



**International Atomic Energy Agency**

# **WORKSHOP WRAP-UP**

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**Technical Cooperation Workshop on  
Nuclear Power Plant Technology Assessment  
Vienna, November 17-20, 2008**

# **Workshop Purpose (according to the Prospectus)**

**The workshop will bring together relevant experts and potential users of Nuclear Energy System (NES) to exchange information focusing on:**

- 1. The approach and process of planning and conducting Technology Assessments of NES, focusing on Water Cooled Reactor-based Nuclear Power Plant (NPP) designs.**
- 2. General concerns and needs of Member States related to technical assessment of NES during the planning phase to initiate and/or to expand a nuclear power programme.**



# Need and Position of Technology Assessment

- There are more than 50 countries considering to start a new nuclear program.
- The time frame from the initial policy decision by the country to the operation of the first nuclear power plant may well be 10–15 years.
- Technology Assessment is an important activity to be started early enough and completed before the bid invitation.
- There are several other previous or simultaneous activities interacting with the Technology Assessment.



# Technology Assessment Process

- **There is no "standardized" method to conduct a Technology Assessment. There is a big variation in Technology Assessments activities carried out in various countries.**
- **The Technology Assessment process has to be adapted to the local conditions.**
- **Recently published IAEA document "Common User Considerations (CUC) by Developing Countries for Future Nuclear Power Plants" and the existing compilations of utility requirements (URD, EUR, etc.) can be utilized in the Technology Assessment as references in the compilation of General Criteria/Requirements.**



# Availability of NPP Designs

- There are several large-size water reactor designs commercially available.
- There may be a couple of small and medium size reactor (SMR) designs available but most SMR designs are still in the development phase.
- Innovative reactor designs (GEN IV) are commercially available earliest in the 2030's.
- Design provenness is a commonly applied requirement. However, the meaning of "proven technology" is not always clear. Exploitation of technical development should also be considered, especially in safety systems.
- The "Buyer's Market" has turned to the "Supplier's Market" during last few years. It means that suppliers are focusing their interest mainly to those NPP projects which are most promising to them.



# Fuel and Waste Management

- **Front-end fuel cycle services are available from wide range of suppliers. However, enrichment may be a bottleneck.**
- **The price of uranium is very volatile but the opening of new mines will limit the price increase.**
- **Final disposal of used fuel or high-level waste is open in most of the countries. Interim storage and "wait and see" approach is commonly applied.**



# Safety and Licensing

- **Harmonization of regulatory requirements is still lacking.**
- **There is a wide set of design related safety standards issued (and revised when needed) by IAEA. They can be utilized in the Technology Assessment.**
- **IAEA is providing safety review services that can be tailored in accordance with the need.**
- **The licensability in the country of origin is a commonly used requirement but its application is not always straightforward.**

# Economics and Financing

- **The investment cost of NPP's is an emergent challenge due to the increasing cost trend of materials and to the shortage of component manufacturing capacity. However, notable measures have taken recently in order to increase manufacturing capacity.**
- **It is difficult to get reliable and up-to-date information about NPP investment costs.**
- **Financing is still one of the key challenges.**

# Human Resources

- **The lack of human resources is an alarming issue in most of the countries.**
- **It is a special challenge to start human resource activities early enough if there is no concrete decision on the NPP project.**

# Conclusions

- **Workshop was planned and preparations were made very well, thanks to Ray Sollychin, Workshop Director, and Sama Bilbao y Leon, Technical Officer.**
- **Original agenda was followed in a flexible way in order to allow discussions.**
- **Lectures were well prepared and informative, thanks to the lecturers.**
- **Discussions were open and lively, thanks to all participants.**
- **Workshop goals were accomplished.**