividend Propensity - Dividend/Net Income *100

Business Overview

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 Power Plants



• Energy Solution Package

- Funding
- Consulting
- Procurement
- Post-management

• Eco-friendly Business

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

• National Project

- Government's task

Business Area – Design & Engineering

Leading the standard designs of nuclear power plants
and coal-fired power plants

Major Project Experience

• Nuclear power / Reactor

Project	Project Period	Contract Amount (*)	Client
Shin-Kori #5,6	Apr '14 ~ Mar '23	4,239	KHNP
Shin-Hanul #3,4	Mar '16 ~ Dec '23	4,263	KHNP
UAE#1,2,3,4	Mar '10 ~ Dec '20	7,712	Kepco
Baraka Nuclear Power Plant LTEA	Jan '18 ~ Jan '31	3,400	Nawah Energy Company

• Thermal power

Project	Project Period	Contract Amount (*)	Client
Shin-seochon	June '14~June '21	691	KMP
Goseong Greenpower	May '14~Jan '22	886	SK E&C
Gangneung Anin	Feb '14~June '23	1,023	Samsung C&T
Taeon #9,10	June '11~Sep '24	1,128	KWP

Others

Project	Project Period	Contract Amount (*)	Client
Shin-Kori #5,6 Management Configuration (*) Unit : 100 million won.	Feb '19 ~ Oct '23	271	KHNP

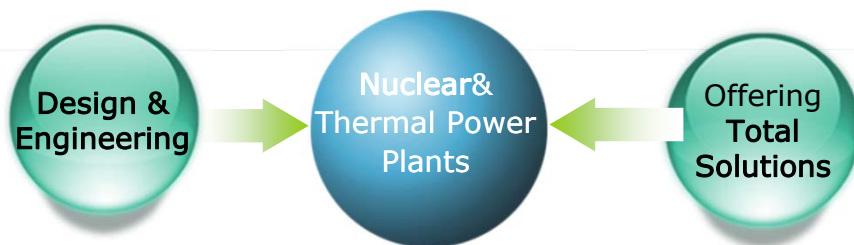
Services performed

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

Business Area – O&M

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

• O&M (Operations & Maintenance)

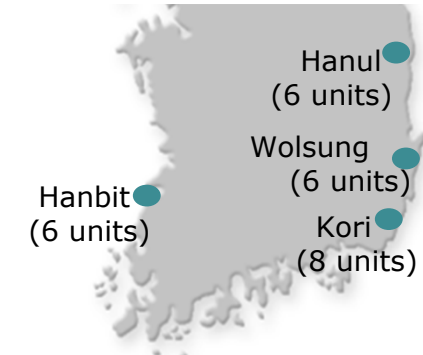


Services performed

- 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

• Nuclear Power Plants in Operation in Korea

Reactor	Project	First Power	Design
APR 1400	Shin-Kori #3,4	2016 / 2019	KEPCOE&C
OPR 1000+	Shin-Wolsung #1,2	2012 / 2015	KEPCOE&C
	Shin-Kori #1,2	2011 / 2012	KEPCOE&C
OPR 1000	Hanul #5,6	2004 / 2005	KEPCOE&C
	Hanbit #5,6	2002 / 2002	KEPCOE&C
	Hanul #3,4	1998 / 1999	KEPCOE&C
	Hanbit #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
PWR	Hanul #1,2	1988 / 1989	Framatome
	Hanbit #1,2	1986 / 1987	Bechtel-KEPCOE&C
	Kori #3,4	1985 / 1985	Bechtel-KEPCOE&C
	Kori #1,2	1978 / 1983	WEC-Gilbert



