

Nuclear Regulatory Trends in Korea

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National Policy for Nuclear Safety

1st Comprehensive Safety Plan (2012-2016)

Strategic Tasks

- safety improvement considering **lessons learned** from Fukushima accident
- promotion of strong nuclear **safety culture** and public communication
- establishment of integrated **radiation safety** management
- setting-up nuclear **security and non-proliferation** system
- improvement of nuclear **regulatory competence** through safety research and human resources development
- contribution to **global nuclear safety** regime
- innovation of national **legal framework** of nuclear safety.

Vision

Gain Public Trust on Nuclear Safety

Public Outreach and Transparency

Public Participation in Safety Issues (2012~)

- Investigation of Safety Issues on Hanbit NPPs (2012)
- Assessment of Wolsong unit 1 Stress Test (2013~)

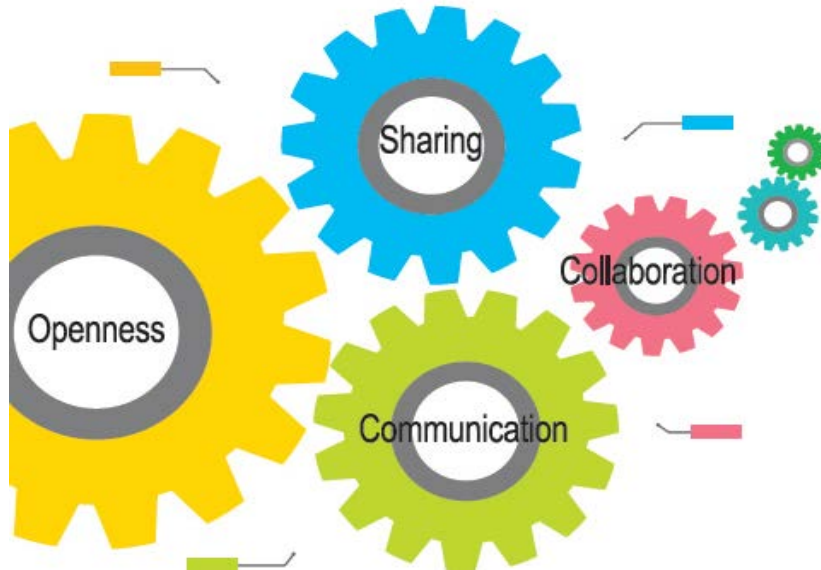
Local Committee for Nuclear Safety at each NPP sites (2013~)

- Established committees at each NPP sites
- Hold meetings once every quarter to brief safety issues
- Improve communication with local residents through site communication channels
- Deliver issues and policies to local residents and listen to their opinions

Public Outreach and Transparency

Government 3.0

- A New Paradigm for Government Operation
- To allow wider public access to government data for improving the transparency of state affairs



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- Major items selected by the real-name tracking system for nuclear safety policy
 - ✓ integrated electronic record system for inspection results
 - ✓ workers' real names are recorded throughout all stages from supply to disposal of safety-related items.

Peer Review

- ▶ **First mission after Fukushima Accident (10-22 July, 2011)**
 - ▶ Found that Korean government has implemented a technically capable and effective nuclear safety regulatory program. (15 GPs, 10 Rs, and 12 Ss)
- ▶ **IRRS Follow-up mission (Dec. 8~19, 2014)**
 - ▶ Extended to include areas such as Medical Exposure, Fuel Cycles, Transportation, Occupational Radiation Protection etc.
- ▶ **IPASS Mission (24 Feb. ~ 7 Mar. 2012)**
 - ▶ PP for nuclear & radioactive material system is well established.
 - ▶ PP for facilities was found to be better than international standards in some cases
 - ▶ Several recommendations and suggestions for further promotion
- ▶ **Peer Review provides effective opportunity for improving nuclear safety**
 - ▶ Useful to learn the good practices and to find out the weak points
 - ▶ Areas to be improved
 - Understand and reflect the cultural and social background of each country
 - Concentrate on the key points and make an in-depth review, instead of the general and overall review

Life Extension

▶ Periodic Safety Review of older NPPs

- ▶ Based on IAEA Safety Standards
- ▶ Physical conditions, safety analysis, equipment verification, aged deterioration, safety performance, experience feedback, operating procedures, etc. (+) **Design, Implementation of PSA, Risk Analysis, Safety Culture**

