

USNRC RIC 2015

Planning and Preparing the Regulatory Body for a Dynamic Industry

W26 – Regulatory Agility in the New Millennium

March 11, 2015

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 NUCLEAR SAFETY AND SECURITY COMMISSION
  KOREA INSTITUTE OF NUCLEAR SAFETY

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NPP Status (as of February 2015)

In Operation

Under Construction

Recent Decision on the Permit for Continued Operation

23 Units in Operation (21,716 MW)

4 Units Under Construction (5,600 MW)

2 Units Applied for Construction Permit (2x1400 MW)



Radioactive Waste Disposal Facility (CL was issued on Dec. 11, 2014)

Hanul, 6 units 

Shin-Hanul, 2 units 

Wolsong, 4 units 

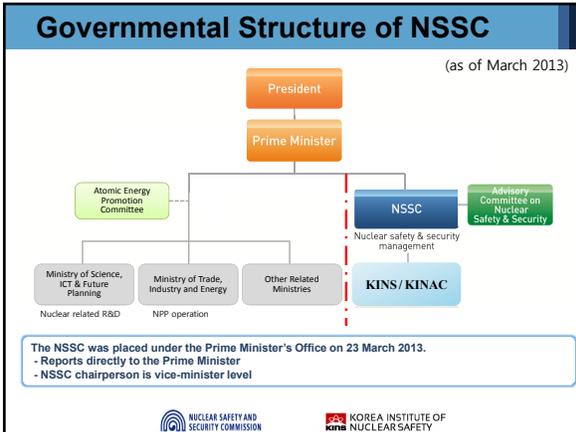
Shin-Wolsong, 2 units 

Kori, 4 units 

Shin-Kori, 4 units 

Hanbit, 6 units 

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- ## Statutory Authorities of NSSC
- **Act on the Establishment and Operation of the NSSC (NSSC Act)**
 - Prescribes organization, roles and principles of NSSC
 - **Nuclear Safety Act**
 - Prescribes safety management requirements for construction and operation of nuclear and radiation facilities; production, sales, and use of nuclear materials
 - **Act on Physical Protection and Radiological Emergency**
 - Prescribes physical protection system of nuclear materials and nuclear facilities; and radiological emergency management systems
 - **Act on Protective Action Guidelines Against Radiation in the Natural Environment**
 - Prescribes safety rules for managing radiation in residential areas
 - **Nuclear Damage Compensation Act (Nuclear Liability Act)**
 - Prescribes compensation rules for nuclear damages
 - **Act on Indemnity Agreement for Nuclear Liability**
 - **Act on Korea Institute of Nuclear Safety (KINS Act)**

- ## Responsibilities of NSSC
- **Purpose of NSSC** (Article 1 of NSSC Act)
 - To protect citizens from any radiation hazards from production and use of atomic energy, promote public safety and contribute to environmental conservation
 - **Major Responsibilities**
 - Rulemaking, codes and standards for nuclear regulation
 - Authorization of nuclear facilities, materials and activities
 - Inspection and enforcement for authorized facilities, materials and activities
 - Incident response and emergency preparedness
 - Physical protection of nuclear facilities and materials
 - Non-proliferation and safeguards activities
 - Export and import control of nuclear related materials and equipment

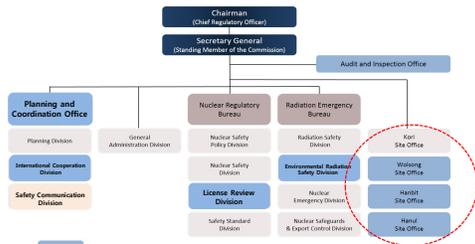
NSSC Organization

- **Commission (9 members)**
 - **Chairperson (vice-minister)**
 - **Secretary General (standing member)**
 - **7 non-standing Commissioners** – consists of experts with various background : nuclear, environment, law, etc.
- **Advisory Committee (15 members)**
 - **Members are senior experts from various technological areas of nuclear and radiation safety**
 - **Ad-hoc subcommittees can be formed, if needed**
- **Secretariat Office**
 - **2 Bureaus, 1 Office and 13 Divisions**
 - **4 Site Offices (Kori, Wolsong, Hanbit, Hanul)**



Major Activities (1) Strengthen the Regulatory Competence

- **Manpower increase of the NSSC Secretariat to enhance the function of planning & coordination, new regulation (environmental radiation) and site offices**
: ('11) 82 → ('12) 95 → ('13) 105 → ('14) 141



: Established in May, 2014



Major Activities (2) Strengthen the Regulatory Independence

- **Law declares “Independence” as an operating principle of NSSC**
 - **“NSSC shall maintain independence and impartiality...”**
(Article 2 of NSSC Act)
- **Exception from the Government Organization Act**
 - **Prime Minister(PM)’s general power on Administration (Article 18 of GOA)**
 - **“PM may suspend or cancel any order of central administrative agencies, when it is deemed unlawful or unjust”**
 - **NSSC is a special central administrative agency, exempted from such intervention by PM**
(Article 3(2) of NSSC Act)



