

Key trends and Priorities in Nuclear Safety: Korea's Experience

International Ministerial Conference on
Nuclear Power in the 21st Century



31 October 2017

01 Nuclear Power in Korea



02 Efforts for Nuclear Safety



03 Challenges



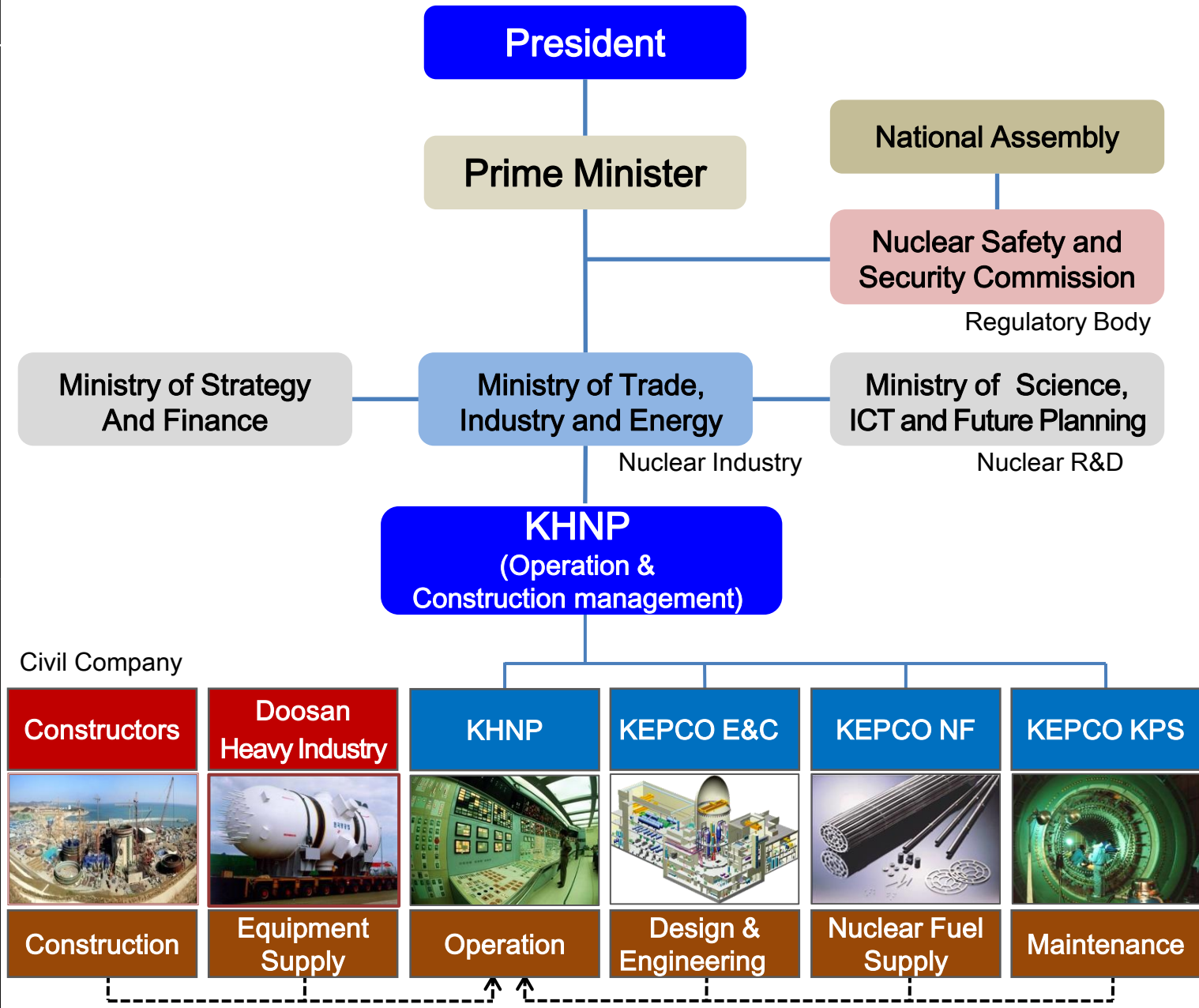
KHNP



Nuclear Power in Korea

