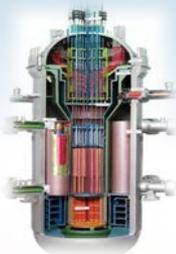


Korean Nuclear Experience and Policy

ROK Country Report

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Sustainable Nuclear Development**



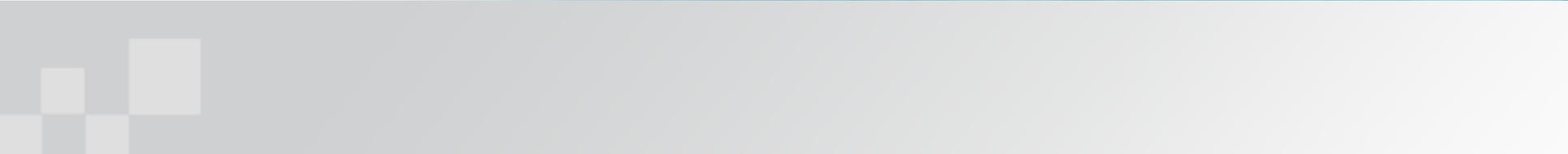
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**Ideas on Future Directions
for the FNCA**





I. Nuclear Energy Experience and Lessons



Nuclear Energy Experience in Korea

1950s

- Enactment of Atomic Energy Act ('58)
- Research Institute ('59)



1960~70s

- Construction of TRIGA Mark II ('62)
- Introduction of Kori Unit 1 ('70)



1980~90s

- Localization Plan ('84)
- Technology Self-Reliance of OPR Development ('90)



2000~10s

- Development of APR1400 and SMART ('10)
- Export RR to Jordan and ARP 1400 in the UAE ('09)



Present

- SMART PPE with Saudi ('15)



Strong Labor Force



Technology
Development



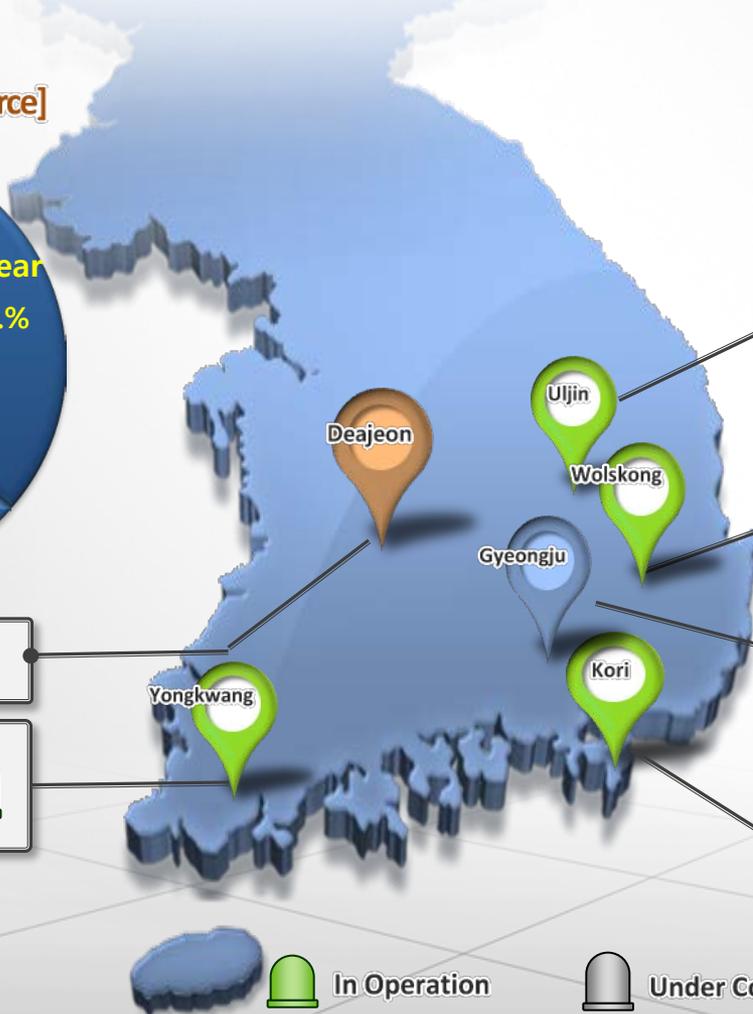
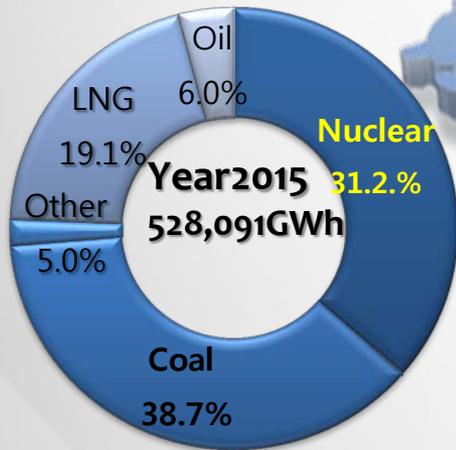
Export-Led Economic Growth Policy

Nuclear energy as the growth engine for Korea's development

1-2 Current Status

- In Operation ➤ 25 Units (21,716MWe)
- Under Construction ➤ 5 Units (Installed capacity: 7,000 MWe)

