UK National Clean Maritime Research Hub

Wave 3 Flexible Funding – Call for Responsive Research Proposals

1. Call Headline Details

Maximum proposal value to be provided by the UK-MaRes Hub per award	**£50,000 at full economic costing (100% fEC)**
Funding level	**80% of fEC**
Number of awards available in this call	**Funding for up to 11 projects**
Available funding across this call	**Up to £550,000 (100% fEC)**
Call opens	**Monday 8th December 2025**
Closing date for application submissions	**Friday 30th January 2026 at 16:00**
Deadline for notification of outcome	**Friday 20th March 2026**
Project duration	**Up to 6 months**
Anticipated project start date	**1st May 2026**
Latest project end date	**31st October 2026**

2. About the UK-MaRes Hub

Led by Professor Tony Roskilly, the UK National Clean Maritime Research Hub (UK-MaRes) was established in September 2023 with £21.3 million of funding from the Engineering and Physical Sciences Research Council (EPSRC), Department for Transport (DfT), collaborating universities and industry. It has since gone on to secure a further £3.85m to develop a Liquid Hydrogen Research and Innovation Facility along with funding for a 12-month extension. Going beyond conventional marine engineering and naval architecture, UK-MaRes Hub is a research community of almost 80 people across 14 universities, working together to conduct innovative research under 5 key themes: marine fuel scale-up and safety; power and propulsion systems; vessel design and efficiency; port and vessel support infrastructure; as well as digitalisation, maritime operations, and finance.

Having previously awarded 9 Flexible Fund projects from 2 waves of funding calls, the Hub is now inviting applications for Wave 3. Flexible Funding enables the Hub to extend its capacity and capability into new areas of research beyond its core programme of activity, to accelerate the transition to a cleaner maritime future, providing a fresh approach to maritime decarbonisation.

3. About our Flexible Funding Calls

Through a total of 4 waves of Responsive Research Calls, the Hub aims to fund up to 30 world-leading responsive research projects. The full economic cost (fEC) of each successful project (excluding any project partner contributions) can be up to **£50,000**, of which the Hub will fund at 80% fEC (as is standard for ESPRC funded calls).

In addition to the funding requested from the Hub, all projects are required to **leverage 1:1 match funding** from industry project partners (as evidenced by letters of support). For example, if your total project costs come to £50,000, you must have project partner contributions to at least the same value. This match funding can be made up of in-kind or cash contributions, or a combination of both.

4. About this Call: Wave 3 Flexible Funding

Wave 3 Funding is available for **up to 11 projects** that address any of the following 9 priority areas:

1. Real-world emissions monitoring and enforcement technologies
2. Skills, workforce and capability development to support the clean maritime transition
3. Disruptive onboard power systems and electric drives
4. Nuclear applications for maritime decarbonisation
5. Environmental impact of dredging and sediment management
6. Onboard carbon capture and disruptive after-treatment technologies
7. Design and operation of onboard power and propulsion systems using advanced learning algorithms and next generation digital tools to improve performance and fuel safety
8. Autonomous vessel design and operations
9. Advanced design and mitigation strategies to understand and prevent unsafe release of future clean fuels in real-world maritime environments

These priority areas were identified through engagement and consultation with key stakeholders across the maritime sector.

5. Eligibility

5.1 Who is Eligible to Apply?

- As per the Wave 2 call, **applications are welcome from both UK-MaRes Hub's consortium universities and external institutions.** However, **applicants must not have any prior involvement with the existing Principal and Co-Investigators** of the Hub to be considered eligible. We define 'prior involvement' as:
  - being a named researcher/investigator on a project also involving any of the investigators from the Hub,
  - being part of the same research group as any of the investigators from the Hub,
  - having a publication history with any of the investigators from the Hub.
- The universities in the consortium are Aston, Birmingham City, Birmingham, Brighton, City St.George's, Cranfield, Durham, Liverpool, Newcastle, Nottingham, Sheffield, Solent, St Andrews and Ulster.
- Academic staff based at a UK institution eligible of receiving EPSRC funding.
- **Principal and Co-Investigators of the UK-MaRes Hub are not eligible to apply for this flexible funding**.
- Whilst this funding is open to eligible individuals at all career stages, projects **must** be led by an Early Career Researcher (ECR) supported by an experienced academic mentor. We define an ECR as any individual who has been awarded a PhD but has not yet held a research grant of

£100,000 or more. Eligible individuals from under-represented groups are particularly encouraged to apply.
- Please get in touch prior to application if you have any questions concerning your eligibility to apply.

Please note: we encourage potential applicants to liaise with their Research Office to discuss any potential implications for applying for future funding from other sources, should they be successful in receiving an award from this funding call.

Standard EPSRC eligibility rules apply in relation to the status of the organisation and the employment status of individuals applying. The term of employment of a fixed-term employee must extend beyond the duration of the proposed research project**.** Any proposal that is incomplete, does not meet the eligibility criteria of this call, or duplicates the research that is already planned by the UK-MaRes Hub will not be considered for funding.

