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T2 RES – Multi-Unit Risk: Are We Ready for This?

Regulatory Information Conference Session T2

March 10, 2026

Panelists:

Dr. Susan Cooper, U.S. Nuclear Regulatory Commission

Dr. Shahen Poghosyan, International Atomic Energy Agency

Ricky Summitt, ENERCON

Mark Wishart, Electric Power Research Institute

T2 RES – Multi-Unit Risk: Are We Ready for This?

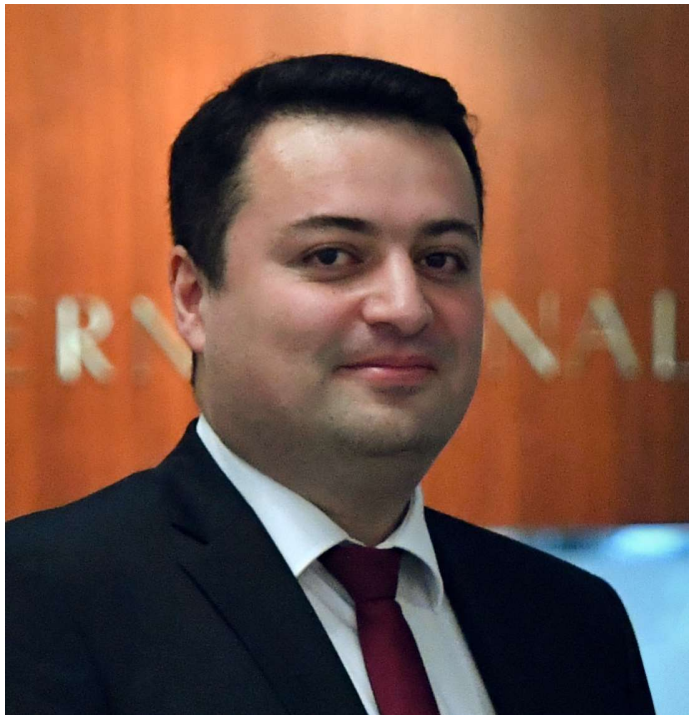
This session will explore the topic of multi-unit (MU) risk for both the existing fleet of light-water reactors and advanced reactor designs. Susan Cooper (NRC Office of Nuclear Regulatory Research (RES)) will summarize the integrated site risk approach and results from the NRC's Level 3 Probabilistic Risk Assessment (PRA) project, including MU Level 1, 2, and 3 results. Electric Power Research Institute has been involved in developing and applying MU PRA guidance for both U.S. and international nuclear power plants (NPPs). The current approach and status for developing an MU PRA standard will be presented by a member of the Joint Committee on Nuclear Risk Management MU PRA Standard Working Group. Given that some countries outside the United States have many units on a single site, a different perspective on MU risk will be provided by a representative from the international community for which most NPP sites have more than two reactors. Finally, efforts to model MU risk for advanced reactor designs will be summarized by a member from industry.

Session Chair: Jonathan Evans

- Jonathan Evans is a leader at the U.S. Nuclear Regulatory Commission (NRC), where he has served since June 2010. Currently the Chief of the Probabilistic Risk Assessment (PRA) Branch and Performance and Reliability Branch (PRB) within the Office of Nuclear Regulatory Research. In this role, he guides the agency's efforts to advance the use of risk-informed decision-making across nuclear safety oversight. Throughout his tenure, Mr. Evans has held various leadership roles, including Branch Chief in the Office of Nuclear Regulatory Research and acting in reactor design, engineering disciplines, and nuclear waste safety. He is recognized internationally for his expertise and has represented the United States at the International Atomic Energy Agency (IAEA) and other technical forums to promote broader awareness and effective use of risk analysis. He is best known for his management of the Level 3 PRA Project a comprehensive initiative designed to modernize the way the agency evaluates and mitigates potential risks to public health and safety from nuclear power plants.

