INPRO Dialogue Forum #5

Results from Brainstorming Session

Group 1: NP Deployment in the 21st Century

IAEA
International Atomic Energy Agency

Group 1 Participants

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- Albania
- Algeria
- France
- Germany
- Italy
- Kenya
- Mexico
- Pakistan
- Singapur
- Tunisia

General prospects for NP in 21st Century

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- NE could remain a viable option for countries with continuing growth of economy and electricity demand.
- Long-term prospects for nuclear power deployment are bright, in particular in developing countries.
- In most countries represented at this meeting outside of Japan there has been no major changes on NP policy excepting two countries (Germany and Italy).
- For NP to largely contribute to sustainable energy supply more countries need introduce NP.
- There has been increasing interest for near-term SMR deployment and non-electrical applications of NP.

Drivers, challenges and issues (1)

1. Key drivers and positive aspects
   - Spin-off effects of nuclear technology are important for economic growth, technology self-reliance, and progress in R/D education and other industry developments.
   - In the long-term NP may impact the growth of hi-technology with the potential for export (e.g. ROK).
   - Use of domestic uranium resources is a key driver for some countries to start NP program such as Mongolia, Vietnam and Algeria.

Drivers, challenges and issues (2)

- There has been growing demand for non-electrical applications of NE such as process heat, district heat, desalination, hydrogen-production, etc.
- Key drivers for NP expansion include energy security (e.g. supply security, diversity), economics, climate change, stable supply of electricity to large grids, less reliance on volatile prices of fossil fuels, less dependence on imported energy, etc.

Drivers, challenges and issues (3)

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2. Challenges and issues

- Currently the lack of operation of a HLW final repository is a key challenge.
- Given the existing phobia about NE and radiation there is a need to promote public awareness on other different sources of radiation, effects of low dose of radiation, and protection through the provision of objective information to general public.
- There is a challenge to select a suitable site in densely populated countries (e.g. Bangladesh)

Drivers, challenges and issues (3)

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2. Challenges and issues (cont.)

- In comparative cost assessments for NE and other energy options, there is a need to take into consideration externalities including environmental cost.
- Easy access to nuclear technology could be a challenge for newcomer countries.
- There is a difficulty to have a closed fuel cycle system f a country, which has a limited number of NPPs due to the economy of scale of (e.g. less than 10 NPPs).
- Scarcity of qualified human resources is one of the major challenges for expanding future nuclear power deployment.
- Lack of a stable long-term political commitment of government support to NE .
- Lack of long-term energy planning including NE could be a barrier.

Recommendations to IAEA and MSs

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- IAEA should strengthen regional cooperation in implementing different stages of the fuel cycle.
- IAEA should facilitate cooperation and coordination between countries working on similar projects in the peaceful use of NE.
- IAEA should strengthen efforts or activities for harmonization of reactor design requirement (e.g. EU utility design requirement).
- IAEA should strengthen dissemination of information on nuclear incidents and accidents (e.g. WNA).
- There is a need to increase high-level IAEA missions to countries embarking on NP that have positive impacts on political commitment and implementation of NP programs (e.g. IAEA DG visit to Tunisia, Kenya).
- IAEA needs to put more emphasis on SMR related projects and activities in non electrical applications given increasing interest in near-term SMR deployment in many countries.

Recommendations to IAEA and MSs (contd)

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- IAEA should provide reference economic and cost data on NPPs
- INPRO should increasingly supported by IAEA
- IAEA should seek to include NP in the Clean Development Mechanism
- Availability of financing is crucial for NP expansion (e.g. Turkey, Vietnam, Jordan): some countries take a financing option of "Build-Own-Operate or Build-Own-Operate and Transfer"