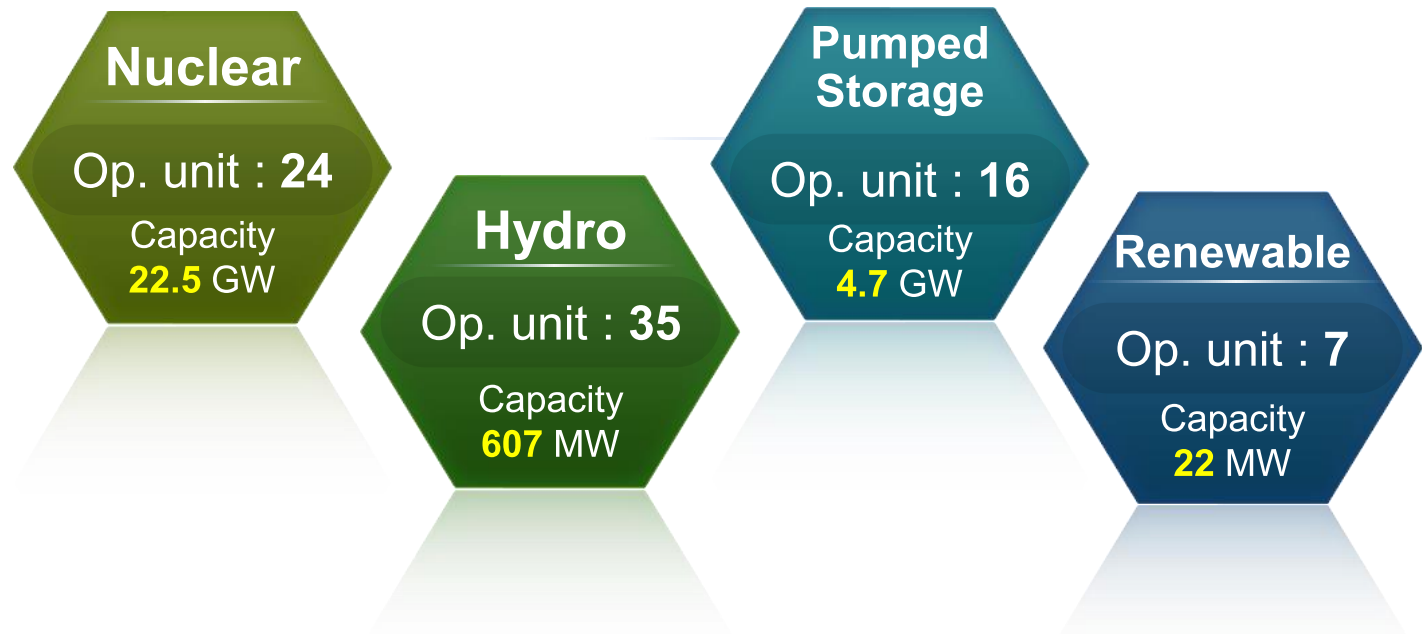


Nuclear Administration System in Korea



KHNP Overview

Establishment	April 2, 2001, spin-off from KEPCO
Business	Nuclear, Hydro, Pumped Storage, Renewables
Staff	11,513 Persons
Credit Rating	AA (S&P), Aa2(Moody's)
Total Assets / Revenue	46.1 / 9.3 Billion USD



