WP4 - Multi-level management systems development

D4.1: BPMS algorithms for modular BESS-version 1 - Public Summary:

The ambition of the NEMOSHIP project is to develop, test and demonstrate innovative technologies, methodologies and guidelines to accelerate large BESS deployment and optimal exploitation toward 2030 on both hybrid and fully electric configurations. To help achieve this ambition, NEMOSHIP will develop a 1 MWh modular and standardised battery energy storage solution that is able to exploit heterogeneous storage units and a cloud-based digital platform to enable data-driven, optimised and safe exploitation. The project will demonstrate the maturity of these innovations at TRL 7 for hybrid ships as well as their adaptability towards fully electric ships.

This report relates to Task 4.1 of the NEMOSHIP project. It focuses on the control of the above-mentioned 1 MWh BESS that will be installed on an offshore vessel from Solstad in 2025. The NEMOSHIP BESS will combine High-Energy and High-Power batteries from Corvus (HE and HP). This deliverable presents the first version of the algorithm developed within the project to ensure optimal power balancing between the HE and HP batteries. The tool can split a power profile into two with one output corresponding to the power that the energy battery should deliver, and the second output to the power of the power battery. The tool relies on an exponential filter and is further described in this report.

An improved version of the control algorithm will be presented in deliverable D4.2. The final version of the algorithm will be embarked onto the Solstad demonstration vessel in 2025.

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