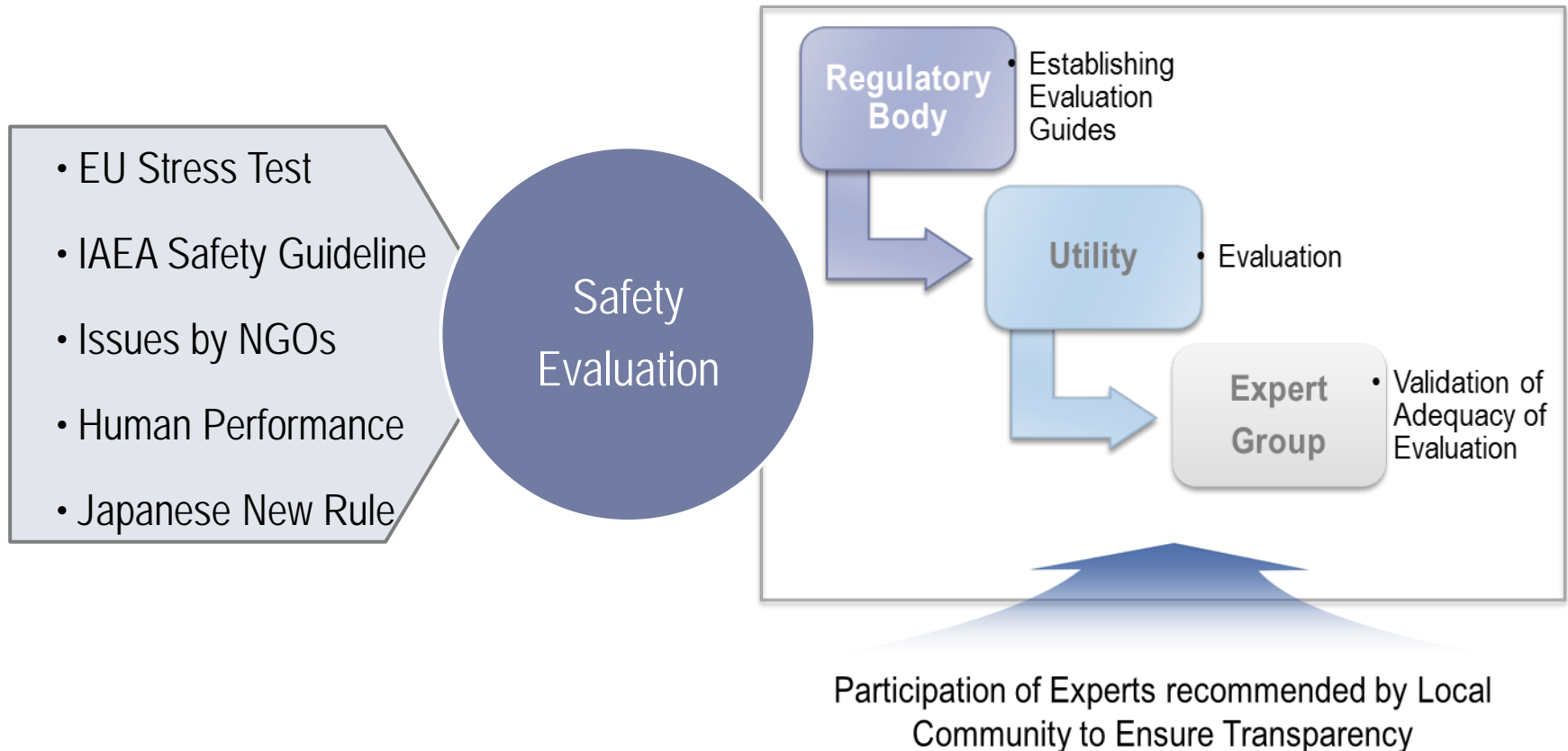
▶ Additional Requirements for Continued Operation

- ▶ Assessment Report of aging degradation for 10 years of continued operation
 - ▶ SSC evaluation based on the technical standards that reflect the latest operational experience, research finding, etc.
- ▶ Radiological Environmental Impact Report
 - ▶ Radiological environmental impact shall be evaluated based on the latest standards, reflecting the changes since the time of operating license.