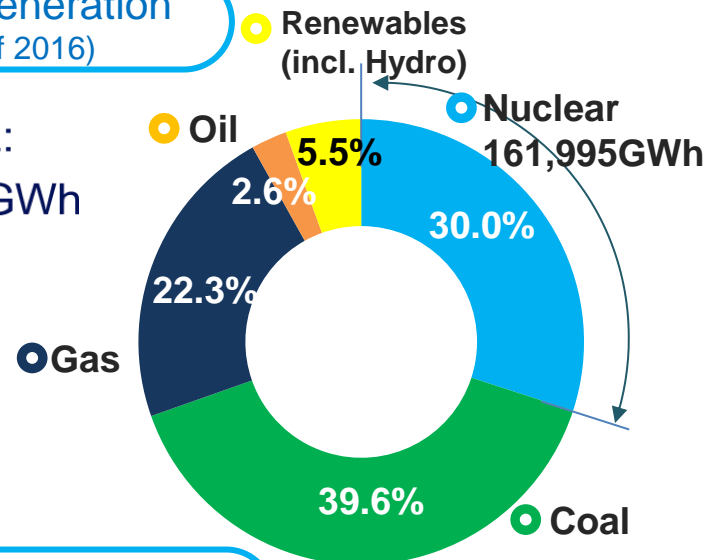
NPPs in Korea

Operation	24 units	22,529 MW
Construction	5 units	7,000 MW
Permanent Shutdown	1 units	578 MW



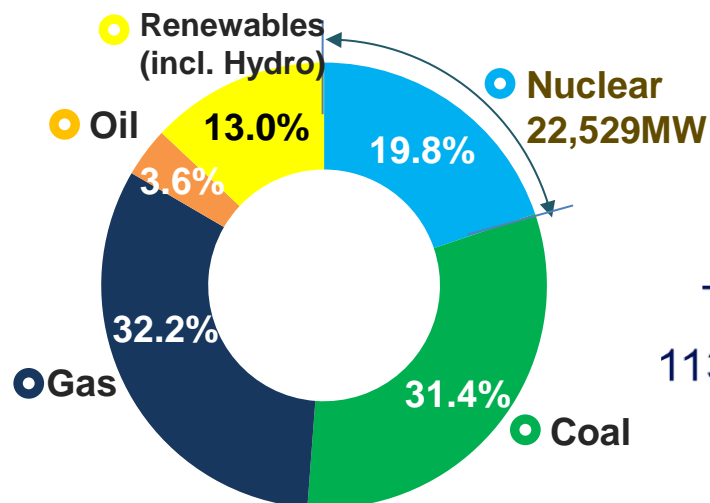
Power Generation (end of 2016)

TOTAL:
540,441 GWh



Installed Capacity (June 2017)

TOTAL:
113,705 MW



※ Source : The Monthly Report on Major Electric Power Statistics (KEPCO)

ICHNP



Efforts for Nuclear Safety



Reactor Development

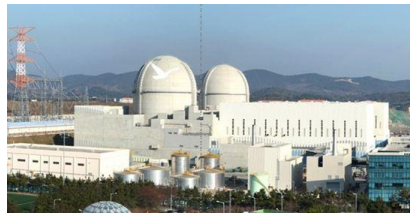
The efforts to strengthen the nuclear safety in Korea are on a same line with the history of reactor development.

OPR1000



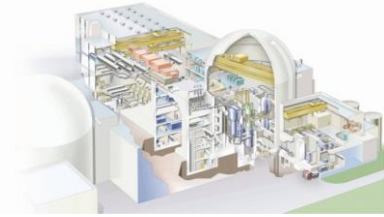
Type	PWR
Life	40 Years
Output	1,000 MWe
Seismic	SSE 0.2g

APR1400



Type	PWR
Life	60 Years
Output	1,400 MWe
Seismic	SSE 0.3g

APR+



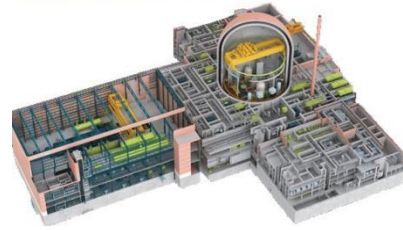
Type	PWR
Life	60 Years
Output	1,500 MWe
Seismic	SSE 0.3g

