

**RFI0046**

**REQUEST FOR INFORMATION**

**Generation 4 Nuclear Technologies for Integration onto Surface Ships**

**RFI Title:** RFI0046 Generation 4 Nuclear Technologies for Surface Ship Employment

**Issue Date: 10/09/2024**

**Reference:** RFI0046

**Version:** 1.0

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# Introduction

This RFI is not a bidding opportunity but a means by which industry can provide information insight and perspective. In accordance with the principles of the Defence and Security Industrial Strategy (DSIS) the Royal Navy is committed to developing an ever more productive and strategic relationship with defence and security industries, capitalising on your skills and experience as part of our support for increased transparency and inclusivity. Any future procurement activity would be conducted in accordance with the relevant Procurement legislation in place at that point in time. A decision by any prospective provider not to submit a response to this RFI will not prejudice future engagements.

**Please note:**

**This RFI is an information gathering exercise; no further discussions with industry are planned at this stage. In the event of any future procurement activity, it would be advertised in line with public procurement regulations on the Defence Sourcing Portal and Contracts Finder.**

1. Background

The Royal Navy (RN) is seeking information regarding the integration of Generation 4 nuclear technologies[[1]](#footnote-2) for surface ship employment. Exploring scopes for alternative energy paradigms the Royal Navy is gathering information on various energy solutions for powering large surface ships. Substantial questions remain over the integration of both larger generation 4 reactors, and micro modular reactors onto surface platforms. This RFI seeks to understand industry considerations for these technologies.

1. RFI intended outcomes

The primary objective of this RFI is to gather detailed information on GEN4 nuclear reactor designs, their feasibility for large surface ships (including support vessels and surface combatants), and the potential benefits and challenges associated with their use. This information will help inform our future strategic decisions and potential investments in this technology. Following the viability of returns the Royal Navy may hold a forum to explore key details from selected responses and/or an action leaning event. We therefore, invite responses from companies, research institutions, and other stakeholders with expertise in Generation 4 nuclear technologies. Specifically, we are interested in the following:

1. Inform and align the MOD requirement with industry capability and processes in iterating the developing requirement ahead of future approaches to market.
2. To map the opportunities for a system of systems approach in delivering GEN4 NUC and to explore potential for application of spiral development and/or modular integration.
3. RFI Procedure

Responses to this RFI will be reviewed by subject matter experts from different functional areas across Navy Command Headquarters and other interested MoD departments.

If upon review of your submission any clarifications or additional information is required, you will be contacted using the details provided in your RFI response.

Any details provided in response to this RFI will be used for information purposes only and will not be used to determine the potential Suppliers who will be invited to bid, should the Authority proceed to tender.

The results and analysis of this RFI shall not constitute any form of pre-qualification exercise.

Any formal procurement process will be undertaken in accordance with the relevant Procurement Law.

Nothing in this RFI, or any other engagements with Industry prior to a formal procurement process, shall be construed as a representation as to the Authority’s ultimate decision in relation to the future requirement.

1. How to submit responses to this RFI

Respondents should provide responses in accordance with the format provided in **Annex A** quoting the RFI reference on all documentation and emails**.**

Please do not submit additional documents such as company overviews, the purpose of the RFI is to collect information related to the technical solution, any additional documents will not be included in the review process.

Any responses received after the deadline will be passed to the subject matter experts for information, however they may not be included in the RFI review meetings which are to be held immediately following the deadline.

Once completed, please return electronically to the e-mail address(es) shown below in **section 8,** no later than **09/10/2024**.

Responses will be acknowledged electronically by return e-mail.

1. Confidentiality & Proprietary Information

No information included in your response, or in discussions connected to it, will be disclosed to any other third party.

Proprietary information, where included, should be kept to minimum and must be clearly marked.

**For the purposes of this RFI, any documentation classified at OFFICIAL SENSITIVE or OFFICIAL SENSITIVE – COMMERCIAL must be submitted from an r.mil.uk address. Otherwise, all responses must be at OFFICIAL.**

1. Costs of preparing your RFI response

Any costs relating to the preparation and submission of a response to this RFI are the sole responsibility of the respondent.

1. Contact

Quoting the RFI reference, please submit

1. any requests for clarification
2. all responses to this RFI and
3. any questions regarding Classification of document(s) intended for submission, to:

[NAVYCOMRCL-RFI@mod.gov.uk](mailto:NAVYCOMRCL-RFI@mod.gov.uk)

1. Annex A

**RFI0046 TITLE**

|  |  |
| --- | --- |
| **Question** | **Answer** |
| Company Name |  |
| Company Address |  |
| Is the company a Small - Medium Enterprise (satisfies two or more of the following requirements: not more than 250 employees, a turnover of less than £36 million or a balance sheet of less than £18 million)? |  |
|  | |
| Name of Company representative completing the RFI |  |
| Contact details (e-mail and telephone number) |  |
| Company web site address |  |
|  | |
| Main products/services/line of business |  |
| Main market sector |  |
| Number of years in this market sector |  |
| **QUESTIONS**  **Please provide a comprehensive response outlining your proposed solution, addressing the following categories.** | |
| **1) Technical Specifications:**   * 1. **Detailed descriptions of Generation 4 nuclear reactor** **designs suitable for maritime applications.**   2. **Power output, efficiency, and operational parameters of these reactors.**   3. **Safety features and protocols inherent to Generation 4 reactors.** | |
| Response: | |
| **2) Integration and Adaptation:**   1. **Requirements for integrating Generation 4 reactors into the design and construction of large surface ships.** 2. **Modifications needed for existing ship designs to accommodate nuclear power systems, ‘missing links’ and/or required research questions to enable these technologies for application in the maritime.** 3. **Implications for wider Defence Lines of Development (crewing, training, maintenance, supporting infrastructure and other such effects).** | |
| Response: | |
| 1. **Environmental and regulatory considerations:**    1. **Lifecycle sustainability assessments and mitigation strategies for nuclear-powered ships.**    2. **Key regulatory frameworks governing the use of nuclear power in maritime settings and opportunities for GEN4 technology to overcome legacy blockers.** | |
| Response: | |
| 1. **Economic and Operational Viability:**    1. **Cost and time estimates for the development, construction, and operation of Generation 4 nuclear-powered ships.**    2. **Comparative analysis of operational costs versus traditional propulsion systems.**    3. **Potential economic benefits.** | |
| Response: | |
| 1. **Case Studies and Pilot Projects:**    1. **Examples of existing or planned projects involving Generation 4 nuclear power in maritime applications.**    2. **Lessons learned from these projects and best practices for implementation.** | |
| Response: | |

1. [Generation IV Systems (gen-4.org)](https://www.gen-4.org/gif/jcms/c_59461/generation-iv-systems) [↑](#footnote-ref-2)