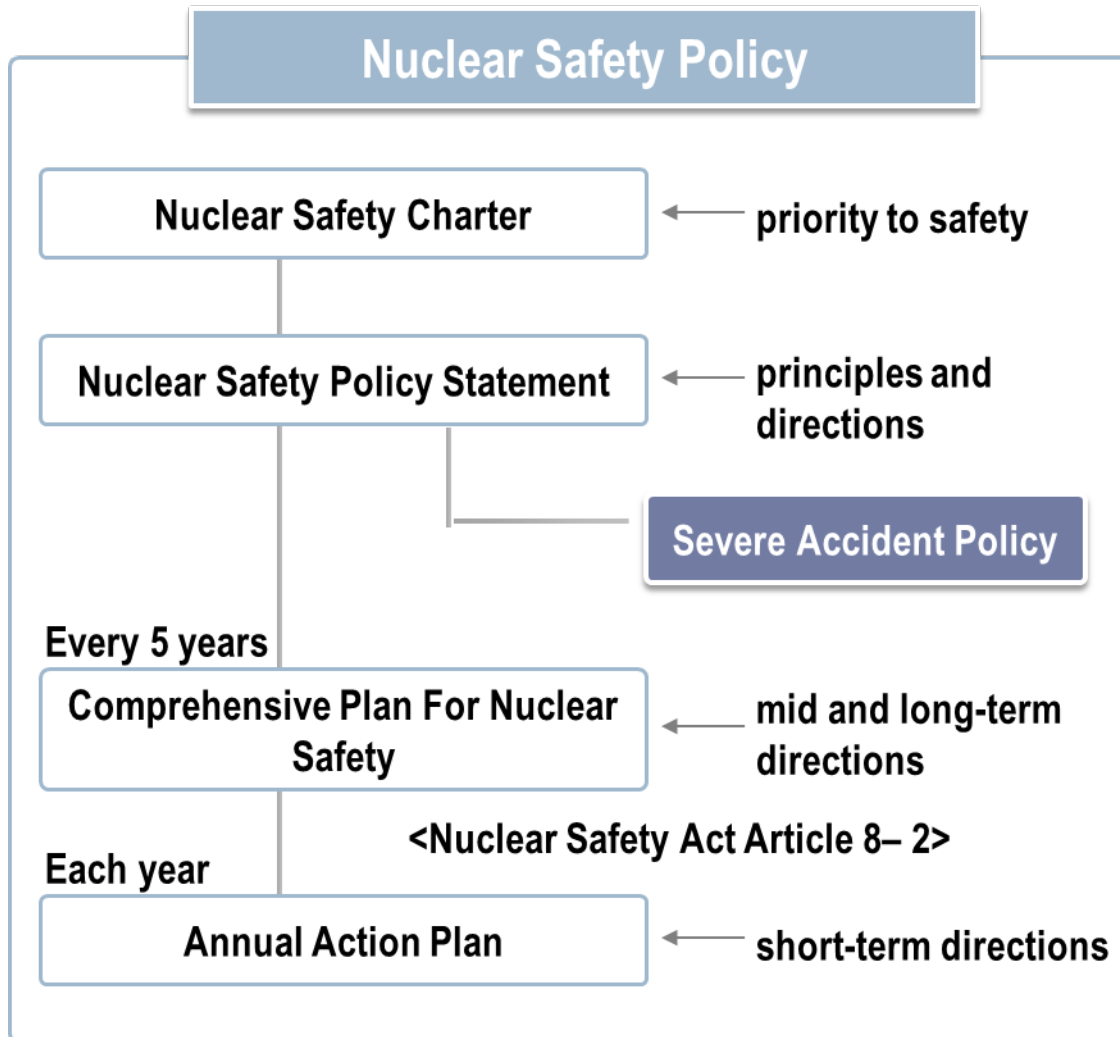


Life Extension - Stress Test

- Gov't decided to conduct stress tests for reactors over their design life in Jan. 2013



Severe Accident



Considerations based on severe accident policy

- SAMPs (Severe Accident Management Program)
- Containment hydrogen control system
- CFS (Cavity Flooding System)
- ECSBS (Emergency Containment Spray Backup System)
- CFVS (Containment Filtered Venting System)

Severe Accident

Post-Fukushima Actions to Strengthen the Capabilities to Manage Severe Accidents

- Reinforcing education and training on severe accident
- Revision of the Severe Accident Management Guidelines to enhance effectiveness
- Development of Low-Power Shutdown SAMG
- Developing Extensive Damage Mitigation Guide (EDMG)
- Developing an integrated EOP-SAMG procedure

Strengthen Regulatory Requirements

- Updating the enforcement regulation in order to extend the scope of the safety analysis report to cover severe accident (Extended Design Conditions) and PSA
- Preparing the complementary plan for post-Fukushima actions to cover from DBA and Severe Accidents to Extreme Hazards
- Reviewing the adequacy of the current safety goals in order to protect public health and