US-APR



➤ NRC Design certification in process

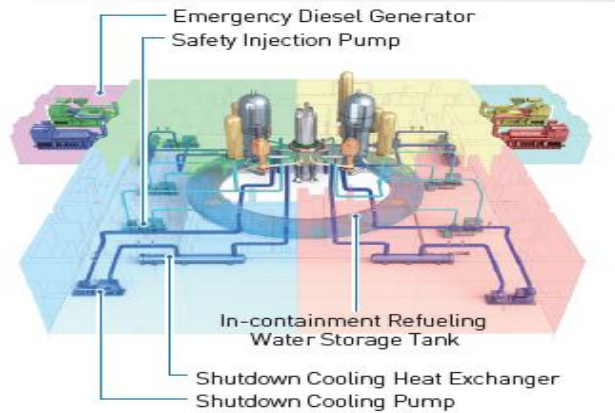
EU-APR



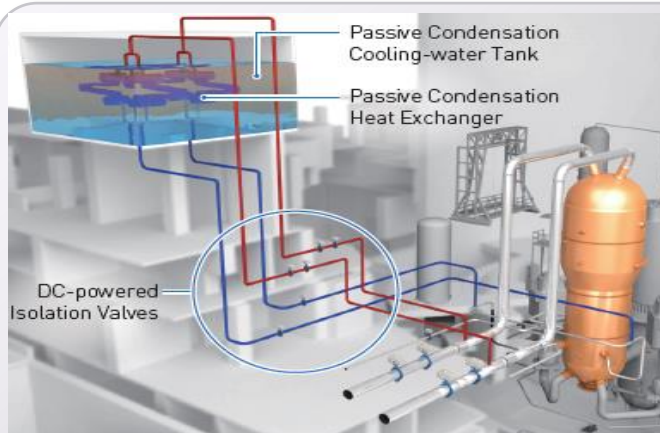
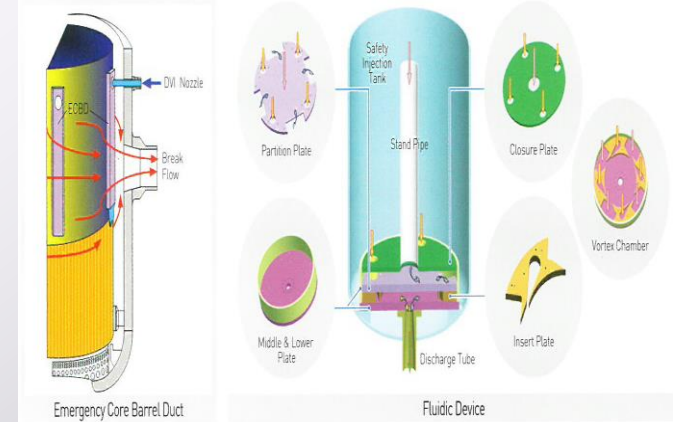
➤ Acquisition of EUR certification ('17.10.9)