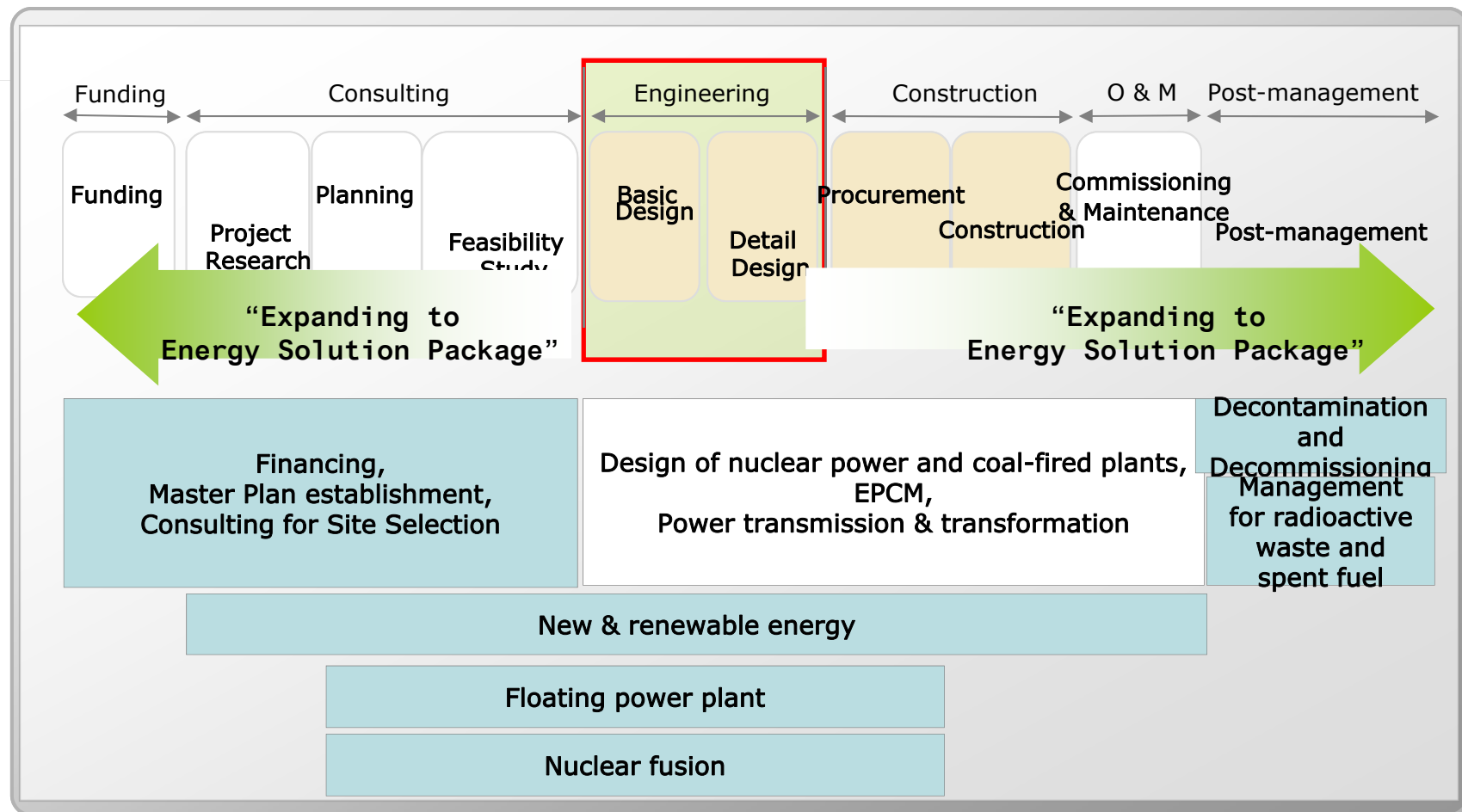
*The Uljin was renamed Hanul

*WEC – WestingHouse Electric.

*AECL – Atomic Energy of Canada Limited

Business Area – Energy Solution Package

Expanding its business areas to the overall value chain, including pre- and post-management of power plants



Developing eco-friendly business and leading the development of national technology as the only listed public-company specialized in engineering

