#### Panel discussion and technical session on

# Instrumentation and Control Systems

International Conference on Opportunities and Challenges for Water Cooled Reactors in the 21st Century

Vienna, Austria, 27-30 October 2009



### Speakers

- Mr. Hash Hashemian, AMS Corporation, USA
- Mr. Kook Hun Kim, Doosan Heavy Industries, Republic of Korea
- Mr. Bela Bechtold, Areva NP GmbH, Germany
- Mr. Jean-Paul Bouard, EdF and IEC SC45A, France
- Mr. Toshifumu Hayashi, Toshiba, Japan
- Mr. Michael Längle, TUV SUD Energietechnik, Germany
- Mr. Volodymyr Bezsaly, Radiy, Ukraine
- Mr. Gary Johnson, Department of Nuclear Safety and Security, IAEA
- Mr. Oszvald Glöckler, Department of Nuclear Energy, IAEA



## Subjects addressed

- On-line monitoring for fault detection in instrument channels and processes
- Reactor noise analysis used for diagnostics
- Modernization projects of I&C systems and control rooms
- Use of Field-Programmable Gate Arrays (FPGA) in safety systems
- Prototype testing of digital I&C systems built for new NPPs
- Use of pre-certified Commercial-Off-The Shelf (COTS) products in NPP I&C
- I&C Standards



## Subjects addressed

- Licensing digital I&C used in safety systems
- Possible common-cause failures in digital I&C systems for safety
- Cyber security of digital I&C systems
- New sensing technologies
- Wireless communication in diagnostics and monitoring applications
- New I&C systems supporting power uprates and license renewals
- I&C cable ageing and equipment qualification
- Capture and transfer I&C knowledge