Improved Safety system

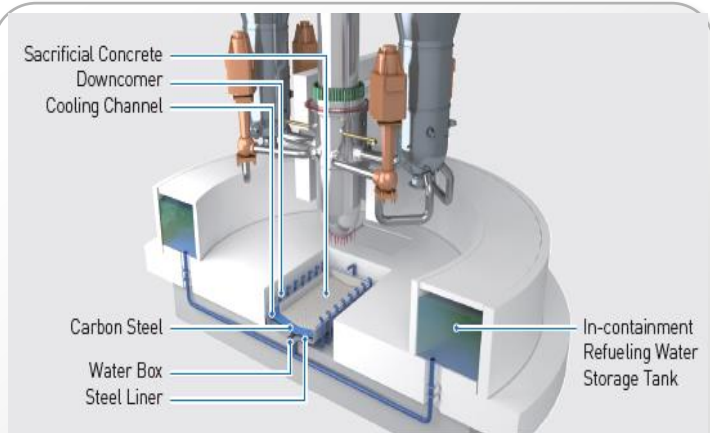
4-Train Safety System



Improved Safety Injection System



Passive Auxiliary Feedwater System



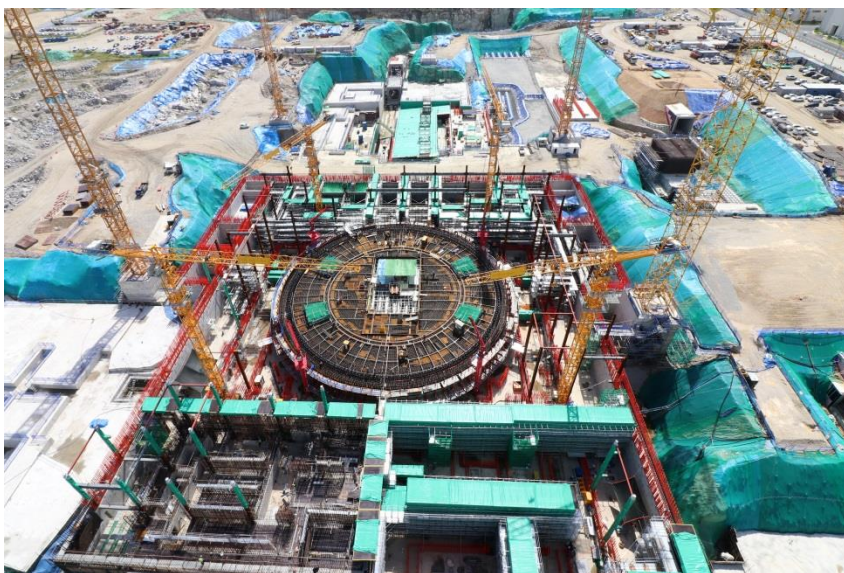
Passive Ex-vessel Corium Retaining and Cooling System

Plants Under Construction (Domestic)



Shin-Hanul Unit 1&2

- Capacity: 1,400 x 2
- Reactor type: PWR
(APR1400)
- Unit 1: Preparing for HFT
- Unit 2: Initial commissioning
- Progress rate: 95.29%



Shin-Kori Unit 5&6

- Capacity: 1,400 x 2
- Reactor type: PWR
(APR1400)
- Unit 5: Excavation work on Intake/Drain
- Unit 6: Ground excavation
- Progress rate: 29.93%

Plants
Under
Construction
(Overseas)

Barakah Unit 1~4 (APR1400 x 4)

