



Battery system concepts for fully electric vessels



INTRODUCTION by the Coordinator

It is my pleasure to address you all in this first newsletter of the SEABAT project. It seemed just yesterday that we proposed a challenging and ambitious new project on reducing the cost for large waterborne batteries; representatives from 15 different partners, crammed into a meeting room, discussing the future of batteries in the maritime sector. Unimaginable today and for many of our team, the last international meeting before Covid hit. And now here we are, almost 2 years later and nearing the completion of the first year of our project. So let me walk you through it.

During our first year, we have completed the first two work packages. WP1 on Market Needs and Regulations and WP2 on Specifications and Requirements, for which you can find the full results on [our website](#).

Our colleagues from Fincantieri SI took the lead in describing the battery market and forecasting critical prices, volumes and energy needs for the **next 5, 10 & 15 years**. Furthermore, a comprehensive overview of **applicable regulations** was presented.

Shortly after, our colleagues from Damen Shipyards took the lead in identifying **promising applications** for SEABAT's Hybrid Energy Storage System and condensed important KPIs to make sure it meets the needs of the industry.

Finally, under the lead of Fundación Centro Tecnológico Soermar, our **Stakeholder group** has been expanded to 20 partners to ensure a large outreach and a representative infeed of information.

As such, the requirements for our solution-to-be are clear, so in the coming time we will focus on the development itself. For the next newsletter, you may expect a clear description about how a Hybrid Energy Storage System for marine applications should look like. Based on modularization, new power electronic concepts and combining different cell types, we aim to drastically reduce the overall lifetime cost.

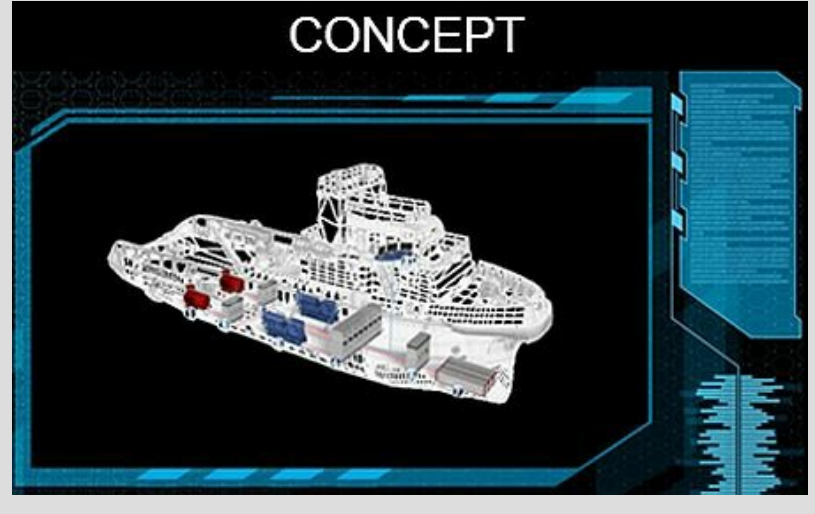
Currently, we are comparing three promising novel architectures to achieve just that. After carefully choosing the right architecture, in agreement with all project partners and stakeholders, we will further develop it into a first prototype. At the same time, a pilot production line will be established to produce the modules for the prototype and to demonstrate the cost savings that can be achieved during production. Finally, our project will move to extensive testing and virtual validation of our solution up to 1MWh.

And with that, I hope to have enthused you all to continue reading our first newsletter and [to keep track of our project](#). Although methods of reaching out have been limited, we are actively participating in as many events as possible such that we can get in touch with you all. We look forward to our further interaction as many interesting things are still to come in this promising project!

Sincerely, Dr. ir. Jeroen Stuyts, SEABAT project coordinator

Project

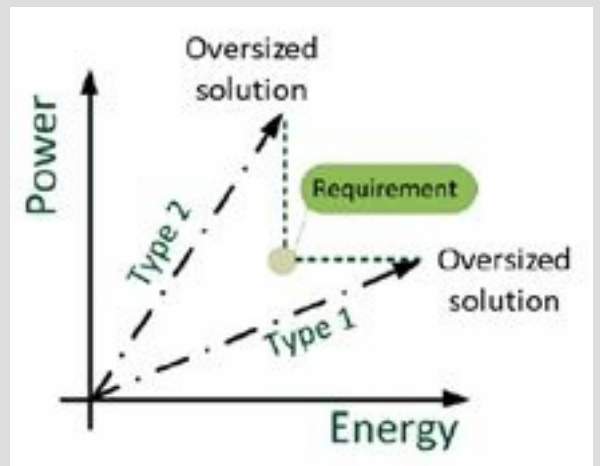
SEABAT will apply a modular approach, with the aim to reduce component costs (battery, converter) so that unique ship designs can profit from economies of scale by using standardised low-cost modular components. In SEABAT existing commercial battery cells will be used, the concept will be suitable for future battery generations and high-power components that may have higher power densities or are based on different chemistries.



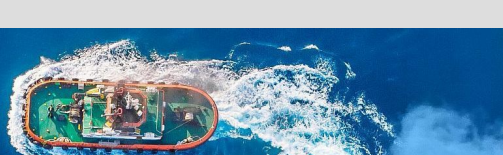
Specifications and requirements

The main objective of the SEABAT project is to develop full-electric Hybrid Energy Storage Systems (HESS) for large marine applications. The so called HESS would be a modular combination of high energy and high power batteries. The modular approach for such a system is important, since modularity can reduce the individual component costs of the battery system (cells, converters, etc.) by introducing profits from large scale manufacturing of standardized low cost components for every unique ship design.

When designing a full-electric ship, the usual approach is to have a single type of battery on-board as the main power source. Depending on the operational conditions of the ship, shipbuilders usually decide upon a single type of battery system. The decided battery system is usually oversized in order to accommodate for a large number of different operating conditions and also to guarantee the required lifetime. [<read more...>](#)



FACTS & FIGURES



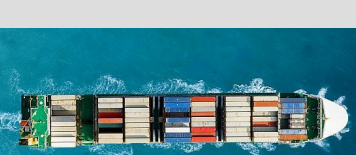
Full title: Solutions for large batteries for Waterborne transport

Funding: 9.58 M€ budget

Consortium: 18 partners from 8 countries

Duration: 4 years from 1-1-2021

SEABAT RESULTS



All public SEABAT reports can be found on the [website](#). When the report contains confidential information a public summary is published.

Some interesting reports:

[Market evolution and potential within 5, 10, 15 years for different marine applications.](#)
[Detailed requirements document.](#)
[Evaluation and selection of architectural concepts.](#)

EUSEW 2021

On 26 October 2021, during the EU Sustainable Energy Week, SEABAT, together with the Current Direct project, participated in an online session to explain how SEABAT aims to reduce the costs of large batteries for waterborne transport. The video's can be found on the homepage of the [SEABAT website](#)



WATTS UP 2022 – 8-9 MARCH 2022 – STAVANGER

WATTS UP Event

on 8/9 March 2022 SEABAT will be presented at the Maritime Battery Forum, where the latest developments on technology, safety and applications for maritime batteries will be shared. For more information and registration follow the [link](#)



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