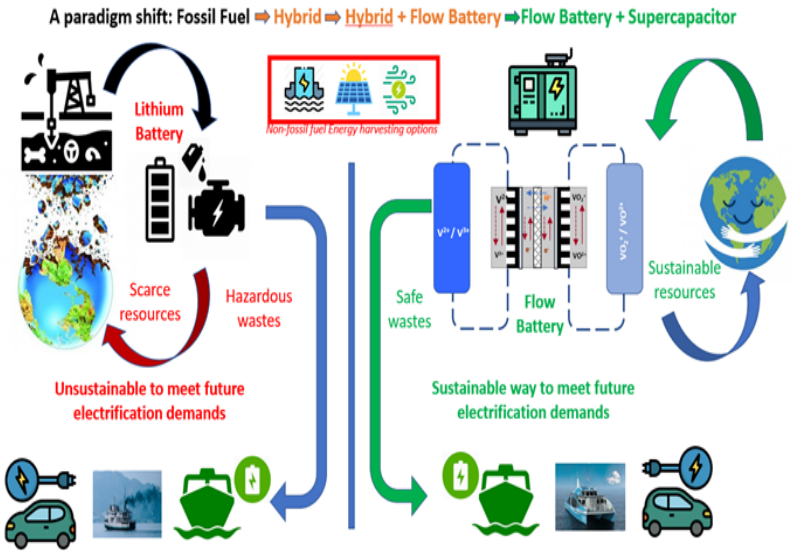
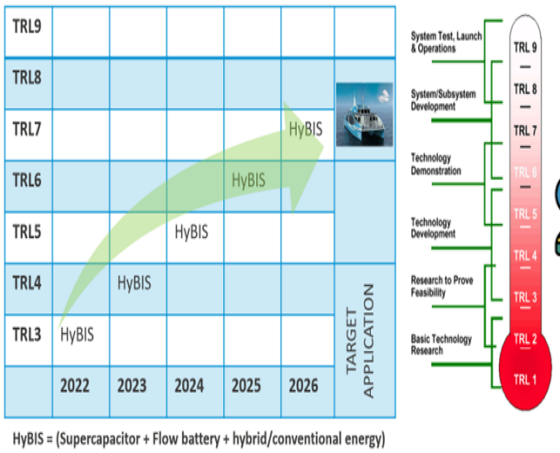
Project Title	HYBESS – INTEGRATED HYBRID-ENERGY STORAGE SYSTEMS FOR WATERBORNE APPLICATIONS							
Epsilon	**Country**	**Contract value (€)**	**% carried out by Epsilon**	**No of staff provided**	**Client**	**Origin of funding**	**Date (start/end)**	**Consortium Members**
	Malta	9,646,000	10%	6	European Commission	HORIZON-CL5-2022-D5-01-02	01/01/2023 31/12/2026	NTUA (Coordinator), TWI, SEA GREEN ENGINEERING, EPSILON International Ltd, University of Leicester, ABERTAX Quality Ltd, ELKON, CRE, SKELETON Technologies, PINFLOW Energy Storage, Istanbul Sehir Hatlari, MARIN

Description of the project

HyBESS proposed to revolutionise maritime energy systems by integrating and demonstrating two emerging electrical storage technologies: Flow Battery Energy Storage (FBES) and Super Capacitor Energy Storage (SCES). The project would focus on waterborne applications, adapting both technologies for maritime environments, and validating their performance on board demonstrator vessels. In parallel, a comprehensive simulation and modelling platform would be developed to optimise energy storage configurations and evaluate safety, cost, and regulatory implications.
HyBESS also targets reduced carbon emissions and increased electrification of maritime transport through hybrid configurations using ICE generators and renewable energy sources.





Services provided

Epsilon would:

- Lead activities under **Work Package 6 (WP6)**
- Conduct **risk assessment** and **safety evaluations** for integrated energy storage systems
- Perform **life-cycle cost analysis** (LCCA) of FBES and SCES technologies
- Contribute to the **development of regulatory pathways** for hybrid energy storage integration in maritime transport
- Deliver **environmental impact assessments** (EIA) for demonstrator deployments
- Provide **technical support** for the development and validation of the HyBESS simulation platform
- Support **dissemination activities** and **stakeholder engagement**
- Contribut to the **market-readiness strategy** and exploitation planning