WP10 - Project and data management

D10.3: First period Data Management Plan - Public Summary:

This report was developed as part of the Project and Data Management Work Package (WP) of the NEMOSHIP project. It corresponds to deliverable D10.3 and provides an updated version of the Data Management Plan (DMP) for the project.

A DMP is a formal document outlining how to obtain, document, analyse, and use data both during the project and after the project is complete. It describes in detail the methods and processes for creating, providing, maintaining, storing and protecting data.

The present report addresses each question from the Horizon Europe Data Management Template (version 1.1 – 01/04/2022) - this template follows the FAIR principles, which aim to make the data Findable, Accessible, Interoperable and Reusable.

More specifically, the present DMP addresses the following elements:

- Description of the data re-used or generated by the project (Section 2);

- Application of FAIR principles (Section 3);

- Other research outputs (Section 4);

- Exploitation topics: resources, security, preservation (Section 5).

Research data management aspects of the NEMOSHIP project are managed by the Project Coordinator, CEA, with the support of the consortium.

A key output of the project will be the development of a digital platform as well as algorithms for design and management strategies to ensure an optimal and safe exploitation of battery energy storage systems (BESS); these are being built in WP2 and WP4. This platform and the algorithms will take advantage of the large amount of data coming from previously installed BESS and above all from both Ponant and Solstad demonstration vessels (WP5 and WP6).

The platform is currently in development.

In terms of data flow and interoperability, this digital platform cloud repository is composed of multiple adapter modules that collect data exported by onboard, onshore, and other third-party applications into a cloud repository. Digital platform input user interface is also available to collect key input parameters and configure the digital twin simulation. The input user interface will also be used to import onboard data that is not available in the cloud and transmit it to the digital platform cloud repository. All this data is then processed and filtered by AI algorithms to be passed to a digital twin simulation.

The results of the simulations are then transmitted back to the vessel through an output user interface. The digital platform will enable improved efficiency, better decision-making, and provide a visual output to ensure the results are easily communicated. The present version of this deliverable provides an overview of the data available as of mid-2024 as well as data that will be shared/collected in the future.

In terms of re-used data, project partners Solstad, Corvus Energy and Ponant have provided several years of data relating to installation and operation of battery systems on vessels. Such data have been used to for example, develop lessons learnt, identify typical risks and how BESS operations could be optimised (D1.1 and 1.3); they have also been used to size the battery system (D3.1). The NEMOSHIP project will

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generate a significant amount of new data and research outputs, mainly in 2025 and 2026, through the two demonstration work packages among others.

These outputs/data are expected to consist mainly of experimental test results, operational data, numerical calculations and text and figures interpreting the results. In terms of storing and sharing, new data will be saved on an internal project repository (for example, SharePoint) and/or in the cloud repository of the digital platform. One full task of WP2 (T2.3) which is ongoing is related to the implementation of a cybersecured cloud infrastructure – this latter shall have industry-standard cyber security capabilities. Part of these data are being and will be made available publicly, for example, via analysis described in the non-sensitive project deliverables or published papers.

These will be published for example, on the project website, journal websites in open-access and/or on repository such as Zenodo. Sharing of data and results has already started for example, of the public deliverables on NEMOSHIP website and in a journal paper published earlier in 2024.

The consortium will keep discussing the sharing of data and an update will be provided in the next edition of this DMP in 2025.