Please note: Given the short-term nature of these Flexible Fund awards, **there is an expectation that the required resources are available to start the project within the timescales outlined above**. No time allowances will be made to recruit staff, and any project unable to meet this criterion will not be considered for funding. Should a project be selected for funding, and it is later found that the required resources are not in place, the award will be withdrawn.

5.2 Eligible Research

Applications to this call **must not** duplicate or be technically related to the research already planned by UK-MaRes Hub.

As mentioned in Section 2, UK-MaRes Hub is focusing on 5 research themes. The associated work packages (WPs) are detailed in Appendix 1.

Please review Appendix 1 to ensure that your proposal does not overlap with the research already being undertaken by UK-MaRes Hub. Applications which duplicate any of this research **will not** be considered for funding.

6. Equality, Diversity and Inclusion (EDI)

EDI is at the heart of all UK-MaRes Hub's activities, and we encourage engagement from under-represented groups across the maritime research community. To promote EDI and support capacity building across the sector, the UK-MaRes Hub invites applications from researchers at all career stages, however projects must be led by ECRs who meet EPSRC eligibility criteria. Successful proposals will consider and support EDI and skills development as part of their proposed project activity.

7. Eligible Costs

Eligible costs may include funding requested for:

- Staff costs (Principal Investigator, Co-Investigator(s), Research and Technical Staff).
- Travel and subsistence.
- Consumables.

Please note: Equipment costs are not eligible under this call.

8. Expected Project Outcomes

Proposals should embed EDI, skills development, knowledge transfer and impact in the proposed activities. All project teams are expected to disseminate their research findings at a UK-MaRes Hub

event, produce at least one relevant publication, submit an interim progress report half-way through the project and a final report 1 month after the end date.

9. Submission Process

A submission will consist of a complete application form and letters of support from project partners. Letters of support from each project partner must be on headed paper, signed, and dated within the last 6 months, clearly indicating their meaningful contribution to the project and an auditable monetary value of the match funding.

Applications should be submitted by email to:
admin.clean-maritime-research-hub@durham.ac.uk by 16:00 on Friday 30th January 2026.
Any incomplete applications or, applications received after this date and time will not be considered.

10. Evaluation Process

All proposals will go through an initial sift stage by the Hub Manager and Administrator. The sift will focus on the completeness of the proposal, whether the proposal meets the eligibility and evaluation criteria, whether it duplicates the research that is already planned by the UK-MaRes Hub, and whether it is linked with the teams of the Hub's Principal and Co-Investigators (see **Section 5**). Eligible proposals will then be assessed by the Responsive Research Working Group (RRWG) of UK-MaRes Hub and will be evaluated against the following criteria:

(1) Quality, ambition, and novelty.
(2) Strength of the project partnership and matched contributions.
(3) Ability to deliver the proposed research and complete the project by 31st October 2026.
(4) Clear plans for the proposed research, project management, engagement, EDI, skills development, and impact to the sector.

The proposals will be scored using the following scoring scale:

(1) Is scientifically or technically flawed
(2) Does not meet one or more of the assessment criteria
(3) Meets assessment criteria but with clear weaknesses
(4) Is a good proposal with minor weaknesses
(5) Is a strong proposal that broadly meets all assessment criteria
(6) Is a very strong proposal that fully meets all assessment criteria

The RRWG will make award recommendations to the Exploration and Responsive Research Council (ERRC) of UK-MaRes Hub. The ERRC will assess the proposals put forward by the RRWG, apply a portfolio view of potential Wave 3 Funding projects, and make the final selection of which proposals are to be funded.

Please note: Should any applications be received from universities already part of the consortium, the investigators of the Hub from the same university, will have no input into the assessment and decision-making process related to the proposal.

Upon announcement of the assessment outcome, each successful application will be assigned an adviser from the Hub's academic consortium to support the project and provide a link to Hub's core research portfolio.

11. Point of Contact for Queries

If you have any questions, please do not hesitate to contact us by emailing:
admin.clean-maritime-research-hub@durham.ac.uk

Appendix 1 – Research already being undertaken by the UK National Clean Maritime Research Hub