< EPC Progress rate >

- Unit 1&2: 94%
- Unit 3&4: 68%
- Total : 83%

※ Source : ENEC homepage



On Time & On Budget

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Challenges



Safety First Policy & Security

Safety First Policy

Enhance
Safety
Culture

Expand
Investment in
Safety

Improve
Operation/
Equipment
Reliability

Enhancing Nuclear Security

Raising
Awareness
to Nuclear
Security

Maintaining
Independent
IT System

Collaborating
with
Government &
Regulator &
Operators

Declaration for Nuclear Safety Charter



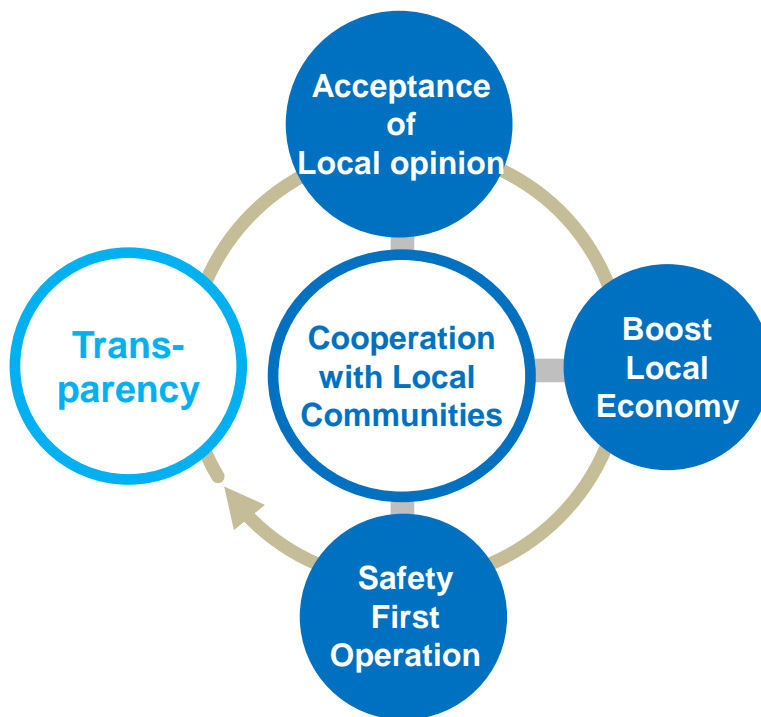