[Electricity Generation by Source]



Hanul

ShinHanul

Wolsong

ShinWolsong

Radioactive Waste Disposal

Kori

Shin-Kori

HANARO Research Reactor

Hanbit

In Operation Under Construction

VISION

“Nuclear” going to the World, together with the Public

Expanding the Nuclear Capacity to prepare for the future with public trust

Future Competitiveness

Public Acceptance

Industrial Growth

Cooperation

Major Policy Direction

Securing Safety

- Securing the Top Nuclear Safety
- Safe Management of Spent fuel and Post-Management of NPP

Preparing Future

- Promotion of proactive R&D in compliance with the future needs
- Securing the sustainable growth basis

Contributing Growth

- Strengthening the competitiveness in nuclear industry
- Increasing application and development of Rad tech

Enhancing Communication

- Pursuing the nuclear policy by Communication
- Expanding contribution for international community



II. Key Elements for Sustainable Nuclear Development



Development of Gen-IV Reactor

☉ SFR(Sodium Fast Reactor) Development

- Design ('17) → Design Approval ('20) → Prototype Plant (28')

☉ Nuclear Hydrogen Technology for Hydrogen Production

- VHTR original technology

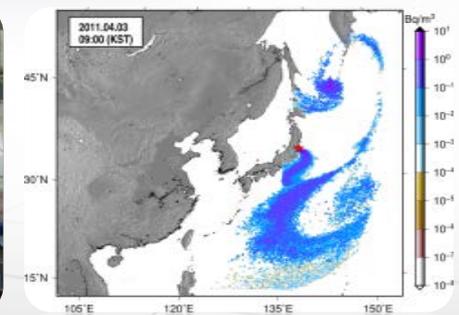
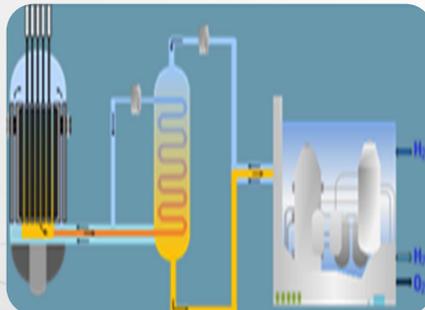
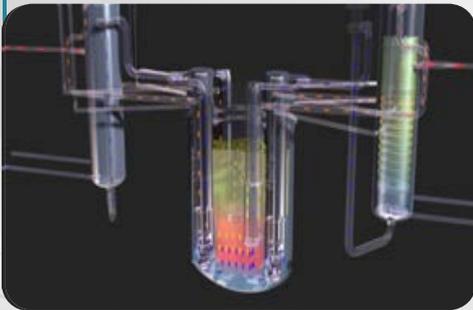
Nuclear Safety Research

☉ Accident Prevention

- Severe Accident Management Technology

☉ Response to Accident

- Radiation Accident Response System



2-2 Increasing Public Acceptance

Safe Management of Spent Fuel

- ➔ Development of Spent fuel Storage and Disposal Technology



Radioactive Waste Management

- ➔ Securing Radioactive Waste Repository Facility in a timely manner



Decommissioning

- ➔ Development of Core Technology and Nurturing Industry

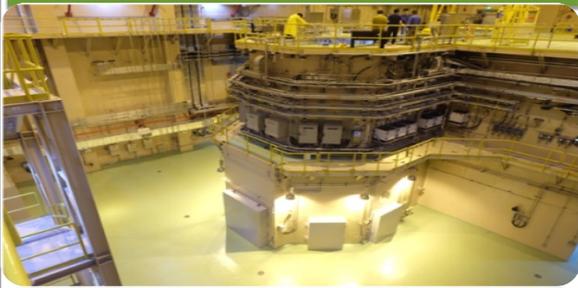


***“ Increase Public Acceptance
by Securing the Post-operative
Management ”***

2-3 Enhancing Industrial Growth

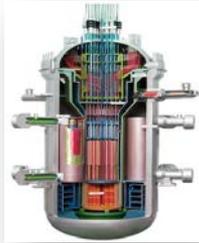
Development of Advanced Reactor for Overseas Expansion

Research Reactor



- Multipurpose RR including education and training

SMART (System-Integrated Modula Advanced Reactor)



- Multipurpose : local power supply, desalination

Large Size Reactor (APR-1400, APR+)



- Enhanced Safety, Convenient Operation, Cost Effectiveness

Development of Radiation Technology

Medical Isotope Production Reactor



- Producing isotopes for export and domestic use (20MWe, 2018)

Radiation Convergence Technology



- Advanced Industrial Material
- Agricultural Biotechnology

From Recipient to Technology Donor



Human Capacity Building
(Technical Cooperation Project)



Financial Contribution
(IAEA PACT)



Non Proliferation Effort
(Nuclear Security Summit 2012)

Contribute to the Sustainable Development of Nuclear Energy



III. Ideas on Future Directions for the FNCA



3 Ideas on Future Directions for the FNCA

Contribution to the international community

Promotion of peaceful use of nuclear technology in Asia



THANK YOU

For your attention



Ministry of Science, ICT
and Future Planning