Major Activities (3) CFSI related revision of Nuclear Safety Act

- CFSI investigation: Nov. 2012 ~
- Enhancing regulatory activities to prevent the use of CFSI (enacted in May 2014)

Item	Before	Major changes
Vendor Inspection	Nuclear licensee	Nuclear licensee, supplier(designer & manufacturer), performance verification institute(pvi)
Non-conformance reporting	None	Compulsory reporting of non-conformance cases by nuclear licensee, supplier and pvi
Contract notification	None	Compulsory notification of contracts for design, construction, manufacture and performance verification

Licensee → Licensee, Designers, Manufacturers, Suppliers, Testing Institutes

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Major Activities (4) Strengthen Nuclear Safety Management System

- Countermeasures to Prevent Corruptive Actions
 - Oversight of Licensee's Safety Culture (2016~)
 - Equipment & Material Tracking system and Real-name system will be established
 - To improve responsibility and transparency of licensee's operation
 - All records from construction to decommissioning of a NPP
 - Real names of employees from supply to disposal of all parts
 - Supervision on equipment qualification institutes
 - Judicial police authorities will be given to NSSC
 - Active reporting of violations
 - Reward of up to 1 billion KRW
 - Leniency programs to whistleblowers
 - Increased and new penalties about violations
 - Fine up to 30 million KRW, penalty up to 5 billion KRW

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Major Activities (5) Transparency & Communication

- Establishment of Local Committee for Nuclear Safety
 - Operation Guideline of the LCNS (Sep. 2013)
 - To discuss matters on the safety of the NPPs with local residents directly in order to reflect their opinions
 - Representatives of local residents, experts recommended by local communities, public officers and council members of the municipalities, and NSSC/KINS staff
 - LCNS has been established and operated at Kori, ShinKori, Wolsong, Hanbit, Gochang, and Hanul sites

	Kori	ShinKori	Wolsong	Hanbit	Gochang	Hanul
Creation date	'13.9.23	'13.9.11	'13.9.9	'13.12.31	'13.12.31	'14.8.8
Members	22	21	17	17	11	16
Meetings	11	8	7	4	1	4

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Major Activities (6) Cooperation & Collaboration

- **Establishment of Coordination Committee on Nuclear Safety Policy (June 2014)**
 - Inter-governmental Committee to effectively manage nuclear safety policies, issues, and incidents
 - 22 Ministries in areas of nuclear, radiation, and emergency
 - Chaired by the NSSC Chairperson

Nuclear Safety	MSIP(research on nuclear safety), MoTIE(incident, malfunctioning information)
Radiation Safety	MOHW/MFDS(food, medical equipment), MAFRA(agro and livestock products), MOF(sea products), MoEL/MoLIT (health of employees), MoE/Korea Forest Service (underground water)
Emergency Response	MoGAHA(resident protection), MND(support for decontamination work force & equipment), NEMA(emergency rescue, transport), NPA/NEMA(resident control), KMA(air flow analysis)
Support & Cooperation	PMO, NIS, MoSF, MoFA

Major Activities (7) Major Post-Fukushima Safety Upgrade

- **Action items of the Fukushima lessons-learned Program**
 - 50 items, recommended by a Special Task Team (regulatory staff + experts)
- **Current Status**
 - 36 of 50 action items have been implemented so far

Loss of Power	Each site secured emergency power generating cars. Supplementary EDGs were reinforced.
Hydrogen Explosion	Hydrogen removal devices that work without electricity were installed. Pressure reducing equipment was installed in containment buildings.

- Together with the review of foreign experience, the effectiveness for all the items was reviewed by the end of 2014

Major Activities (8) Augmented Stress Test

- **Fukushima accident evoked public concern on the safety of NPPs;**
 - A comprehensive stress test for old NPPs had been requested by residents, civic groups and some politicians
 - Especially old reactors including Wolsong Unit 1
- **In 2013, the new Government decided to conduct a Stress Test to make sure the safety of old NPPs**
 - Stress Test to be made mandatory for all operating NPPs (rulemaking underway)
 - e.g.: Wolsong Unit 1 Process
 - Continued operation until 2022 was permitted on Feb. 26, 2015

Evaluation Guideline (Apr. 30, 2013)	Evaluation (- Jul. 12, 2013)	Verification of Evaluation (By independent groups)	Final Decision (Feb. 26, 2015)
NSSC	KHNP	KINS/Civil Review Panels	NSSC

Conclusion

- Korea has achieved major and important enhancements since 2011 with respect to regulatory independence, competence, and transparency to ensure and strengthen the nuclear safety
- The IAEA IRRS 2014 Extended follow-up mission (Dec. 8~19, 2014) was one of important vehicles for upgrading Korean nuclear safety regulatory system



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Thank you for your attention