2012 Seoul Nuclear Industry Summit



Public Acceptance

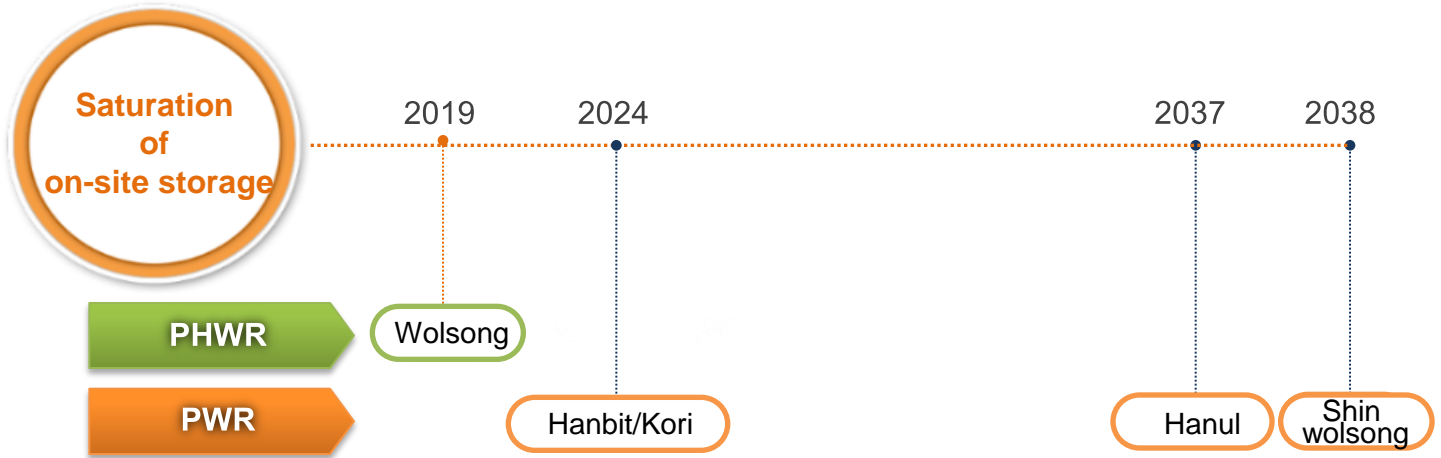


Fulfilling Social Responsibility

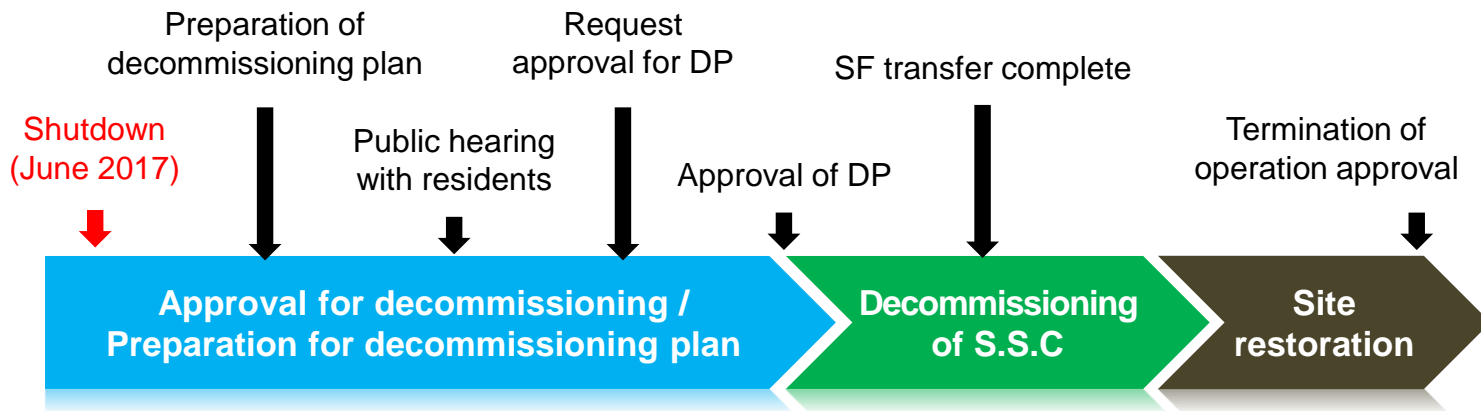


Securing Public Acceptance through transparency and accurate information is a shortcut to enhance the Nuclear Safety.

Saturation of on-site storage in Korea



Developing NPP D&D Technologies



Human Resource Development



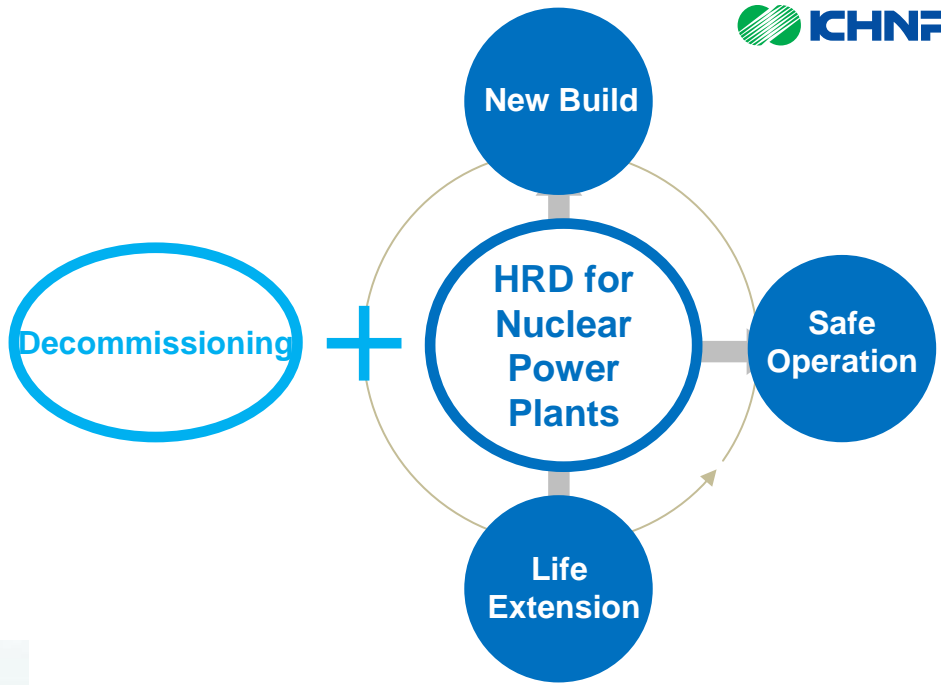
Third International Conference on
**Human Resource Development
for Nuclear Power Programmes:**
*Meeting Challenges to Ensure the
Future Nuclear Workforce Capability*

