



FLEXSHIP

Flexible and modular large battery systems for safe on-board integration and operation of electric power, demonstrated in different type of ships



FLEXSHIP goal

The overall goal of FLEXSHIP is to develop and validate safe and reliable, flexible, modular, and scalable solutions for electrification of the waterborne sector.

Project goals includes the reliable design and development of modular battery packs; safe on-board integration including the battery system and its associated electrical distribution grid into the vessel's existing power grid; optimal design of energy management system (EMS) to maximise the operational flexibility and energy efficiency (both full-electric and hybrid), and smart control for improved lifetime of the battery system and critical power components.

Project start date **1 January 2023** project end date **31 December 2026**



Contribution to the expected outcomes of the call topic

- 1** Contributions to two full scale vessel demonstrators, hybrid and fully electric, by 2027 covering a sailing distance of at least 300 nm in the case of a fully electric vessel.
- 2** Development and validation of electrical architectures for large battery systems on-board.
- 3** Proof of the safe integration of battery systems into the ship's electrical grid for a relevant number of ship types (e.g., IWT, short sea vessels, cruise ships, ferries) and operational scenarios
- 4** Verification of the architecture and the power management system for two cases: hybrid and fully electric
- 5** Documentation of skills requirements for the crew
- 6** In the short term, facilitate full battery electric transit for reduced noise and zero emissions on shorter routes (up to 100 nm) and during approach and harbour stay

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This project has received funding from the European Union's Horizon Europe research and innovation program under grant agreement no. 101095863

