

We are looking for a master student to work on

Comparison of Shipboard Energy Storage Systems for Maritime Propulsion

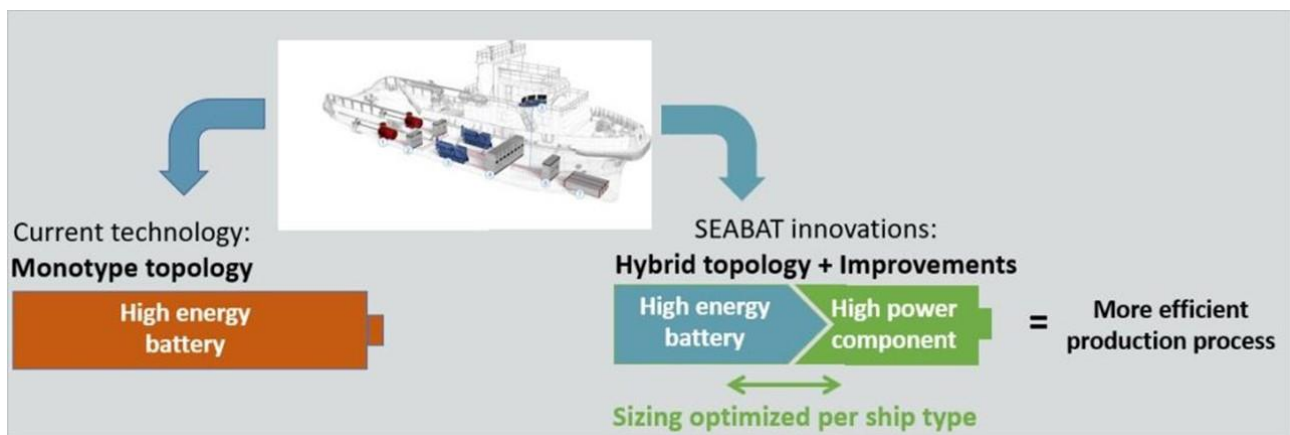
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Background

Electrification is a key technology to reduce maritime emissions. The International Maritime Organization (IMO) wants to reduce annual greenhouse gas (GHG) emissions from maritime transport by 50% by 2050 compared to 2008. Electrification is one of the solutions to reach this target. However, maritime electric propulsion is not yet mature. PoliTO is involved in the research of innovative maritime battery systems with the task of developing power electronics converters to interface the battery systems to the shipboard distribution network.



This work is carried out in the framework of the European Project H2020 SEABAT, with the goal of developing a modular full electric maritime hybrid battery concept to substantially reduce the costs of large waterborne battery systems for over 1MWh: <https://seabat-h2020.eu/>



Your tasks

- Literature survey of shipboard energy storage systems;
- Identification of relevant power electronics topologies to interface the battery to the shipboard distribution network;
- Simulation of 1 MWh battery storage system using the simulation software PLECS/MATLAB.

Necessary skills

- Basics of power electronics (attendance to the Conversione statica course);
- Background of control theory (Bode diagrams, linear controllers).



What you will learn

- To analyze state-of-the-art technical literature (mandatory and requested by the companies producing high level technology);
- Knowledge of shipboard electric systems for electric and hybrid vessels;
- Advanced control of power converters for battery storage systems;
- Simulation skills using PLECS/MATLAB.

Duration of the thesis: 3-6 months

Application

We are looking forward to receiving your application. Please include your CV and a short explanation why you fit the position (Italian or English). Send your application to michele.pastorelli@polito.it and fabio.mandrile@polito.it.