WP5 - Modular 1.5 MWh BESS demonstration and optimisation for the Solstad retrofitted hybrid vessel

D5.1: Report on installation plans for the new 1 MWh modular BESS - Public Summary:

Task 5.1 titled “Development of the installation plans for the newly developed 1 MWh Battery Energy Storage System (BESS)” is one of the four tasks in WP5 - Modular 1.5 MWh BESS demonstration and optimisation for the Solstad retrofitted hybrid vessel.

The aim of Task 5.1 is to develop safe, cost-efficient and in-time installation plans for the 1 MWh NEMOSHIP BESS on Solstad demonstration vessel, Normand Drott (ND). ND is an Anchor Handling Tug Supply (AHTS) vessel for offshore oil and gas platforms and was built in 2010. The NEMOSHIP BESS is made of two types of batteries: high-energy (HE) and high-power (HP). To the consortium knowledge, it is the first time that such a BESS will be retrofitted on an AHTS in Norway.

The present report provides details on the NEMOSHIP and non-NEMOSHIP stakeholders involved in the new 1 MWh BESS installation, their responsibilities and the timeline for their activities. The report also highlights the main challenges and ways to mitigate them.

In terms of timeline, the 1 MWh BESS installation and commissioning on ND has been planned for May to June 2025 when ND will undertake its main class renewal activities. ND will be at dry dock for repairs and several major activities including the installation of the NEMOSHIP BESS. Afterwards, a week at the quay is planned for testing, commissioning and DNV acceptance.

In terms of external stakeholders, the system integrator, ship designer, shipyard and classification society have been identified and work has been ongoing since earlier in 2024 with these external stakeholders.

Within NEMOSHIP, Solstad is the owner of the demonstration vessel and has the overall responsibility for the 1 MWh BESS installation and tests/acceptance. Corvus will deliver the BESS container for installation onboard ND (WP3). It is planned to install the BESS in a fuel tank of the vessel rather than on deck which has high value for an AHTS; the Corvus container had to be customized to fit the space and configuration of the AHTS. Elkon is working with CEA for the provision of the Battery Power Management System (BPMS) which will compute an optimal power balancing between the HE and HP storage units of the container (WP4).

The main risks/challenges identified so far are related to safety/DNV approvals, cost increases, and risks of delaying the tight installation schedule. These have been monitored and mitigated by NEMOSHIP partners since the start of the work.

Once installed, a test and evaluation programme lasting more than one year will kick-off; results, lessons learnt and transferability to other regions/sectors will be addressed in deliverables released towards the end of the NEMOSHIP project.

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