National Business

The only listed public-company
specialized in engineering

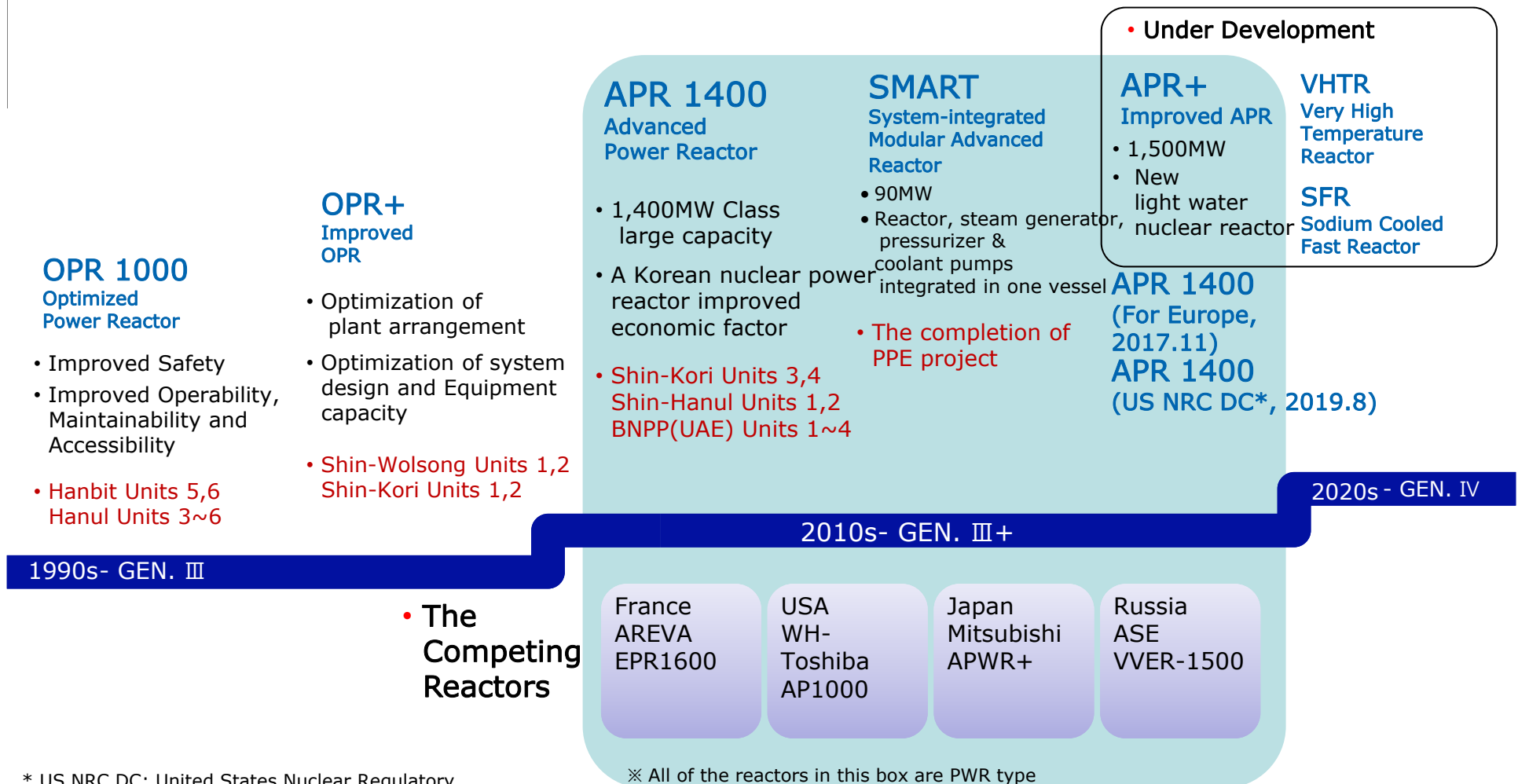
*Leading the development of
national technology*

- Flue gas desulfurization
- Flue gas denitrification
- CCS(Carbon Capture Storage)
: Lowering the level of greenhouse gas
- Prevention of water pollution/
Location selection and Environmental evaluation

The diagram illustrates a chemical process involving the absorption of SO₂ and CO₂ from flue gas. The process begins with 'FLUE GAS' entering a 'FLUE GAS BLOWER'. The gas then passes through a 'FLUE GAS COOLER' before entering an 'SO₂ ABSORBER'. The gas exits the absorber and goes 'TO STACK'. The absorber is connected to a 'CO₂ ABSORBER' via a 'LEAN ABSORBENT COOLER'. The gas then enters a 'CO₂ STRIPPER'. The gas exits the stripper and goes 'TO STACK'. The stripper is connected to a 'CONDENSER' and a 'REFLUX DRUM'. The condenser has two outlets: 'CH₄' and 'CO₂'. The reflux drum has two outlets: 'CONC. CO₂' and 'REFLUX'. The reflux is sent to a 'REBOILER', which has two outlets: 'STEAM' and 'COND'. The reboiler is connected to a 'LEANRICH ABSORBENT HEAT EXCHANGER'. The heat exchanger has two outlets: 'LEAN ABSORBENT COOLER' and 'LEANRICH ABSORBENT HEAT EXCHANGER'.

