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Sat-Mo-Po.09-10: Design, manufacturing and test of the MgB2 coil for the Hybrid Energy Storage System in the V-Access project.

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The V-ACCESS (Vessel Advanced Clustered and Coordinated Energy Storage Systems) project brings together expertise on supercapacitors, superconductive magnetic energy storage systems (SMES), design and control of shipboard power systems, power electronics, lifetime cycle analysis, and ship classification to increase the technology readiness level (TRL) of hybrid storage systems, i.e. combining a battery with either supercapacitors, SMES, or both.

The proposed technologies (SMES and supercapacitor) will be analysed from the component levels, already tested and validated at TRL3, and modelled into the vessel's power system. Different use cases have been considered to evaluate pro and cons of the HESS implementation in terms of costs, weight and volume.

Business models and standardisation needs will be deeply analysed and measures to unlock existing barriers and will be promoted in parallel to the technical knowledge generated from the project to ensure further exploitation of the project results and the definition of the steps to upscale the design of the V-ACCESS system. This will pave the ground for a full-scale demonstrator to be developed after the end of this project and bringing the proposed technologies closer to market.

In this work, the main topics of the project and the results of the use cases analysed will be explained, together with an update of activities related to the design, manufacturing and test of the MgB2 coil. Technical specifications of the power electronics for the DEMO activities will be also discussed.

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