FNCA 18th Ministerial Level Meeting, Astana, 11 October, 2017

Country Report of China

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China Nuclear Energy Association
China Atomic Energy Authority

Contents

Nuclear Power Plants in China

-Operation:

37 Units, 35800 MWe

-Under construction:

19 Units, 22200 MWe

-Gen III:

HPR1000, CAP1400

-Gen IV:

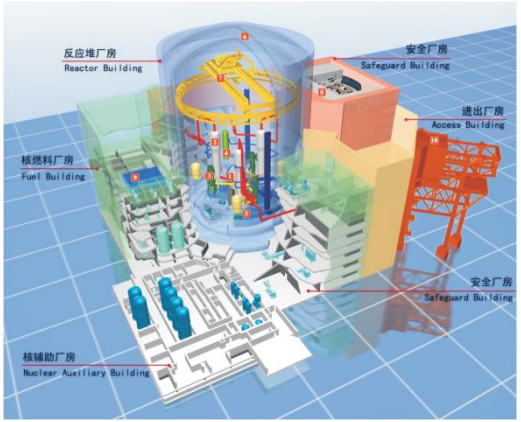
HTGR, CEFR, CDFR

-SMR:

ACP100, ACPR100

Nuclear Reactor Technology Innovation

- **HPR1000**



- **CAP1400**

- **ACP100**

- **HTGR**

International Cooperation

- IAEA and China Sign Transit Agreement for Low Enriched Uranium (LEU) Bank, 10 April 2017
- Within the joint efforts of China, United States, IAEA and Ghana, a Chinese-supplied Research Reactor in Ghana was converted from HEU to LEU Fuel, 29 August 2017
- IAEA Completes International Physical Protection Advisory Service (IPPAS) Mission in China, 8 September 2017
- China Signs Agreement to Provide Training in Nuclear Technology, 18 September 2017

✓ Atomic Energy Scholarship provided
✓ To train experts from across Asia, students from emerging nuclear countries are welcomed
✓ In the areas of nuclear energy, nuclear safety and security, and nuclear sciences and applications

Application of Nuclear Science and Technology for Environment Protection

☐ Land Pollution

- Isotope tracer - to study the migration and transformation of various organic pollutants in soil, as well as the ways of absorption and transformation of soil fertility factors.
- Irradiation - to implement sludge sterilization and produce fertilizer.
- High-power plasma torch - to treat the hazardous waste, industrial waste, urban waste and medical waste in an economical, efficient and environmentally friendly way.

Application of Nuclear Science and Technology for Environment Protection

☐ Air Pollution

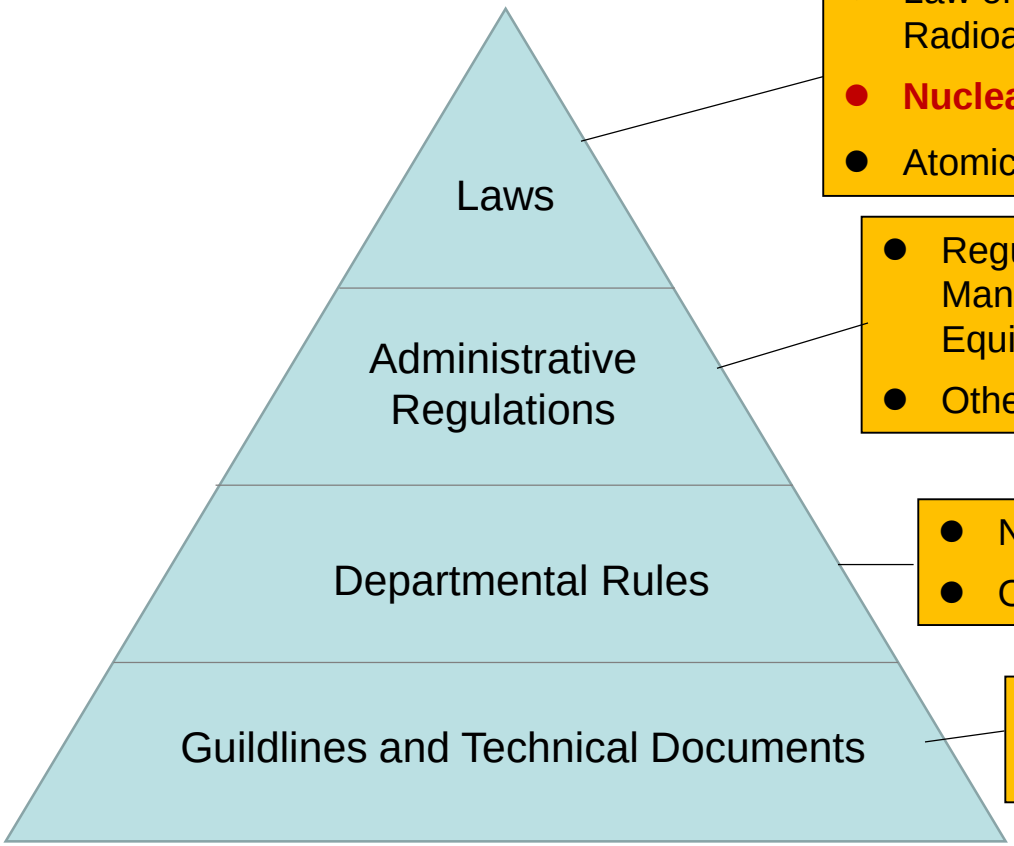
- Accelerator-based electron beam irradiation - to remove nitrogen oxides and sulfur dioxide from the emissions of thermal power plant.
- Plasma - to implement volatile organic compounds (VOC) conversion, nitrogen oxide removal, automobile exhaust gas purification, and flue gas desulfurization & denitrification.
- In addition, low-temperature heating reactors are studied to implement residential heating and industrial park central heating in order to reduce carbon dioxide emission and control haze in winter.

Application of Nuclear Science and Technology for Environment Protection

☐ Climate Change

- Clean energy - nuclear energy, renewable energy (wind, solar) are growing rapidly in China to adjust energy structure and to reduce greenhouse gases emission to achieve the objectives of the Paris Agreement.
- Long-term monitoring - the greenhouse gases and air pollutants in nuclear power plants and adjacent areas are monitored continuously in order to evaluate the effectiveness of clean energy objectively and accurately.

Nuclear safety laws and regulations



- Law on the Prevention and Control of Radioactive Pollution (28/06/2003)
- **Nuclear Safety Law (01/09/2017)**
- Atomic Energy Law (preparing)

- Regulation on the Supervision and Management of Civil Nuclear Safety Equipment
- Other regulations

- Nuclear Power Plant Design Safety Rules
- Other rules

- Nuclear Radiation Protection Design
- Other guildlines

感谢聆听

Thank you for your attention.

Qustions?