Technology – Nuclear Power Plant

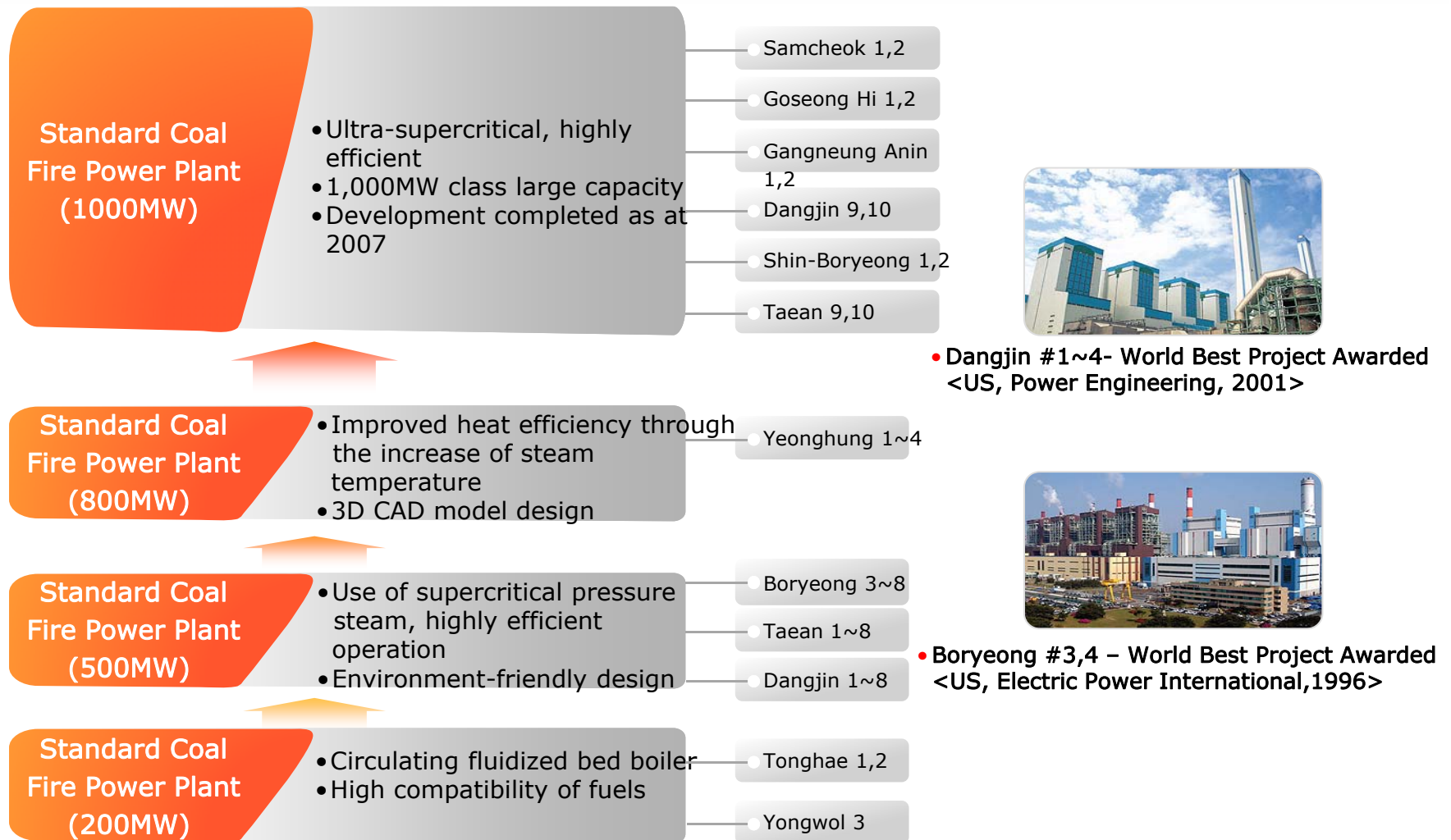
Korean Nuclear Power Plant Design Development



