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*eWAVE: a consortium of 18 interdisciplinary European partners will push the borders of High-Voltage technology for electric vessels to power the future for electric shipping.*

**13 March 2025 – The maritime sector faces challenges in transitioning to sustainable, all-electric vessels. Key obstacles include low energy density in current battery systems, safety concerns, and the need for durable, sustainable materials. Economic viability also remains a significant barrier for widespread adoption.**

To address these issues, the EU-funded new research project eWAVE brings together 18 experts from research, technology, and shipbuilding to advance high-voltage (HV) technology for battery powered vessels. By developing high-energy-density batteries, scalable modular systems, and an integrated safety concept, eWAVE aims to enhance the sustainability, safety, and efficiency of maritime transport. The project will also explore circularity through bio-based materials and recycling, supporting the EU's goal of reducing the environmental footprint of shipping.

Funded through the European Union's Horizon Europe Framework Programme for Research and Innovation, the project will receive EUR 7,5 million over the next four years. eWAVE is coordinated by i2m and the consortium kicks off its activities today with a consortium meeting in Graz in Austria



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the European Union**

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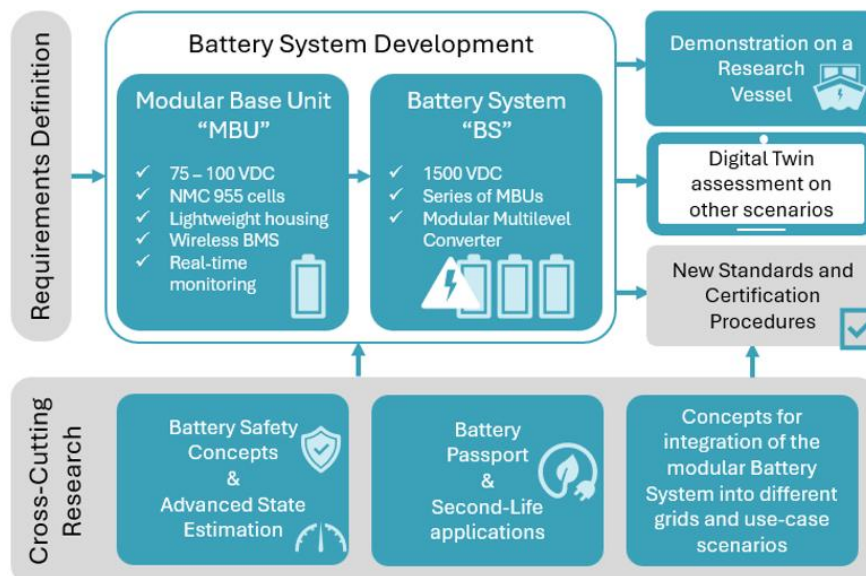


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The research, technology and shipbuilding experts in project eWAVE will collaborate to mature High-Voltage (HV) technology for electric vessels for future uptake in European shipbuilding sector, using efficient HV electric modular battery and distribution systems. The full project title is “eWAVE: Efficient HV-electric modular battery and distribution systems for sustainable WATERborne VEssels”. Together, the eWAVE partners will research, develop and demonstrate HV solutions for sustainable maritime and inland vessels.

At present, the widespread adoption of such HV technology is hindered by several obstacles (e.g. current battery systems’ energy density, safety concerns, durable & sustainable materials), and, finally, economic viability / sustainability. Overcoming these obstacles will be achieved by using new high-energy-density high-nickel-content batteries for waterborne applications in a lightweight housing made of recyclable thermoplastics, wired and wireless BMS solutions and multi-level converters that provide the required scalability for vessel systems far beyond 1MWh. The battery system will be fostered by an integral safety system concept considering thermal runaway & ventilation, supported by an integrated real-time condition monitoring system using novel SoC/SoH algorithms and SoS estimation.

### Project Methodology



The key results of eWAVE will be validated via laboratory and real-life vessel demonstrators. The applicability of the system will be investigated across multiple vessel types using an efficient modular digital twin to maximize industry uptake. To further improve circularity and sustainability of maritime battery systems, eWAVE will explore bio-based battery housings, a design for dismantling and recycling, the creation of a battery passport concept for the maritime sector, and potential 2nd life applications for the batteries.



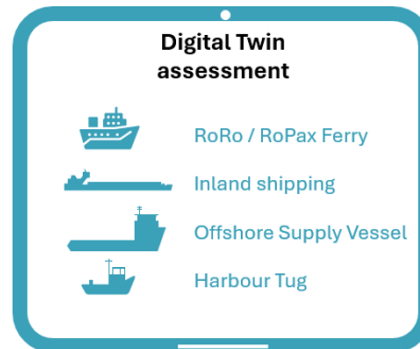
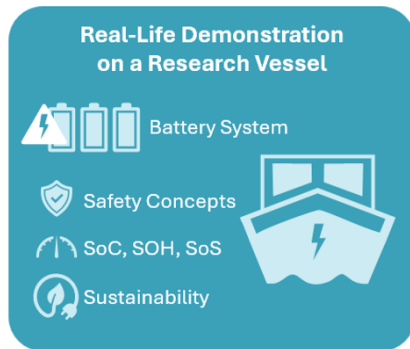
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### Project main Demonstrators



eWAVE's HV technology solutions, tools and methods are expected to significantly improve the safety, efficiency, and sustainability of battery systems in shipping, thus supporting transition to all-electric shipping and contributing to the reduction of the environmental footprint of waterborne transport in the EU and far beyond.



*Image: Visualisation of the new DLR research ship on which the eWAVE key results will be demonstrated (source: DLR, CC BY-NC-ND 3.0. This picture is protected by the creative commons license)*

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### Project Key Facts

Full Name: eWAVE - Efficient HV-electric modular battery and distribution systems for sustainable Waterborne VEssels  
Start Date: 1 February 2025  
Duration: 48 months  
End Date: 31 January 2029  
Budget: 7 576 547,50 EURO  
Coordinator: i2m, Austria

Website: [www.eWAVE-project.eu](http://www.eWAVE-project.eu)  
Cordis link: <https://cordis.europa.eu/project/id/101192702>



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### Project Partners



### Project Coordinator



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