Speaker:
Dr. Shahen Poghosyan

- Dr Shahen Poghosyan brings over 20 years of experience in nuclear safety, with deep expertise in risk analysis and risk-informed decision-making. Since joining the International Atomic Energy Agency (IAEA) in 2016, he has served as a technical lead in Safety Assessment, guiding the development of IAEA Safety Standards in this area. His current workplaces particular emphasis on innovative reactor technologies, including small modular reactors, transportable NPPs, and non-water-cooled designs. From 2016 to 2020, Dr Poghosyan was one of the IAEA officers leading the development of the IAEA methodology for multi-unit probabilistic safety assessment (PSA) and its incorporation into the recent revisions of IAEA PSA-related Safety Standards. He also represents the IAEA in several international technical working groups, including the ASME/ANS PRA Standard Working Group.



Speaker:
Mark Wishart

- Mark Wishart is a Senior Technical Leader in Electric Power Research Institute's (EPRI) Nuclear Power sector and a member of the Risk and Safety Management (RSM) team. He leads research initiatives focused on developing and communicating risk insights to support safe and reliable nuclear operations. Mark also contributes to advancing probabilistic risk assessment (PRA) methods, tools, and techniques, and facilitates knowledge transfer across the industry.
- Prior to joining EPRI in 2022, Mark was a manager with the Risk-Informed Services team at Jensen Hughes, where he supported diverse aspects of clients' risk management programs. His experience spans PRA model development, model updates, and risk-informed applications across multiple hazard types. Earlier in his career, Mark worked for Consolidated Edison Company of New York, Inc.
- Mark holds a Bachelor of Science in Mechanical Engineering from Lafayette College and a Master of Science in Mechanical Engineering from The Ohio State University.

NRC Speaker: Dr. Susan Cooper

- Dr. Susan Cooper is a Senior Reliability and Risk Engineer in the U.S. Nuclear Regulatory Commission's (NRC) Office of Nuclear Regulatory Research. Dr. Cooper has been with the NRC for over 20 years, performing and leading research in human reliability analysis (HRA) and probabilistic risk assesment (PRA) areas. Currently, Dr. Cooper is the lead for the multi-unit and integrated site risk task in the sitewide, all hazards Level 3 PRA project. Dr. Cooper's other work has included Electric Power Research Institute (EPRI)/NRC Fire Human Reliability Analysis Guidelines, qualitative analysis of spent fuel handling and cask drops, human error in radiation therapy, Level 2 Human Reliability Analysis.
- Prior to joining the NRC, Dr. Cooper worked for fourteen (14) years as an HRA/PRA consultant for Science Applications International Corporation (SAIC) where she performed a variety of nuclear power and non-nuclear power HRA and PRA tasks in both the U.S. and internationally. Dr. Cooper's work with SAIC included several NRC research projects, including the development of the HRA method "A Technique for Human Event Analysis (ATHEANA)" and "A Process for Risk-Focused Maintenance (NUREG/CR-5695)" which lead to the Maintenance Rule. Dr. Cooper also spent two years with Texas Utilities Electric Company on its PRA staff.
- Dr. Cooper has three Nuclear Engineering degrees. She received her bachelor's degree from Kansas State University and her Master's and PhD from Massachusetts Institute of Technology.

Speaker:
Ricky Summitt

- Mr. Ricky Summitt is the Principal Probabilistic Risk Assessment (PRA) Engineer for ENERCON and has more than forty-five years of experience in risk analysis including deterministic and probabilistic techniques to manage and perform technical tasks in the assessment of safety and reliability concerns for nuclear and chemical projects both domestically and internationally. He is also experienced in development of physical security assessment and training applications. He is the chairman of the JCNRM working group developing a multi-unit standard. He is a registered professional engineer in the states of North Carolina, South Carolina, and Tennessee and is currently a late-stage PhD candidate at the University of Tennessee. He is a member of the American Nuclear Society (ANS) and American Society of Mechanical Engineers (ASME). Mr. Summitt has led and conducted over 50 internal and external events PRAs as well as performing numerous risk-informed applications and related studies. He was involved in the Industry Degraded Core Rulemaking (IDCOR) Program supporting severe accident phenomena development, MAAP analyses, and MELCOR. He has also been involved in multiple PRA peer review activities covering model development, level 2 analysis, and external events.

Additional Information

- POC: Dr. Susan Cooper
- Email: susan.cooper@nrc.gov
- Public Meeting Schedule: https://www.nrc.gov/pmns/mtg