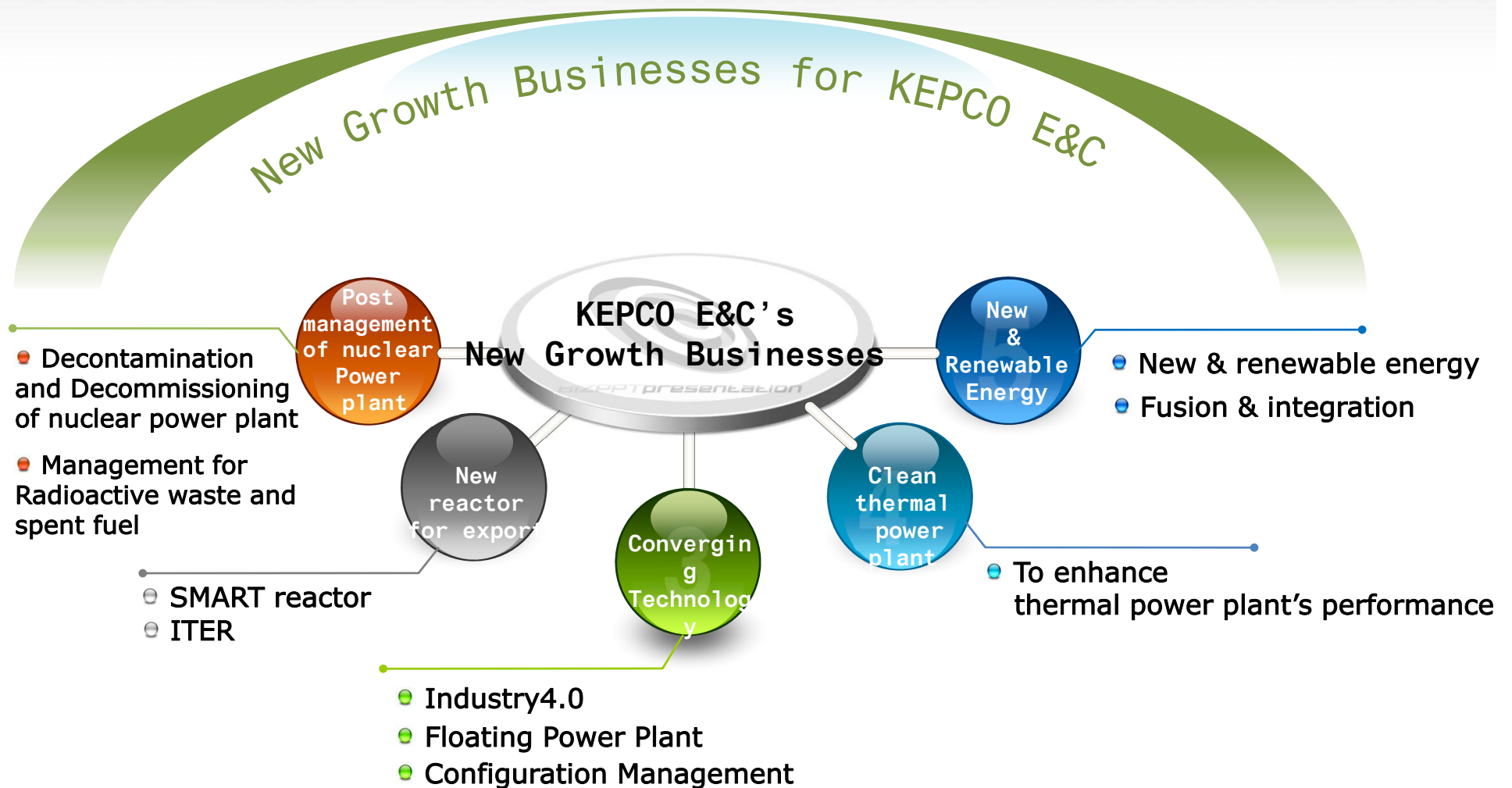
* US NRC DC: United States Nuclear Regulatory Commission

