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New guidance provides industry-first roadmap for nuclear-powered shipping

The new guidance promotes nuclear power as a reliable maritime energy source, addressing complex regulatory, safety and economic challenges of its integration.

LONDON, UNITED KINGDOM, October 16, 2025 /EINPresswire.com/ -- Lloyd's Register (LR) has published Navigating Nuclear Energy in Maritime, a new guidance document providing the first roadmap for the safe and responsible use of nuclear technology in commercial shipping and offshore industries.

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>
> *Mark Tipping, LR's Global Power to X Director*

As the maritime sector accelerates its transition towards sustainable energy solutions, nuclear power has re-emerged as a viable solution to achieve net-zero ambitions.

The guidance, developed in partnership with Global Nuclear Security Partners (GNSP) and marine insurer NorthStandard, sets out the practical steps project teams must take – outlining regulatory, technical, operational and financial requirements for integrating nuclear technology, such as small modular reactors (SMRs), into maritime assets.

With no international regulatory framework yet in place, the document discusses the roles of key bodies, including the International Maritime Organization (IMO) and the International Atomic Energy Agency (IAEA), highlighting the importance of harmonising maritime and nuclear standards.

Topics covered include safety classification, environmental impact assessments, structural integrity, and the development of a robust nuclear safety case. Security measures are also addressed, with emphasis on physical and cyber protection systems, as well as insider threat mitigation.

Operational and financial aspects are thoroughly explored, including personnel qualifications, emergency response planning, and quality assurance throughout the project lifecycle. The document also examines insurance and reinsurance challenges, advocating for a predictable liability framework to support commercial viability.

Mark Tipping, LR’s Global Power to X Director, said: “Nuclear energy has the potential to transform maritime, providing a scalable and zero-carbon energy source that can accelerate the industry’s energy transition. However, its adoption requires clarity, collaboration and trust across regulators, operators, insurers and wider society. This guidance offers a comprehensive starting point for stakeholders to navigate the risks and opportunities ahead.”


Mark Tipping, LR’s Global Offshore Power To X Director

Nick Tomkinson, Senior Partner, Global Nuclear Security Partners, said: “Maritime nuclear will only succeed when safety, security and safeguards are considered together from the start. This guidance document helps first movers align maritime and nuclear frameworks, apply goal-based approaches where prescriptive rules are absent, and build the confidence required by regulators, insurers and the public. GNSP is proud to contribute to this important step for the sector.”

Helen Barden, Director - External Affairs at NorthStandard, added: “NorthStandard are proud to have been invited to contribute our expertise to the Navigating Nuclear Energy in Maritime guidance document. We collaborated with Lloyd’s Register to explore the insurance and reinsurance considerations for nuclear energy - particularly the interlink between classification and insurance, current P&I limitations around pooling nuclear risks and the importance of liability frameworks.

“We welcome the growing recognition that nuclear could play a meaningful role in the decarbonisation of shipping and we are proactively supporting the maritime industry when it comes to the insurance and regulatory challenges ahead.”

LR’s guidance builds on its industry-leading [Fuel for Thought: Nuclear research programme] and aims to fill a critical knowledge gap. It brings together decades of classification, safety and compliance expertise with specialist nuclear insight to provide an evidence-based framework for project teams at every stage of development.

The full guidance, Navigating Nuclear Energy in Maritime, is now available at: [Navigating nuclear energy in maritime | LR]

Glenn Harris
Lloyd's Register
+44 7809 757779
GLENN.HARRIS@LR.ORG
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