

Project name : Seabat



Project description

The overall objective of SEABAT is to develop a full-electric maritime hybrid concept based on (1) combining modular high-energy batteries and high-power batteries, (2) novel converter concepts and (3) production technology solutions derived from the automotive sector. A modular approach will reduce component costs (battery, converter) so that unique ship designs can profit from economies of scale by using standardized low-cost modular components. The concept is suitable for future battery generations and high-power components that may have higher power densities or are based on different chemistries. Expected results: optimal full-electric hybrid modular solution, minimizing the battery footprint and reducing the oversizing (from up to 10 times down to max. 2 times). Validating as a 300 kWh system (full battery system test) at TRL 5, and virtually validating the solution for batteries of 1 MWh and above, using 300 kWh system P-HIL tests.

The result will be a validated hybrid battery solution for capacities of 1 MWh and beyond, a roadmap for type approval and a strategy towards standardization for (among others) ferries and short sea shipping. The solution will deliver a 35-50% lower total cost of ownership (TCO) of maritime battery systems, including 15-30% lower CAPEX investment, 50% lower costs of integration at the shipyard and a 5% investment cost recuperation after the useful life in the vessel.

The SEABAT consortium unites all the necessary expertise for developing the hybrid topology and implementing it in the industry. The market pick-up of the SEABAT solution is maximized by having 20 shipbuilders and integrators in the consortium; they are represented by the SOERMAR association. The stakeholder group, in which end users and port authorities are represented, supports the wide adoption of the SEABAT solution in the European maritime market, and the increase in European skills base in large battery technology and manufacturing processes.

Website: <https://seabat-h2020.eu/>

In SEABAT ABEE will be involved in the following activities:

- Support to the roadmap set up
- Defining the hybrid battery system architecture concept
- Modeling and sizing of the different battery system components
- Thermal management solution
- TCO calculation
- Testing and validation
- Dissemination
- Technical coordination