WPs	Scope and proposed research	Co-Investigators
1.1	Future clean marine fuel production scale-up: achieve rapid reductions in maritime carbon emissions; identify key potential technologies and associated scale; provide technical appraisal of life-cycle appraisal of carbon impact of technology options, techno-economic assessment, wider sustainability assessment, jobs/economic impact & skills, and infrastructure needs.	Professor Patricia Thornley and Professor Rachael Rothman (Aston and Sheffield)
1.2	Whole system environmental assessment of fuel switching options: material flow analysis (MFA), life cycle assessment (LCA), and technoeconomic assessment (TEA) to assess environmental and economic impacts.	Professor Rachael Rothman (Sheffield)
1.3	Marine fuel storage, safety operation and handling: safety of ammonia storage by modelling multi-phase flows from the storage tank, dispersion in the atmosphere, prevention and mitigation strategies; safety engineering of hydrogen onboard storage (development of explosion free in any fire self-venting); hydrogen safety research related to IGF Code; contemporary CFD models of gaseous hydrogen refuelling through entire equipment of refuelling station, and development of refuelling protocols.	Professor Vladimir Molkov (Ulster)
2.1	Disruptive electrical systems: parametric design and analysis of modular generator sets; DC microgrids system integration; short-term energy storage systems integrating batteries and supercapacitors; energy management strategy and control including digital twin models development of hybrid powertrain systems with validation.	Professor Pietro Tricoli and Professor Dawei Wu (Birmingham and Durham)
2.2	Clean conventional IC engines: deep retrofit with advanced spark ignition; retrofit with dual fuel; and cryogenic energy harvest	Professor Al Cairns (Nottingham)
2.3	Disruptive zero emissions hydrogen engines: ultra-low single-digit NOx H2 internal combustion engine concepts; novel-high efficiency linear engines and split cycles operating; experimental research on NH3 cracking into H2; deployment onboard marine vessels and on ports.	Professor Andrew Smallbone and Dr Cliff Dansoh (Durham and Brighton)
2.4	High-power fuel cell systems: clean marine fuels in high temperature fuel cells, efficiency and emissions; SOFC utilising methanol via internal reforming; proton conducting oxides (PC-SOFC) with ammonia; integration into power delivery systems; and scaling solutions towards large scale ship scale technology.	Professor John Irvine and Dr Martin Smith (St Andrews)
2.5	Pre-/post-CCS integration with marine propulsion system: post-combustion CO_2 scrubbing, pre-combustion molten carbonate fuel cells or molten salt reactors; integration of CCS technologies with marine powertrains; thermodynamic modelling, techno-feasibility analysis, and economic evaluation.	Professor Tony Roskilly (Durham)
3.1	Decarbonising each port through co-development: identify emissions sources and emission reduction measures in ports; assess different solution measures for port decarbonisation; develop strategic roadmap for port decarbonisation; and optimise port operations to reduce emissions.	Professor Dongping Song and Professor Ying Xie (Liverpool and Cranfield)
3.2	Support decarbonisation for vessels and industries as an energy hub: estimate port's energy and fuel demand and supply; plan	Professor Ying Xie and Professor

	port's energy logistics capacity and requirements; develop incentive schemes to align objectives among various stakeholders connected to ports.	Dongping Song (Cranfield and Liverpool)
4.1	Low-carbon ship design: strategy and action for retrofit and new-build ships; digital twinning for speed-power performance monitoring and optimisation; AI-driven novel design adopting a multi-agent reinforcement learning method to optimise the coupled ship hull and propeller interactive optimisation.	Professor Zhiqiang Hu and Dr Xiang Xie (Newcastle)
4.2	Integration of novel marine propulsion: design and optimisation of novel marine propulsors for high-efficiency and environmental friendliness; renewable energy generation, conversion, and dual-mode propulsor-turbine propulsion system; systematic D&O of green-fuelled propulsion for hydrodynamic performance to integrate with electric engines; optimise the angle of attack (AOA) and energy consumption for a wind-assisted propulsion vessel.	Professor Zhiqiang Hu and Dr Samir Belhenniche (Newcastle)
4.3	Autonomous ships: a system engineering approach, addressing decarbonisation and safety benefits; safety and reliability assurance challenges; data requirements for valid situational awareness; verification and validation of situational awareness by authorities; safety criteria framework for evaluating safety of autonomous ships in shared situations, considering technical, ethical, and legal factors; key future requirements.	Dr Laurie Wright (Solent)
4.4	Energy system, energy consumption, lifecycle emissions and cost analysis: develop a decision-making tool to explore decarbonisation alternatives, considering energy consumption, cost, and emissions across various scenarios.	Professor Yaodong Wang and Dr Janie Ling Chin (Durham)
5.1	Data analytics and machine learning to generate actionable knowledge: apply natural language processing and AI to process unstructured and audio data collected from multiple sources to extract actionable knowledge; conduct a feasibility study and a full demonstration to showcase how actionable knowledge can improve business practices for better economic and environmental performances.	Professor Ying Xie and Professor Dongping (Cranfield and Liverpool)
5.2	AI enabled optimisation for maritime operations: explore data-enabled smart operations through digitalisation and collaboration, e.g. ocean carriers and port operators collaboratively achieve just in time vessel arrivals; shippers and port operators jointly improve container stacking operations to eliminate reshuffles; truckers and port operators better utilise the vehicle booking system to reduce waiting time and emission.	Professor Dongping and Professor Ying Xie (Liverpool and Cranfield)
5.3	Implications from the economic, financial and managerial perspectives: quantify the price differential between eco-friendly and non-eco-friendly vessels and examine its determinants; examine the effects of the decarbonisation regulations on marine insurance; develop an economic model that examines the impact of market-based measures on the operating cash flows of vessels and vessel prices and, thus, on the investment decisions of shipowners; develop a financial model that quantifies the investment risk stemming from the regulatory and technological uncertainty related to the transition to net zero shipping; model the carbon efficiency of vessels in terms of economic output versus carbon emissions; examine what causes shipping energy technology innovation and diffusion.	Dr Ioannis Moutzouris (City St George's)