2\textsuperscript{nd} MDEP conference on New Reactor Design Activities: Concluding session.

Observations from Indian Regulator

S.S. Bajaj, Chairman, AERB, India

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• MDEP is a unique initiative
  – Bringing together regulators from different countries
  – Efforts towards harmonization of safety requirements

• Deliberation in this conference provide ample evidence that the initiative is a success
While aiming for harmonization, we have to recognize that some differences will and should persist:

• National regulators have the final responsibility

• Local factors:
  – Natural External events
  – Cultural & infrastructural differences
  – Security environment
  – Vulnerability to aircraft crash
  – Reliability of offsite electric power supplies

• Many existing requirements based on history, culture and well ingrained practices

• Need for accommodation of existing local good practices
Regulatory Process in India

• India has long-standing regulatory review experience in different designs of NPPs (PHWRs, FBRs and VVERs)

• Regulatory control for new NPPs involves several consent stages:
  – Siting
  – Construction (typically up-to three sub-stages)
  – Commissioning (several stages culminating in full power operation)
  – Regular operation

• At each stage comprehensive safety review, in a multi-tier structure, is carried out before clearance.
India’s Nuclear Power Program

• Present generation capacity of around 4700 MWe is derived from 20 reactors,
  – 18-PHWRs (220-540 MWe) and 2-BWRs (160 MWe)
• Plans to add substantial nuclear capacity
• Currently two VVERs (1000 MWe) are nearing completion and under commissioning
• 4 units of 700 MWe Indian PHWRs and one 500 MWe FBR are under construction
• Future plans for expansion includes multiple units of Indian PHWRs imported LWRs, including EPR and AP-1000
Relevance of MDEP for India

- With large number of facilities and diverse designs to be regulated, AERB needs to optimize its resources
- MDEP could be a very helpful platform for sharing knowledge and review experiences with other regulators
- Review results can be directly adopted in areas which have national requirements similar to MDEP criteria
- Thus India looks forward to very fruitful participation in the activities of MDEP
Observations

• Some aspects of EPR design reviewed by AERB as part of Technical Assignment review for proposed EPR project at Jaitapur, India

• A few key issues surfaced during such review
  – the use of “break preclusion” concept, safety classification of SSCs and digital C&I for protection system.

• Different regulatory regimes have taken different approach in resolving these issues

• We will be interested to see if convergence in these areas is possible.
Additional suggestions for enhancement of the scope of MDEP

• Addressing Fukushima type condition for new builds
• Extending the programme to operating NPPs in some areas
  – Review against current standards as a part of periodic Safety Review and handling of resulting safety upgrades
• Sharing of construction experiences
• Continued Involvement of vendors and utilities in some form.