Technology – Thermal Power Plant

Coal-Fired Power Plant Design Development



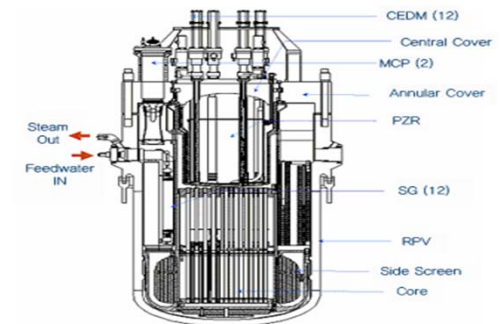
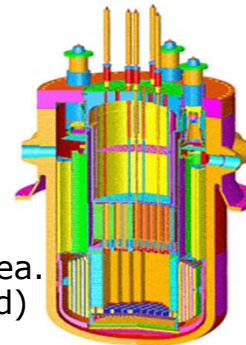
Focus on 10 core businesses in 5 areas



New Growth Businesses - SMART and ITER

• SMART export plan

- **SMART - Integral type reactor**
 - steam generator, pressurizer, and coolant pump are all integrated into one vessel.
- 90MW of electricity output, 40,000ton/day of desalination capacity
 - can supply a city with a population of 100,000
- Year 2012 : Acquired SDA(standard design approval) in Korea.
(the first SDA as integral type reactor in the world)
- Year 2013 : Cooperation agreement with Saudi Arabia on the introduction of SMART in Saudi Arabia
- Year 2015 : Signed a deal to jointly invest in studying the prospect of building at least two SMART in Saudi Arabia
- Year 2017 : Performing PPE(Pre-Project Engineering)
to build two SMARTs in Saudi Arabia
- Year 2019 : Completion of PPE(Pre-Project Engineering) project



• Participation in the international project - ITER

- International Thermonuclear Experimental Reactor(ITER) Project
- 7 countries that run the project – EU, U.S., Russia, China, Japan, India and South Korea

New Growth Businesses - Decommissioning

Expanding businesses for post-management of the early nuclear power plants due to the upcoming closing

• Decommissioning

▫ The early nuclear power plants in Korea

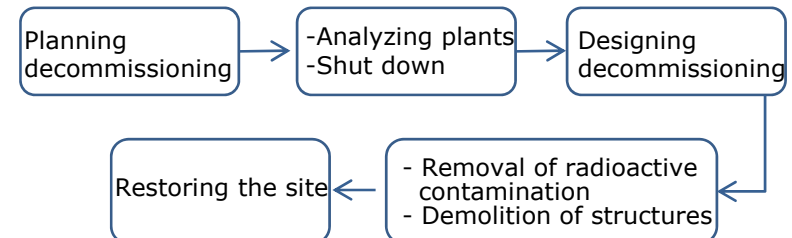
Plant	Commercial operation	Planned close	
KORI #1	1978	2017	license extended 2007 → 2017
Wolsung #1	1983	2018	license extended 2012 → 2018
KORI #2	1983	2023	
KORI #3	1985	2024	
KORI #4	1986	2025	

- Kori-1, the first nuclear power plant in Korea, is scheduled to become the first reactor to go dormant.
 - it had 30-year lifespan expired in 2007, but gained approval of additional 10-year operation.
- The Korean government announced in June, 2015 that the development of the 17 decommissioning techniques that have yet to be finished would be completed by 2021.

• Decommissioning?

- series of various follow-up processes upon the completion of operation regarding nuclear power plant facilities.
- Minimization of radioactive contamination from facilities after decontamination and decommissioning.
- Republic of Korea and UK have strengthen cooperation in the research on nuclear decommissioning.