28-31 May 2018
Gyeongju, Republic of Korea

Organized by the
 IAEA
International Atomic Energy Agency

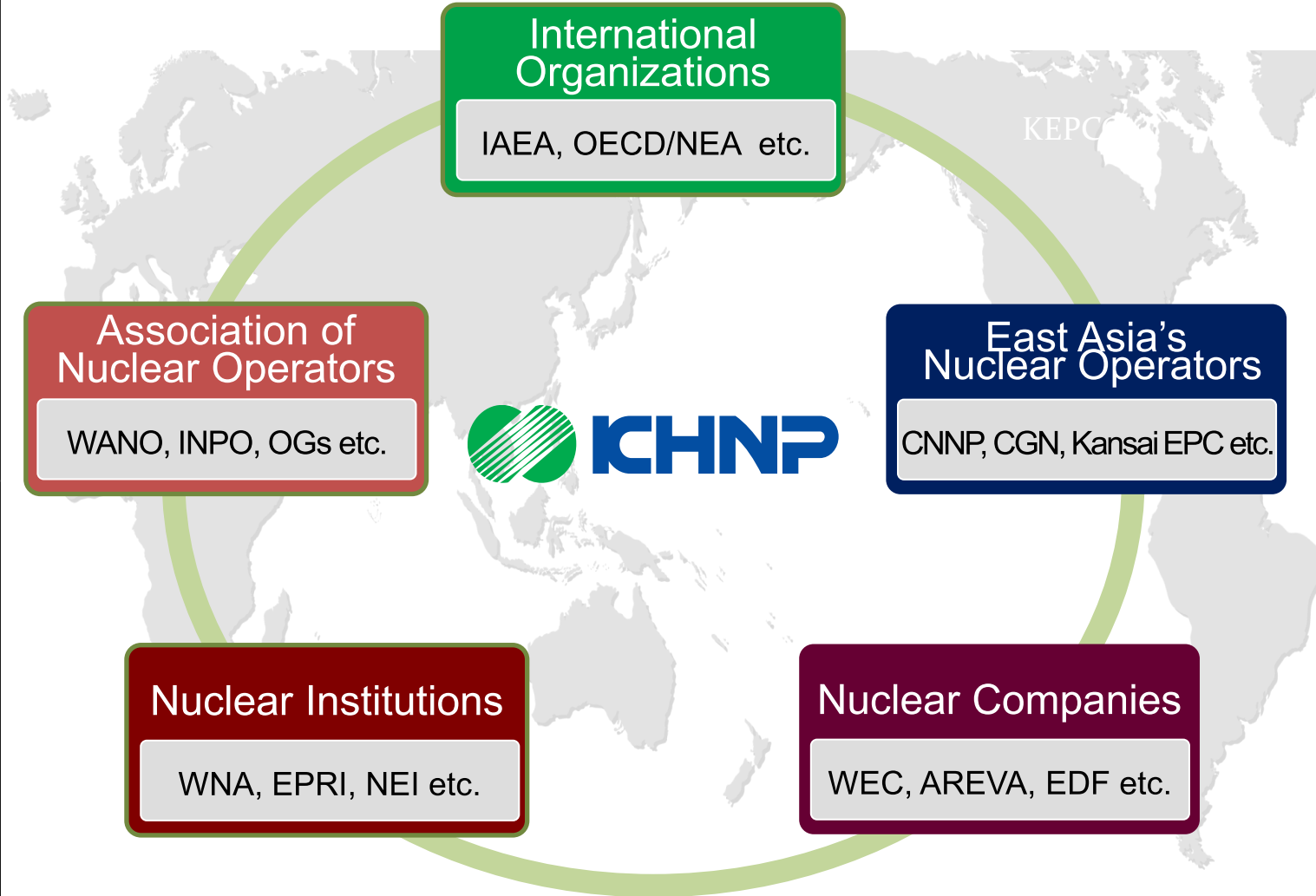
In cooperation with the
 KOREA HYDRO & NUCLEAR POWER CO., LTD

<https://www.iaea.org/verifier/human-resource-development-conference-2018>
CH-290



● 20~31 May, 2018, Gyeongju in Korea

Sharing Best Practice Through International Cooperation





THINK SAFETY

Thank You

