

International Regulatory Sandbox

NRC's 6th AI Workshop

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24th September 2025



*watercolor and logo courtesy of Ennuvo

International RegLab Project



NEA Joint Project
March 2025 – September 2027



RegLabs: from Pilot to International Joint Effort

First National Pilot (UK)

Output:

ONR and Environment Agency - November 2023 report: [Pilot of a regulatory sandbox on artificial intelligence in the nuclear sector](#)

Canada (CNSC) , UK (ONR), USA (USNRC) - September 2024: [Considerations for Developing Artificial Intelligence Systems in Nuclear Applications.](#)

2023



2024

International Pilot (CNSC, ONR, USNRC, EPRI, IAEA, Ennuvo, NEA, AI providers and nuclear licensees) – November 2024

Pilot RegLab to explore the International RegLab (sandboxing) concept.

Focus: Robust decision-making arrangements when using AI.

[Program on Technology Innovation: International Nuclear Innovation Sandbox Pilot with a Regulatory Focus: "RegLab"](#)

2025-2027

International NEA Joint Project (Regulators/ Technical Support Organisations/ Governmental agencies, Ennuvo) 2025-2027



Aim: Support nuclear Regulators and TSOs in approaching, with the industry, challenges and opportunities related to regulating DIETs applied to nuclear safety areas.

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Industry coordination (IAEA ISOP/EPRI)

Aim: Coordinate Industry to select and prepare mock safety use cases.

EPRI



What is RegLab? A regulatory sandbox

Sandboxing is:

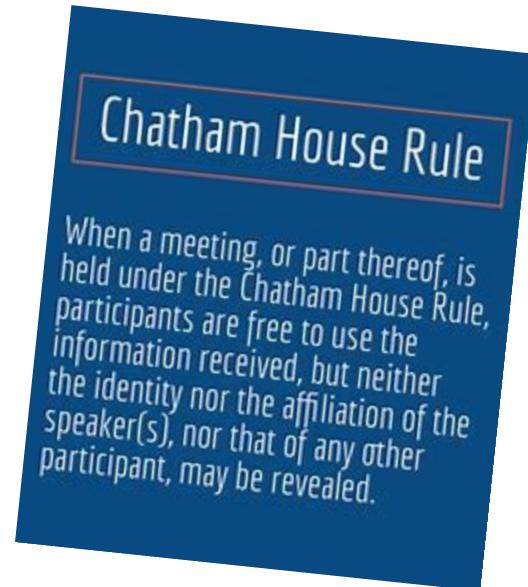
- Intended to reduce regulatory uncertainty.
- Create access to regulatory expertise.
- Help identify risk reduction mechanisms and approaches.
- Reduce the cost and time of entry for innovation.
- Allow regulators to test their arrangements.
- Test technology and process innovation in a controlled environment.
- Accelerate diverse and inclusive practices across the sector.
- Help develop capability.

Sandboxing is not:

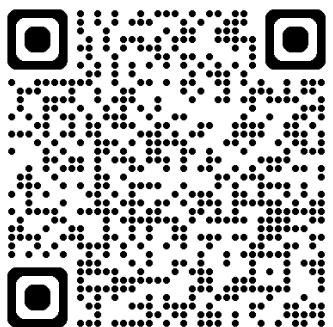
- A short cut for existing regulatory processes.
- A means of changing regulation on a permanent basis.
- An endorsement from regulators for a specific technology or process.

In a RegLab, industry, regulators and academics work together to explore and test regulation of an innovation in a safe environment.

Consideration of hypothetical, but representative, applications of innovation.



Topics



- RegLab Pilot
 - Governance and human-in-the-loop aspects of two artificial intelligence applications
 - defining plant maintenance autonomously
 - generating safety documentation
- RegLab #1 (Aug – Oct 2025)
 - Operational support - identifying and resolving plant issues and events using technologies such as AI and digital twin, use of big data from operation to inform safer operation, early detection of drift or failure across a nuclear facility
- RegLab #2 to #4 (2026 – 2027)
 - AI in operational support
 - AI use in safety, security, safeguards and environmental case development and design oversight
 - AI and cyber security

EPRI – RegLab Pilot Report



Thank you

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