• Decommissioning Flow



New Growth Businesses - Configuration Management

Application of Configuration Management

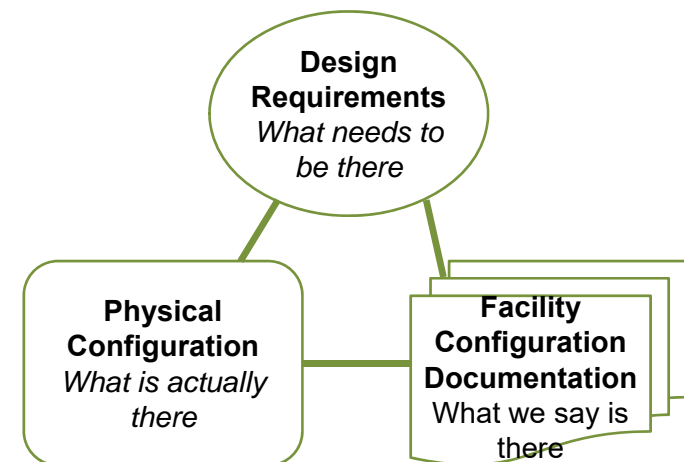
- Need of Configuration Management for prevention of critical accident

Situation	Purpose	Project
<ul style="list-style-type: none"> • 25~29% of accidents in nuclear plants relating with error of Configuration Management • Satisfaction of regulatory requirements 	<ul style="list-style-type: none"> • IT-basis establishment of Configuration Management • Maintaining consistency between structure, systems and components • Assurance of that operational information consistent with design requirements is available 	<ul style="list-style-type: none"> • Project : Establishment of system of Configuration Management for Shin-kori #5,6 • Contract Period : 2019.1 ~ 2023.10 • Contract Amount : KRW 27.1billion

- Definition

Configuration Management

Definition. The process of identifying and documenting the characteristics of a facility's structure, systems and components (SSCs) (including computer systems and software) and of ensuring that consistency is maintained between the design requirements, physical configuration, facility configuration and documentation.

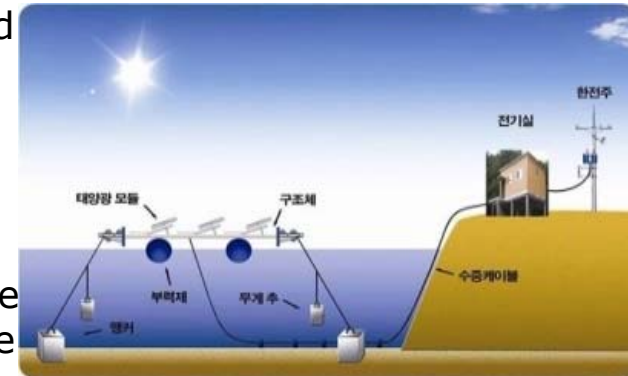


New Growth Businesses - New and Renewable Energy

Expanding the portion of new & renewable energy by the government's policy

The 3rd Energy Plan : Transition to Clean and Safe Energy Mix (2019.6)

- Reducing the number of nuclear power plants and coal-fired power plants
- Expanding the portion of renewable energy to 30~35%(2040)
- Lowering the level of fine dust and performing the 2030 Road map to reduce the level of greenhouse

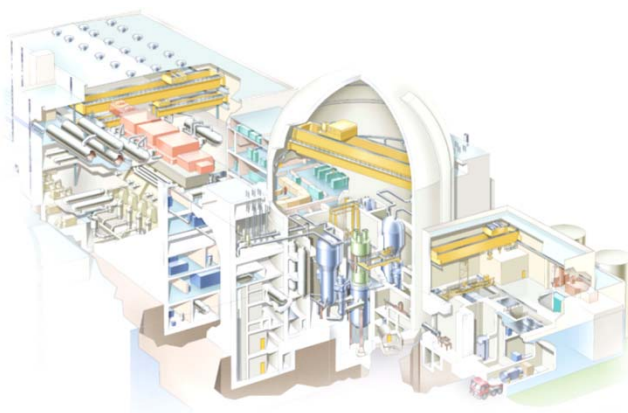


Developing and Performing Businesses for New & Renewable Energy

- Wind Power Plant : In Jeju Island,
Preparing the business
- Solar Power Plant : Research for development
of diverse solar-power mod



- Other Businesses : Fuel cell, Biogas, Coal gasification, Energy Independent Island, Zero energy building



200MW CFBC Power Plant Cutaway

